

von Reden, Sitta (Ed.)

Book — Published Version

Handbook of ancient Afro-Eurasian economies. Volume 2: Local, regional, and imperial economies

Provided in Cooperation with:

De Gruyter

Suggested Citation: von Reden, Sitta (Ed.) (2022) : Handbook of ancient Afro-Eurasian economies. Volume 2: Local, regional, and imperial economies, ISBN 978-3-11-060764-2, De Gruyter Oldenbourg, Berlin, <https://doi.org/10.1515/9783110607642>

This Version is available at:

<https://hdl.handle.net/10419/270831>

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REFERENCE

HANDBOOK OF ANCIENT AFRO-EURASIAN ECONOMIES

Edited by Sitta von Reden

VOLUME 2: LOCAL, REGIONAL, AND IMPERIAL ECONOMIES

A landscape painting showing a wide valley with a river winding through it. In the foreground, there are rolling hills with a small settlement of several buildings. The background features distant, hazy mountains under a pale sky. The style is reminiscent of classical or early modern landscape art.

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Sitta von Reden (ed.)

Handbook of Ancient Afro-Eurasian Economies

Volume 2: Local, Regional, and Imperial Economies

Handbook of Ancient Afro-Eurasian Economies

Volume 2: Local, Regional, and Imperial Economies

Edited by
Sitta von Reden

In cooperation with
Lara Fabian and Eli J. S. Weaverdyck

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European Research Council
Established by the European Commission

This project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (grant agreement No 742645).

ISBN 978-3-11-060452-8

e-ISBN (PDF) 978-3-11-060764-2

e-ISBN (EPUB) 978-3-11-060493-1

DOI <https://doi.org/10.1515/9783110607642>



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Library of Congress Control Number: 2021943982

Bibliographic information published by the Deutsche Nationalbibliothek

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available on the Internet at <http://dnb.dnb.de>.

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This book is published with open access at www.degruyter.com.

Cover illustration: "Sanctuaries and Citadels" by Nicholas Roerich (1925), Roerich Museum (New York) © Bridgeman Images (Berlin).

Typesetting: Meta Systems Publishing & Printservices GmbH, Wustermark

Print and binding: CPI books GmbH, Leck

www.degruyter.com

Acknowledgements

This handbook is based on the interdisciplinary research project “Beyond the Silk Road: Economic Development, Frontier-Zones, and Inter-Imperiality in the Afro-Eurasian World Region (300 BCE to 300 CE),” and made possible through the award of an Advanced Grant by the European Research Council from 2017 to 2022 (ERC-ADG 742645). Further particulars about our research can be found on our website www.basar.uni-freiburg.de. We wish to thank the European Research Council for their financial support and helpful comments on interim reports of this project. We are also grateful to Kasper Grønlund Evers, Copenhagen, Enno Giele and Maxim Korolkov, both University of Heidelberg, Rachel Mairs, University of Reading, Suchandra Ghosh, University of Hyderabad, Armin Selbitschka, Ludwig-Maximilian University, Munich, Christopher Schliephake, University of Augsburg, Michael Speidel, University of Zurich, Sören Stark, Institute for the Study of the Ancient World, New York, and Miguel John Versluys, Leiden University for their contribution and encouragement at various stages in the preparation of this volume.

Special thanks go to Alison Weaverdyck and Özlem Sarica who corrected the English of the non-native speakers. Marco Ferrario and Simon Schall have been our junior assistants during the research for this volume, while Leonie Anders, Deidre Klokow, Özlem Sarica and Quill Kukuj have helped to prepare the manuscript for publication. We also thank Claudia Heyer at de Gruyter Press for her patience and advice in all editorial matters.

*Lara Fabian
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List of Contributors

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Lauren Morris is an archaeologist concerned with the urban archaeology, numismatics, and history of pre-Islamic Central Asia, especially under the Kushans. First studying at the University of Sydney, she wrote her doctoral dissertation on the Begram hoard (Afghanistan) at Ludwig-Maximilian University, Munich, defended in 2017. She joined the BaSaR project in October 2017.

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Sitta von Reden is Professor of Ancient History at the University of Freiburg. Her research concentrates on classical Greek and Hellenistic history with special emphasis on Egypt. She has widely published on Greek and Roman economic history, including *Money in Ptolemaic Egypt* (CUP 2007), *Money in Classical Antiquity* (CUP 2010), and *Die Antike Wirtschaft* (de Gruyter 2015). A comparative history of Hellenistic Empires, edited with C. Fisher-Bovet, was published by Cambridge University Press in 2021. She is the Principal Investigator of the BaSaR project.

Eli J. S. Weaverdyck is an archaeologist and historian of ancient Rome with research interests in economic history, landscape archaeology, the social history of the Roman army, and spatial analysis methods. He earned his Ph.D. from the University of California, Berkeley, in 2016 with a dissertation titled “Isolation or Integration? A Spatial Analytical Approach to the Local Impact of the Roman Army on the Northern Frontier.” He joined the BaSaR project in September 2017.

Transliteration and Orthography

In developing standards for orthography and transliteration for this volume, we have tried to strike a balance between readability and consistency, while also preserving standard practices in the diverse disciplines from which the research emerges.

For Chinese, Hanyu pinyin is used, with texts transliterated according to other systems standardized according to this system. For Indic languages, the conventions of the *International Alphabet for Sanskrit Transliteration* have been used, and diacritics retained. Modern place names within the South Asian region, however, have been rendered without diacritics, following conventional English-language spellings (thus Sanchi rather than Sāñcī). Cyrillic names and terms are transcribed according to the widely used modified ALA-LC Romanization system without diacritics (e.g., piatichlenka instead of pīatichlenka).

Personal names, toponyms, and terminology from the ancient world are generally rendered in forms that preserve their original orthography as much as possible (e.g., Antiocheia rather than Antioch; Dionysos instead of Dionysus). However, in cases where a word has a generally accepted English spelling, we have followed that convention (Carthage rather than Karthago; Cyrene rather than Kyrene). We have also allowed multiple spellings of certain names and terms, where cross-disciplinary consistency clashed with disciplinary conventions. Thus, we kept Śaka alongside Saka and Kuṣāṇa alongside Kushan.

Abbreviations

Ancient literary works from the Greek and Latin corpora are cited in full upon first reference, and then abbreviated according to the conventions of the *Oxford Classical Dictionary*, third edition. Corpora of epigraphic and numismatic evidence are abbreviated using the same conventions. Papyri, ostraca and tablets are cited according to the *Checklist of Greek, Latin, Demotic and Coptic papyri, ostraca and tablets* (<https://papyri.info/docs/checklist>).

Ancient transmitted works from the Chinese tradition are cited according to Sino-logical norms, such that *Shiji* 15.685 refers to *Shiji* chapter 15, page 685 in the *Zhonghua shuju* edition. These sources are listed under the title of the work in chapter bibliographies.

Sitta von Reden

Introduction to the Second Volume

The second volume of this handbook surveys economic structures and developments that allowed resources, goods, and capital to concentrate in hubs of exchange and to spread across the Afro-Eurasian world region. The greater spread of goods and resources is well attested in our textual and archaeological evidence: by the first century CE, large amounts of precious textiles, stones, pearls and animal products, spices and unguents, but also live animals, people, and foodstuffs moved between China, the Asian steppe, India, Iran, and western Asia, as they did along the maritime routes along the China Seas, the Indian Ocean, Red Sea, and Mediterranean. Since the influential work of the geographer Ferdinand von Richthofen (1833–1905), these movements have been fathomed in terms of Silk Road trade. Yet despite its popular and academic appeal, Richthofen's Silk Road is a simplified version of the economic connections that spanned the Afro-Eurasian region. Subsequent scholarship has qualified the notion of Silk Road trade, new texts and archaeological evidence have come to light, and many valuable studies have improved our knowledge of particular segments of the maritime and transcontinental routes. Yet the anatomies of the very different economies that contributed to the long-distance movement of goods have never been brought into interdisciplinary dialogue, nor has the concept of Silk Road trade been seriously questioned. This volume aims to do the former, while the latter is reserved for the third volume of this handbook.

Over the last generation, economic history, archaeology, and anthropology have seen large amounts of theoretical work, which has refined our understanding of economic development in vastly different social, political, and ecological settings. The specific nature of ancient states and empires has also been intensely discussed both theoretically and in a comparative historical perspective.¹ These discussions have led to a better understanding of the differences between empires and territorially bounded, politically and economically more strongly integrated nation states. We define empires as “territorially extensive, multi ethnic, or composite political spaces with variable degrees of political integration and ideological penetration.”² The particular nature of empires has important implications for approaches to the economies that developed within and across these empires.³ The chapters of this volume use globalization and network theory in order to develop models of explana-

¹ See von Reden, vol. 1, 1–10, and the long-awaited two-volume handbook edited by Bang, Bayly and Scheidel 2021, which appeared just days before this volume went into press.

² Von Reden, vol. 1, 13.

³ Haldon 2021 for a succinct and helpful discussion; further literature in von Reden, ch. 2, this volume.

tion that are suitable for research on economic connectivity at a global, Afro-Eurasian scale.

The two opening chapters situate our analyses within wider debates on ancient globalization and economic history. As these debates have developed largely independently of each other, we draw out some common ground by asking how the concepts of globalization theory can be brought to bear on the economic history of empires. We argue for the dissolution of unhelpful distinctions between local, regional and imperial economic contexts, as these contexts are much better described as connected dimensions of economic activity, even at their local and inter-imperial extremes. The title of this volume is thus programmatic. As the chapters of his volume show, much of our evidence is local in origin. From evidence of tax collection and royal orders to archaeological remains, coin hoards, and excavated texts, our testimonies are snapshots of local activity and practice. Yet we derive from them, and they were part of, economic patterns and relationships that had multiple dimensions and scales. In order to globalize ancient economies, we need to get away from the reification of economic contexts, and establish new analytical units within which we can understand the multiplicity of dimensions and scales of economic activity.

Network approaches have received increasing attention in recent research, both within globalization theory and research on ancient economies. In the chapters of parts I–III of this volume, we use network approaches in two ways. First, they provide a useful terminology for describing multipolar relationships whose function cannot be reduced to a single economic, social, or political purpose. At a more fundamental level, we adopt network approaches in order to suggest new avenues for exploring economic activity and connectivity in the ways they unfold over spaces and landscapes of different scale. Our investigation is divided into ‘actors’ and ‘tools’ that stimulated extraction, concentration, and circulation through consumption, production, and exchange. As actors we define the overlapping categories of cities, rulers and their courts, local elites, armies, temples, households, and various types of producers. These actors deployed or acted upon certain tools of extraction, concentration, and circulation: Fiscal regimes and institutions, money and credit, law, infrastructures, technologies, and various standardization practices, such as administrative languages, scripts, weights, and measures. Through these broad categories of analysis, we hope to explain different kinds and scales of economic development across the Afro-Eurasian space without underserving regions that have left notoriously difficult evidence. In the final part of the volume, we bring together actors and tools in order to explore how they formed and transformed economic processes over time.

The great challenge of research on imperial economies is how to divide the spaces that were controlled by different actors and changed affiliation to different imperial centers over time. As in volume one of this handbook, we have decided to adhere to disciplinary dividing lines, as the evidence that needs to be considered

requires special disciplinary expertise. We have made an exception regarding the Eastern Mediterranean and the Near East, an imperial space whose actors and tools show enough imperial continuity to be treated in one collaborative chapter across the Hellenistic and Roman periods. Some parts of this space fell under Arsakid control in the second half of the second century BCE, which led to some changes in the nature of economic actors and tools. We have also divided the final chapters on economic processes in this space, as these processes started to change significantly in the course of the Roman period, despite certain continuities in the nature of economic actors and tools.

The chapters of this volume were written in fruitful dialogue made possible by daily conversations in a shared workspace, until the pandemic struck. In digital meetings, we continued our conversations in order to sharpen concepts and shared themes. But we have deliberately avoided uniform structures for the chapters, in order to leave sufficient flexibility to respond to historical variation, different kinds of evidence, and different intensities of research that particular themes have received in disciplinary scholarship. The result is a collection of chapters that invite comparison, but do not exercise comparison themselves. Most importantly, they provide the backdrop of the discussions of inter-imperial frontier zones that will be the central theme of the third volume of this handbook.

References

- Bang, P. F., C. A. Bayly, and W. Scheidel (eds.), 2021, *The Oxford world history of empires*. 2 vols. Oxford: Oxford University Press.
- Haldon, J. F. 2021. "The political economy of empire: "Imperial capital" and the formation of central and regional elites." In Bang, Bayly, and Scheidel (2021), vol. 1, 179–202.



Preludes

Milinda Hoo

1 Globalization beyond the Silk Road: Writing Global History of Ancient Economies

I Introduction: ‘The Global’

Ideas about premodern globalization are easily conjured when thinking about connectivity and economic development across the territories of ancient empires. Indeed, globalization has immense rhetorical power. According to evocative usage of the term, this three-volume handbook speaks to the imagination of ‘the global’ in various ways. It can be considered global in its geographical scope, spanning the vast masses of land and water of Afro-Eurasia. It can also be termed global in its temporal scope, examining 600 years of economic development across several conventional periods. In scholarship, too, these volumes have a global character, with its execution by scholars from different parts of the globe, some with global biographies, who not only work with a plethora of evidence from widely distributed regions, but also with the legacy of various historiographical traditions that developed across the globe. In all of the above, ‘global’ seems to be a convenient word that creates a powerful impression – surely, a global one – of the breadth, expansion, and immense scale of the topic and undertaking of this handbook, to the level of common wisdom. Indeed, globalization and related lexical constructions such as ‘globalism,’ ‘global connections,’ ‘global processes,’ and ‘global-local interactions,’ have become rhetorical tropes in recent practices of ancient history, in particular with regards to ‘Silk Road history.’ But some reflection on this common wisdom of the global is necessary. How global is global? What does it mean to write global history of ancient economies? How does this relate to globalization and in what way can globalization help to advance modern sense-making of ancient economies?

In assessing these questions, this chapter has two related aims. The first is to provide the theoretical context of globalization, engaging with the historiography of global writing and globalization research. Despite the increasing ubiquity of globalization rhetoric in historical studies, there is a persistent “collective unwillingness to think”¹ about what exactly constitutes globalization. Different usage abounds, with different meanings and different interpretive implications, but often without adequate engagement with the vast swathes of globalization literature.² The

1 Osterhammel and Petersson 2005, 2.

2 Important exceptions are, e.g., Pitts 2008; Hodos 2010; Versluys 2013; Vlassopoulos 2013. Additionally, theoretical engagements with globalization literature in the recent publications of Pitts and Versluys 2015; Hodos 2016; Versluys 2017; Boivin and Frachetti 2018 indicate an important change. See also the critique in Hoo 2020, 47.

second aim of this chapter, then, is to clarify what it means to write global history of ancient economies and to propose the way in which globalization may help to “globalize ancient history.”³ To these aims, I will disentangle major paradigms and paradoxes about globalization, by answering a number of questions that attend the obscurity and scepticism around the term. These are divided into questions of domain; time and space; integration and homogeneity; centrality and power; and finally, the question of inquiry. Rather than throwing the baby away with the bathwater, this chapter serves the argument that globalization is useful, not as a model that (pre)defines bodies of evidence as empirical proof of ancient globalization, but rather as a perspective – as an analytical prism that sheds light on the economic range of Afro-Eurasian connectivity, beyond the notion of the Silk Road.

II The Question of Domain

Although often used in the same breath,⁴ it is important to analytically distinguish world history from the history of globalization and from globalizing historical studies. The differences between these have much to do with their domains of research. World history, globalization history, and global history, as considered here, are three different intellectual endeavors, though with overlap and commonalities evocative of the global as described above.

II.1 World History

The first, world history (*Weltgeschichte*) in its broadest sense is a form of history writing focused on placing local experiences in a larger world context.⁵ Although world history has been practiced with diverse aims throughout time, interest in this larger context has rarely been neutral, but was rather embedded in particular (often geopolitical) power structures. Herodotos of Halikarnassos may be considered an early world historian, well-known for his sometimes fantastic ethnographies of the barbarian as a contextual, ideologically glossed prelude to the actual topic of his *Histories*, the Graeco-Persian wars in the fifth century BCE.⁶ Likewise, Sima Qian’s

³ Von Reden, vol. 1, Introduction, 1.

⁴ E.g., Sven Beckert and Sachsenmaier 2018, 1.

⁵ Universal history (*Universalgeschichte*) is treated here as part of world history. It should be noted that world history is diversely interpreted and its domain of inquiry has therefore been subject to changes and developments; see for discussion Manning 2003; 2005; J. H. Bentley 2011; M. Bentley 2011. This section in particular pertains to the origins of world history as an institutionalized field.

⁶ The literature on how his inquiry is framed by ethnographic interests is extensive. See Bakker, de Jong, and van Wees 2002 with bibliography.

Shiji consists of an accumulative history of ancient times to his present day (the second century BCE), including ethnic geographies of regions well beyond the Han empire from a distinct Sinocentric perspective.⁷ The domain of world history did not merely pertain to wider contexts of local experiences, but specifically bore on the study and ordering of foreign societies in the world to carve out and elevate one's own. Its area of interest was situated in *other* societies, those that were considered (and analyzed) as distant from one's own, be it economically, politically, culturally, or morally (though often a combination of all of the above). Practices of world history moreover tended to the premise that societies are orderly and distinct, allowing analytical compartmentalization of world areas and their respective civilizational histories: Chinese history, Egyptian history, and Indian history would each emerge from their contained geographical areas.

It is not surprising that world history, as such, became institutionalized as a professional field of scholarship in nineteenth-century Europe with the emergence of, and massive investment in the nation state as the dominant form of government.⁸ The field's professionalization through the intellectual efforts by great scholars such as Leopold von Ranke (1795–1886) established the systematic use of conceptual tools to understand the past. These tools were innately linked to interests in and of nation states and national communities from a distinct Eurocentric perspective, oriented toward a past that implicitly befitted modern ideologies.⁹ As a result, societies and peoples were methodologically conceptualized as integrated nation states, while historical inquiry and the ensuing production of area-specific historical knowledge were subject to “racial and cultural stereotyping of parts of the world that did not fit into the Western political order.”¹⁰ Although world history changed and broadened its course toward new directions and agendas (“new world history”),¹¹ particularly from the 1980s onward, it is analytically relevant here to keep in mind the field's foundational methods and modes of thought.¹² Comparative research remains a core method of world history, as reflected in Peter Bang, Christopher Bayly, and Walter Scheidel's recent volumes of *The Oxford World History of Empire*.¹³ In a traditional world history analysis, then, focused on civilizations and

7 Particularly with regards to the Xiongnu; see Di Cosmo 2002, 161–311; Pines 2005; Di Cosmo 2010. See also Leese-Messing, vol. 1, ch. 12.A.

8 J. H. Bentley 2011; M. Bentley 2011.

9 See J. H. Bentley 2005 for discussion.

10 M. Bentley 2011, 22.

11 World history has experienced a radical shift away from Eurocentric and nationalist history, and has therefore been designated as “new world history.” New world history, as defined by J. H. Bentley 2002; 2011, subsumes global history as outlined in this chapter. For typology of trends within world history, including global history, see M. Bentley 2011.

12 I follow here Osterhammel and Petersson 2005, 19 to retain an analytical distinction between world history and global history. See also Mazlish 1998.

13 Bang, Bayly, and Scheidel 2021a; 2021b.

their internal dynamics, ancient economies risk to be heuristically shaped as spatially contained units defined by the political borders of empires, while information about economic activities would primarily be generated from analyzing imperial states (particularly those considered Western, i.e., the Hellenistic and Roman empires) as the principal agents of historical change.¹⁴ While making states the central unit of historical analysis can invite rigorous comparison of world areas, comparative container history is precisely what this volume does not set out to do.

II.2 Globalization History

The second field that refers to the global is globalization history. Although it can be recognized as a scholarly field on its own, globalization history is not commonly institutionalized as a distinct discipline.¹⁵ While the practices of world history have a long pedigree stretching back to antiquity, those of globalization history are fairly recent, following the global turn of the 1990s. The accelerating immediacy and social awareness of widespread effects of globalization on modern-day life was coupled with an exponential rise of new interest in the subject of globalization, first by economists, political scientists, and sociologists, followed later by historians in the early 2000s. Practices of globalization history therefore stem from a particular modern episteme. Rather than distinct world areas, the research object of globalization history is globalization of the world itself: globalization history equals the history of globalization.

Much ink has been spilled about the precise definition of globalization in debates taking place in and across multiple disciplines, from sociology and economics to geography and cultural studies.¹⁶ Indeed, a profuse number of definitions is in circulation, ranging from globalization as a capitalist economic project, to globalization being a state of internationally shared economic and political conditions.¹⁷ From the perspective of historical studies, however, it can be said that globalization history subsumes two definitions. The first defines globalization as an empirical phenomenon; the second posits globalization as a historical process or a set of processes. Both definitions generally link globalization to expanded and intensified connectivities and interactions between distant localities, but the ways in which globalization is operationalized as a research object can be quite disparate. While many social scientific studies examine globalization as a modern phenomenon – as

¹⁴ See the overview by von Reden and Speidel, vol. 1, ch. 17.

¹⁵ Instead, it is practiced across a number of disciplines, including world history, modern history, premodern history, ancient history, archaeology, anthropology, and cultural studies.

¹⁶ For good assessments that grasp major trends within these debates, see Held and McGrew 2000; Steger 2003; McGrew 2007; Robinson 2007; Osterhammel 2011.

¹⁷ For a concise analytical overview of definitions, see Nederveen Pieterse 2009, 16–18.

a consequence of modernity or a condition for modernity¹⁸ – historians and anthropologists approach globalization as a longer-term process (or a set of processes) of accelerating worldwide relations that developed over time.¹⁹ Pertaining to both definitions, globalization history can be considered as the study of markers of globalization as a historical phenomenon, by tracing developments of these markers back to their origins (whether in the modern, premodern, or ancient past), and/or determining the existence of globalization markers in distinct periods before modernity, focusing on moments of globalization (whether these are part of a linear process toward modern globalization, or occurring transversely throughout time). Earlier ancient-historical studies have fruitfully engaged with globalization history; key among them are Øystein LaBianca and Sandra Scham's *Connectivity in antiquity: Globalization as a long-term historical process*, Justin Jennings's *Globalizations and the ancient world*, Martin Pitt and Miguel John Versluys's *Globalisation and the Roman World*, and Tamar Hodos's *Routledge Handbook of Archaeology and Globalization*.²⁰ These studies have successfully argued that globalization neither requires a planetary scale nor condition(s) of modernity, but that the term is best understood as a multidimensional and multiscale set of processes of increasing connectivities between distant localities. Although sharing significant analytical terrain with globalization history, it is not the intention of this three-volume handbook to assess ancient economies along criteria of globalization markers in order to substantiate evidence for globalization in antiquity. Furthermore, without firmly denying the existence of ancient globalization, this handbook also does not contend that increasing economic connections within and between distant places across the Afro-Eurasian space were precursors in a deep historical process of modern globalization. Although the research object of these volumes is connectivity, it is not within the domain of globalization history that this handbook is operationalized.

II.3 Global History

This brings us to global history which is the key to globalizing historical studies, as this chapter will further explain. Although semantically and analytically resonant with the fields of world history and globalization history, it is useful to distinguish

18 For globalization as a consequence of modernity, see Giddens 1990; for globalization as a condition for modernity, see for instance Harvey 1989; Robertson 1992; Tomlinson 1999.

19 For pioneering historical studies on globalization, see especially Manning 1996; Hopkins 2002; Bordo, Taylor, and Williamson 2003; Bayly 2004; Osterhammel and Petersson 2005; Gills and Thompson 2006; Chanda 2007.

20 LaBianca and Scham 2006; Jennings 2011; Pitts and Versluys 2015; Hodos 2016. See also Seland 2008; Hall, Kardulias, and Chase-Dunn 2011; Malkin 2011; Versluys 2013; Vlassopoulos 2013; Kardulias 2014; Boivin and Frachetti 2018.

global history in two respects.²¹ First, rather than studying and comparing world regions as separate, demarcated societies or civilizations that are largely shaped by internal factors, global history takes connectivity, interactions, and exchanges as its points of departure. Global history conceptually approaches areas as related and open parts of the same world, without assigning analytical privilege to one space over the other, and without claims to total integration or total entanglement. Accordingly, rather than focusing on comparisons of autonomous economic processes within distinct world areas and asserting their uniqueness, the volumes of this handbook transcend container history by examining Afro-Eurasia as a macroregion structured by connectivities of various natures and degrees and with diverse consequences that foster heterogeneity in economic developments. It will show that some spaces are arguably more densely or sustainably connected than others, patterned by regional and local circumstances.

Second, whereas globalization history focuses on global connectivity as a historical phenomenon, assessing the origins and developments of globalization, global history's domain of inquiry tends to the contexts and effects of connectivity toward the global, taking connectivity as loose starting point, rather than an outcome. Although these domains can overlap significantly in practice, as also within this handbook, the distinction is relevant for the analysis here.²² I follow global historian Sebastian Conrad, who convincingly argues that global history should primarily be seen as an analytical perspective on connectivity, one that sheds light on its impacts and consequences, while globalization history is a historical inquiry into distinct connectivity (namely, as globalization) that examines its causes and origins.²³ Whereas globalization history is more distinctly defined by its research object (connectivity as globalization), global history is mainly defined by its research method (a global perspective on connectivity).

In summary, while all three fields pertain to 'the global,' the ways in which this is operationalized in their respective domains of inquiry varies. The research object of world history is world areas; that of globalization history is globalization; while that of global history is connectivity toward the global, concentrated on applying a particular global perspective. Despite this analytical distinction, there is an intimate methodological dialogue between global history and globalization history. On the one hand, global history equals global thinking and global thinking is necessary for globalization history; all globalization history can therefore be considered as part of global history writing.²⁴ On the other hand, I argue that concepts and methods

²¹ The distinction made here serves an analytical purpose. I should emphasize that, in practice, the three fields can overlap considerably. Global history is now subsumed in practices of world history at large (J. H. Bentley 2002; Conrad and Eckert 2007; Conrad 2016).

²² For a combined approach, see, e.g., Pitts and Versluys 2015.

²³ Conrad 2016, 92; see also Osterhammel 2011, 93–95; Hoo 2020.

²⁴ Osterhammel 2011, 95; Conrad 2016, 92.

used in wider globalization scholarship (which includes globalization history) are particularly helpful in developing methodological strategies to write global history. Thus, while this handbook is written within the domain of global history, it is the engagement with the toolbox of globalization *theories*, developed in globalization research, that grants appropriate methodological tools to think about, investigate, and better understand Afro-Eurasian imperial connectivities and their economic consequences in terms of changing dynamics of consumption, production, and exchange.²⁵ What follows now is an explicit engagement with globalization research, addressing and clarifying common paradigms and paradoxes, before drawing out what precisely globalization theory can mean for writing global history of ancient economies.

III The Question of Time and Space

If the research object of global history is connectivity toward the global, how should this then be defined in terms of time and space? While the issues of the chronology and scale of globalization are particularly pertinent within the domain of globalization history, global history accounts for neither the roots nor the spatial threshold of globalization. Instead, global history concentrates on the contexts and impacts of *increasing* connectivity. Nevertheless, it is important to touch upon these significant debates within globalization research, before continuing onward.

The term globalization is almost rhetorically associated with planetary globality and industrialized society of modern times, which has made many a historian wary of globalization and its theoretical toolbox for ancient times.²⁶ The objection is understandable: processes in antiquity did not operate on the same geographical scale as in our contemporary “network society,”²⁷ in which dimensions of time and space have become profoundly compressed through very modern technologies such as the internet, smartphones, social media, train and airline travel, and electronic payment. This is what David Harvey, along with other globalization thinkers, has coined as time-space compression: the other side of the planet is easily ‘reached’ in a matter of clicks, swipes, calls, or physical high-speed travel, through which far-away things such as news, food, fashion, entertainment, company stocks, knowledge, ideas, institutions, and architecture, but also distant conflict, revolutionary movements, pollution, labor, and disease can be shared, experienced, spread, coordinated, and/or acted upon from up close, locally.²⁸ The local

²⁵ Globalization theory is not a grand unified theory, but it encompasses numerous disagreements, controversies, and muddled consensus.

²⁶ For critical voices, see Rosenberg 2000; 2005; Naerebout 2006; Ball 2015, 251.

²⁷ The term ‘network society’ has been coined by Castells 1996.

²⁸ Harvey 1990. See also Giddens 1990, 16–17; Robertson 1992, 8; Bauman 2000, 8–11.

experience of distant things in increasingly compressed (reduced) amounts of time, is formed through a range of complex interdependencies across vast geographical spaces, which on first sight might not seem directly related to the localities in question. These interdependences emerge from intensified interactions by and via humans, objects, ideas, and technologies, which variously move and migrate across diverse communication networks. Although not everyone is a ‘mover,’ these interdependencies still impact and reach into the lives of ‘stayers,’ of the people who stay put, particularly in the ways they experience, structure, and coordinate social relations.²⁹

Despite that our contemporary experience with globalization processes is very much defined by modern technologies, the efforts of an increasing number of historians and archaeologists show that contexts and experiences of time-space compression resulting from intense connectivity are neither confined nor exclusive to modernity.³⁰ Though many scholars are wary of ancient globalization, it is hard to deny that complex connectivities had been developed in human history before the twentieth century, affecting people’s local experiences of time and space in various ways, without the full-fledged integration of the whole planet. This acknowledgement makes theoretical observations, concepts, and concerns raised in globalization research also relevant for the analysis of ancient economic behavior in the time and space under review in this book. The Roman Empire, for instance, provides us with a sense of how ancient intensified connectivities could unfold with local, regional, and distant impacts. Here, as Weaverdyck (ch. 12.C) will elucidate, diverse existing, novel, and aspiring elites in different parts of the imperial space thrived in a networked social system of honor, competition, and emulation, whether among peers or socially inferior people. Practices such as gift-giving, *euergetism*, and conspicuous consumption and performance, not only resulted in an increase of overall wealth, but also affected and proliferated provincial middle-group (desire for) consumption, while expanding local markets and stimulating distant trade and craft production of desired goods in far-away places such as Arabia, India, and China.³¹ These exotica needed to be transported via long-distance cross-imperial trade routes that were navigated locally – and therefore dependant on local informants and subject to regional customs duties – rather than guided imperially, as pointed out by Taasob (ch. 8.B).³²

Von Reden’s short discussion of Palmyra in the next chapter illustrates well the ways in which socioeconomic relations and their impacts were rarely limited to a certain local territory. Instead, socioeconomic relations have the capacity to expand, entangle with, and unfold into the lives and behaviors of near and distant people

²⁹ Giddens 1990, 64; Tomlinson 1999, 2; Appadurai 2000, 6; Held et al. 2000, 54–55; Woolf 2016.

³⁰ See, for instance, the contributions in Hodos 2016, but cf. Morley 2015.

³¹ Weaverdyck, ch. 12.C, II.2–3, this volume.

³² Taasob, ch. 8.B, V.2, this volume.

across time and space. Rather than only Palmyrenes profiting from commodity trade, and rather than Roman demand being the sole driver of this trade, von Reden points to the wide spatial range of mobile and nonmobile actors who contributed to, and benefited from, social network dynamics of commodity trade of products that came in, went through, or were exported from Palmyra: from local Palmyrenes and Roman traders, to caravan merchants, market sellers, urban euergetists, Roman elites in Antiocheia and beyond, and various non-Roman inhabitants of distant cities across the Erythraean sea. Rather than prioritizing macroperspectives that analyze abstract economic connections within and between geographical spaces in terms of Silk Road trade, globalization research advocates the analysis of space as a relational notion, characterized by dynamic *trans-scalar* processes: processes that affect people's behavior across various scales simultaneously, with diverse local, regional, and transregional input and impact.³³ Economic change and development can therefore be both endogenous and exogenous at the same time. Accordingly, this handbook does not give primacy to certain locales or time periods, but investigates a varied range of units of analysis that sometimes spill over conventional spatial and temporal boundaries (and sometimes not): actors, tools, and processes. This will be further explored in the chapters of this handbook.

IV The Question of Integration and Homogeneity

IV.1 World Systems

The relational notion of space is inherently tied to the question of integration and homogeneity. If space in this handbook is considered relational, to what extent does it need to be integrated? Too often are broad-scale dissemination and exchange implicitly seen to result in, and therefore to represent interregional integration. Some strands within globalization research indeed support the idea that expanding and intensifying relations cause the systemic integration of worlds (world zones), and eventually the integration of the world at large.³⁴ Such a conception of increasing interregional connections is central in theorizations of world-systems theory, a sociological theory that came of age in the late 1970s, before globalization theory became current on its own.³⁵ World-systems theory formally modelled globalization

³³ Hoo 2020.

³⁴ E.g., Abu-Lughod 1989; Frank 1993; Wilkinson, Sheratt, and Bennet 2011.

³⁵ Like globalization theory, world-systems theory is not a unified theory. It has a multidisciplinary historiography defined by lively debate (see footnote 37). World-systems theory later developed into world systems theory or world systems analysis, without the hyphen between 'world' and 'systems,' implying a renewed focus not on distinct systems existing alongside each other, but on the globe itself as a system. For the historiography of world-systems theory (and later world systems analysis), see Chase-Dunn and Hall 1993; Hall 2017.

as the progressive integration of peripheral and semi-peripheral regions into a systemic network of dependencies, dominated by a single political or societal core and a single hierarchical division of labor. In the works of foundational theorist Immanuel Wallerstein, (modern) world economies and (premodern) world empires are defined by such integrative dependency networks: complex economic and/or political webs in which macroregions are tied together, unified, controlled, driven, and constrained by state power.³⁶ Although world-systems theory has branched out in several directions throughout time, the tenet of empires as global systems has been of enduring influence in historical studies.³⁷ Indeed, it is not uncommon to refer to Hellenistic and Roman empires as integrated systems, each with regional centers and peripheries feeding back into an imperial system, especially through the role of mobile, cosmopolitan elites.³⁸

The idea of large dependency networks, densely structured by sustained integration, had led globalization to be conceptualized as a world system appealing to the analysis and explanation of macroregional exchange and its effect on economic behaviors in vast ‘international’ imperial spaces. Some scholars even consider integration as the basic premise for global history.³⁹ However, adopting a systemic frame for increasing connectivity has some heuristic limitations for the understanding of ancient economies across the Afro-Eurasian region. Firstly, treating this macroregion itself or its world empires – the Hellenistic and Roman Empires, the Central Asian Empires, the Qin and Han Empires, the Arsakid Empire, and the empire of the Xiongnu – as integrated systems, may actually result in reproducing container histories on a global scale, conceptualizing relational imperial space itself as a holistic entity in which economic behaviors are systemized interactions between functional parts of a sum total. Secondly, though world-systems theory has developed in different directions, the theory’s fundamental hierarchical notions of core, semi-periphery, and periphery semantically shape and analytically impose the direction of power and the logic of economic circulation, privileging the role and rationale of imperial actors and interests. According to such logic, desired luxury goods and high culture would be created in and exported from imperial centers to receiving hinterlands and peripheries which, in turn, would function to cultivate agricultural produce for imperial cores, where it would be centrally collected, consumed, and redistributed back to the peripheries. Although such paths of economic circulation certainly occurred, creating degrees of systemic coherence in the ancient spaces under review, they were not the only paths that characterized economic develop-

36 Wallerstein 1974, 1979.

37 For diverse assessments of world systems theory, see Chase-Dunn and Hall 1993; Frank and Gill 1993; Chase-Dunn and Hall 1997; Wallerstein 2004; Hall, Kardulias, and Chase-Dunn 2011; Hall 2017; Chase-Dunn and Khutkyy 2021. See, however Woolf 1990; Morley 2007; von Reden 2015 for criticism from an ancient-historical perspective.

38 E.g., Hingley 2005; Strootman 2014; Lavan, Payne, and Weisweiler 2016.

39 E.g., Conrad 2016, 90–114.

ment, nor were such paths always formalized procedures subscribing to a distinct systemic function, as will be shown in the chapters that follow. Moreover, thirdly, such notion of nested core-periphery hierarchy tends to prioritize the role of state power as the primary driver, making economic developments part and parcel of deliberate top-down policies while flattening out numerous actors with diverse motivations and tools, whose complex interactions and collaborations configured the economic developments in and across imperial spaces.⁴⁰ Recent historical scholarship has reached the consensus that imperial dynamics were neither unilateral nor exclusively shaped by intentional top-down and core-periphery policies.⁴¹ As we will see, human and nonhuman actors that shaped economic dynamics ranged from kings, courts, and armies, to temples, landscapes, cities, guilds, monastic organizations, households, and individuals, some of which were highly mobile while others operated in more local circles. Lastly, a world-systems analysis of connectivity does not account for important economic actors who participated in, stimulated, and sustained transregional networks without necessarily being politically or economically integrated. This is especially the case for mobile pastoralists, market merchants, foreign visitors, and larger mobile polities such as the Xiongnu, whose role was essential in economic processes that were more organic and fluid than forceful and state-driven.⁴²

IV.2 Unevenness

Although world-systems theory actually underlines unevenness and asymmetry across macroregions within the system, there is a common tendency to relate the notion of political-economic integration to the assimilation, singularization, and homogenization of behavior. Such homogenization – captured in the term “McDonal-dization,” coined by sociologist George Ritzer – is envisioned as the hyper-diffusion and consumption of global culture, the creation of a single global market, and/or the universalization of political institutions and organizations across vast distances.⁴³ Early critics have aimed attention toward the underlying implication that increasing connectivity would obliterate local and regional forms of behavior in favor of standard products, standard demand, and standard procedures across the world,

⁴⁰ See for instance Morley 2015, 55.

⁴¹ See for instance Allsen 2011 and the contributions in Morris and Scheidel 2010; Gehler and Rollinger 2014; Bang, Bayly, and Scheidel 2021a with bibliography.

⁴² For the role of mobile pastoralists and market merchants, see Fabian and Weaverdyck, ch. 3.A, VIII.1 this volume; Morris, ch. 4, this volume. For excellent discussion of the Xiongnu from a globalization perspective, see Miller 2015; Miller and Brosseder 2016; Brosseder and Miller 2018. For the imperial context of the Xiongnu, see also Brosseder, vol. 1, ch. 5.

⁴³ Ritzer 1993.

conditioned by global powers.⁴⁴ This would create distinct homogeneity in social life and with it, the loss of local autonomy and agency. Conceptualized as such, globalization indeed runs the risk of reproducing grand narratives that totalize historical experiences and societies under headers such as westernization, imperialism, Sinicization, Romanization, and Hellenization.⁴⁵

Without proper theoretical reflection and clarification, the analytical pitfall of simply equating similarities across large distances in production, consumption, and distribution patterns looms large, with the assimilation of local and regional economies and cultures into a global (supraregional) market economy. But while world-systems perspectives that commit to systemic coherence and internal scalability have become branches in later globalization scholarship, engagement with more recent globalization literature reveals increasing consensus about the distinct unevenness and heterogeneity that are inherent to expanding and intensifying connectivity. Arjun Appadurai was one of the first to theorize increasing connectivity in globalization processes as increasingly *disjunctive* processes: processes through which various sorts of flows (people, technologies, money, images, and ideas) that move across expanding social networks follow increasingly erratic paths which neither lead to common outcomes nor are driven by common forces.⁴⁶ Global flows – flows ‘between’ large distances – are rarely directly transmitted from A to B in the form of trade (or in our case from the east end to the west end of the Afro-Eurasian region), but are variously mediated through asymmetrically organized channels, actors, and situations that impact the movements and directions of flows, whether on local, regional, or transregional scales.⁴⁷ Such mediation of flows could take the form of different organizations that shaped demand, investment, and consumption across scales, such as various palace complexes, monastic communities, or professional associations of artisans and mercenaries, as well as diverse kinds of individuals, such as local elites, craftspeople, traders, farmers, and pastoralists. They mediated and negotiated flows sometimes in controlled spaces and sometimes in situations that were more contingent, prompted for instance by opportunism or competition.⁴⁸ The emphasis on unevenness in terms of local impact is shared by other globalization thinkers who dismiss homogenization as the major outcome of

⁴⁴ Barber 1995; Ohmae 1995, 38–39. For an informative discussion on imperialist understandings of globalization, see Tomlinson 1997.

⁴⁵ See, e.g., Tronchetti and Van Dommelen 2005, 205.

⁴⁶ Appadurai 1990, see also Appadurai 1990. These flows, according to Appadurai, each shape a dimension – a landscape – of globalization, which he terms as ethnoscapas, mediascapas, technoscapes, finanscapas, and ideoscapes. A classic publication to understand the material dynamics of disjunctive processes is Appadurai 1986.

⁴⁷ Hannerz 1990; Friedman 1997; Hannerz 1997; Tomlinson 1999; 2006; Nederveen Pieterse 2009. See chapters in part II: Tools, this volume.

⁴⁸ See chapters in part I: Actors, this volume.

connectivity.⁴⁹ Although degrees of standardization in production, distribution, and consumption do occur with intensifying large-scale interactions, increases in flows of goods, objects, ideas, and meanings across networked spaces are profoundly entangled with increases in local demand, local consumption and consumers, and niches of production which, in turn, feed the increase in flows. There is therefore not only unevenness in terms of local and regional impact, but also unevenness in local and regional *input*.

IV.3 Glocalization

Addressing homogenizing forces as a persistent myth of globalization, Roland Robertson coined the concept of *glocalization* in globalization research, drawing attention to the idea that global processes and local processes do not take place in dichotomous spatial spheres, but that these are mutually constitutive.⁵⁰ Conceptualizations of localism as pure, ingrained, and spatially contained, not only construe local actors as unassertive and merely reactionary to global change, but also overlook the outward and social basis of their behavior. The ways in which people experience their social environment and navigate their behavior through social relations is rarely shaped by dynamics confined to local scale only. The global (or rather, the supralocal) is not an external force or isolated structure, opposed to reactionary local actors, but is deeply embedded in the *texture* of locality.⁵¹ This is seen in early historic India, where global processes of legal standardization profoundly intersected with regional and local norms. Dwivedi (ch. 10) sets forth how, despite the lack of political cohesion, compiled treatises of religious *dharma* spread across the Indian subcontinent and were socially recognized as an overarching ethical and legal framework within which various economic activities could be held accountable, for instance when it came to property rights.⁵² Although these semi-autonomous treatises were standardized as administrative and social manuals, especially in their linguistic form, written in Sanskrit, the *dharmaśāstras* explicitly allow for local norms and could be diversely applied, intersecting with regional and local factors of influence in disputes, such as provincial laws, caste, families, and Buddhist monastic codes of behavior.

Increasing connectivity goes hand in hand with an increasing sense of compression of different scales (global, regional, and local) into the same locale, which affect the organization, coordination, and motivation of local behavior,

⁴⁹ Nederveen Pieterse 1994; 2009, among increasing others, identifies hybridization as the defining characteristic of globalization.

⁵⁰ Robertson 1995. See also Hannerz 1990; Robertson 1992, 97–115; Tomlinson 2006. For the mythology about globalization, see Ferguson 1992.

⁵¹ Tomlinson 1999, 12.

⁵² Dwivedi, ch. 10, IV, this volume.

with diverse economic consequences and economic change. In other words, actors and their behavior are not bounded to their direct vicinity, but are entangled in various circuits of exchange on different scales (local, regional, transregional) that impact their lives in disparate ways, even if they are not ‘movers’ themselves. In Qin and Han China, a private farmer and his household members cultivating a plot of hired land on the North China Plain may have worked with local tools and materials, but their motivations, living conditions, labor division, and the types, amounts, storage, and quality standards of agricultural produce, as well as perhaps the technology used, were not strictly local, but profoundly shaped by imperial demand and taxation, mediated by tax collectors from local county offices who evaluated the property and produce.⁵³ Leese-Messing (ch. 6) explains how taxation in Han China was not only collected in kind but was also demanded in the form of money, which drove local farmers to sell their produce in markets, thereby becoming themselves merchants, engaged in larger circles of market exchange.⁵⁴ This dialectic between local economic behavior and imperial demands is a wider phenomenon seen across Afro-Eurasia. Accordingly, in the Hellenistic and Roman Near East and Mediterranean, discussed by Weaverdyck and Fabian (ch. 8.A), not only imperial actors profited from monetary taxation but, indeed, various ‘middle’ and ‘lower-level’ individuals in (sometimes simultaneously held) roles of tax collectors, market merchants, temple elites, landholders, and farmers, could reap the economic benefits of imperial taxation, by mediating or participating in various kinds of economic activities that were directly or indirectly related to tax demands.⁵⁵ Consequences of imperial taxation were not merely economic, but could also have significant social and cultural ramifications. Morris (ch. 13) considers how the accumulation of wealth from revenue extraction in Bactria and Gandhāra, led to an increase in elite consumption, which in turn boosted local production of specialized luxury goods and stimulated trade to acquire imported prestige goods from distant regions across Afro-Eurasia.⁵⁶ These examples illustrate how actors’ own local behaviors of consumption and cultural expression could have extended economic implications for the lives of others, sometimes far beyond their locality. Increasing connectivity thus prompts scalar entanglement of social relations that impact the local and translocal ways in which people navigate their socioeconomic and cultural behaviors. In the chapters that follow, we will further see the different ways how economic change was brought about by diverse entanglements of imperial, regional, and local activities.

⁵³ Leese-Messing, ch. 6, this volume.

⁵⁴ Leese-Messing, ch. 6 and ch. 11, this volume.

⁵⁵ Weaverdyck and Fabian, ch. 8.A, this volume.

⁵⁶ Morris, ch. 13, V.2, this volume.

V The Question of Centrality and Power

Defining unevenness and scalar entanglement as characteristics of increasing connectivity has methodological implications when it comes to centrality and power in economic developments. Rather than concentrating on coercive and exploitative power which capitalizes on laborers in peripheries and lower layers of society at the hand of the ruling class in imperial centers, the analytical perspective is broadened to include social power relations that stretch across various overlapping networks. These networked relations, including (but certainly not exclusive to) those between ruler and ruled, have the capacity to enable, constrain, and motivate a broad range of actors and economic activities across various localities and regions. This is what David Grewal theorized as network power: a form of informal power that is neither territorial nor necessarily conscious and coercive, but primarily operative in relations of sociability, particularly so in global processes of increasing connectivity.⁵⁷ Networks, according to Grewal, induce degrees of standardization, since standards – shared rules, practices, and behaviors – facilitate communication and coordination between actors in the network. The larger or denser the network, the higher the desires and stakes for actors to adopt certain network standards in order to gain access to and partake in network communication. It is through network dynamics between actors, therefore, that standards with network power develop, which can motivate and pressure, but also impede economic activity and development.

Standardized idioms and coined money, for instance, exerted profound network power across vast geographical space, facilitating as well as proliferating transactions and exchange of various kinds, not only those coordinated by imperial actors. This is seen in regional strategies of coin production in Bactria and Gandhāra under Greek rule. In these regions, silver coinage minted by Hellenistic kings followed different weight standards, an Attic one in Bactria and an Indic one in Gandhāra. A short experimentation with Indo-Greek coins minted with exchangeable weight standards to be used in both Attic and Indic systems further illustrates the broad network power of these monetary standards.⁵⁸ According to Morris (ch. 9), these coinages were not only used for taxation and expenditure of the kings, but also circulated through the hands of regional and local actors who participated in monetary and commercial spheres of the broader Hellenistic and Indic worlds. Language could also exert considerable power as what Grewal has termed ‘mediating standards,’ providing (easier) access to engage in social activities across various networks.⁵⁹ Fabian and Weaverdyck (ch. 8.A) consider the multiple languages such as ‘Official Aramaic,’ *koine* Greek, and Latin which gained recognition as standardized

⁵⁷ Grewal 2009, 9; see also von Reden, ch. 2, this volume.

⁵⁸ Discussed with bibliography in Morris, ch. 9, II.3, this volume. See also Dwivedi, ch. 10, III.1, this volume.

⁵⁹ Grewal 2009, 21–22.

idioms in the linguistically diverse Near East and Mediterranean. These imperial languages were used alongside numerous local and regional languages, some of which developed into ‘membership standards’ that allowed access to prestige of, and membership into certain social communities.⁶⁰

Thinking in terms of networks allows power to be conceptualized as not solely generated through, and situated in interactions between center and periphery and between ruler and ruled, but also as emergent in configurations of interstitial relationships.⁶¹ Networks have multiple centers (nodes) entangled with other centers, between which various flows in the form of objects, produce, technology, and knowledge, traverse in multiple directions across multiple ties. The idea of multi-centrality and multidirectionality analytically transforms traditionally considered focal places of state power such as the city of Rome into a center instead of *the* center, a prominent node that was connected and entangled with various other nodes across the network.⁶² Network nodes, however, need not be territorial or necessarily tied to state power. This handbook conceives various actors as nodes in overlapping networks, which include cities but also itinerant people, supralocal organizations, and landscapes. As nodes, these actors link and interact with other actors via a variety of tools (conceived of as the ties in the network) that facilitate the flows moving across the network, such as physical infrastructure, fiscal regimes, and monetary policies.

VI The Question of Inquiry

The issues discussed – the question of domain; of time and space; of integration and homogeneity; and of centrality and power – converge in the question of inquiry. In the previous sections, I explained how this handbook operates within the domain of *global history*, and how *globalization theory* provides heuristically productive observations and approaches to connectivity that allow a truly global history analysis of economic developments across the Afro-Eurasian region. Rather than a coherent framework of connectivity to embed bodies of evidence that represent ancient globalization, the merit of globalization theory for global history writing, as argued here, is its radically different conceptualizations of space and scale and the analytical implications that unfold with it.

First, the scholars in this handbook study ancient economies in terms of connectivity, rather than looking at regional economies comparatively. Taking preexisting connectivity, interactions, and exchanges as analytical points of departure, this

⁶⁰ Fabian and Weaverdyck, ch. 8.A, VI.2, this volume.

⁶¹ Mann (1986) 2012.

⁶² Versluys 2014; Nederveen Pieterse 2015.

handbook considers diverse bodies of evidence for economic developments in social and relational terms, rather than as spatial phenomena. Accordingly, this book investigates a range of regulated and unexpected economic behaviors and practices that stretch across regions and even across conventional borders of imperial territories. Although the chapters in this volume draw out the dynamics largely within supraregional imperial spaces, it is in the wider frame of the three volumes together that the potential of global history will become visible: volume one outlined the historical and historiographical contexts of large-scale connectivity across Afro-Eurasia, volume two looks at imperial and regional economic developments which increase connectivity toward the global, while volume three considers the frontier zones that are more central than peripheral to these economic processes.

Secondly, placing connectivity at the center of the research focus also changes the scales of inquiry. This does not imply a mere focus on long-distance trade relations and connections. Rather than viewing economic dynamics from either a macro or micro perspective, the idea of glocalization urges to take interpenetrative levels of human activity into account, without externalizing or privileging global space and scale over the local. A trans-scalar approach that considers the intersections of scalar practices, directs the line of inquiry toward the contexts, situations, and impacts of connectivity and how they affect the social behaviors that shape economic developments.

Scalar practices – practices and behavior taking place on local, regional, and transregional scales – are variously negotiated through uneven channels by a broad range of human and nonhuman actors. Therefore, thirdly, this volume's units of analysis are located in network thinking with heterogeneous actors, rather than places, as their nodes. The scholars in this book follow the paths and convergences of a dynamic array of local, regional, and transregional actors and tools that advanced economic developments. Rather than assessing outcomes of production, consumption, distribution, and exchange within contained spaces, this handbook assesses economic processes dynamically across open networks.

VII Conclusion: Globalization beyond the Silk Road

While global history may not suit every topic, global history provides a particularly productive perspective that illuminates the broad range of the economic consequences of Afro-Eurasian connectivity from 300 BCE to 300 CE, beyond the notion of Silk Road trade. Departing from the premise of connectivity, a global history of imperial economies raises distinct questions that reframe the analytical spectrum, focusing on economic actors and tools to investigate the contexts, practices, and processes of production, consumption, and distribution across the Afro-Eurasian region.

In so doing, global history writing can be assisted by theoretical observations and approaches developed in globalization scholarship – a broad field of research

which includes (but does not equal) globalization history. Globalization scholarship has produced critical heuristic tools and methodological strategies for the analysis of increasing connectivities. Writing global history of ancient economies requires more than a global mindset, expanding geographical scale to look for trade relations and interregional connections. Rather, theoretical observations and approaches to space, scale, and power in relation to connectivity to the global, push the analysis to the contexts and impacts of transregional mobility and connectivity on people's behavior, and the economic consequences they entail.

References

- Abu-Lughod, J. L. 1989. *Before European hegemony: The world system AD 1250–1350*. Oxford: Oxford University Press.
- Allsen, T. 2011. "Pre-modern empires." In J. H. Bentley (ed.), *The Oxford handbook of world history*, 361–378. Oxford: Oxford University Press.
- Appadurai, A. 1986. "Introduction: Commodities and the politics of value." In A. Appadurai (ed.) *The social life of things: Commodities in cultural perspective*, 3–63. Cambridge: Cambridge University Press.
- . 1990. "Disjuncture and difference in the global cultural economy." *Theory, Culture & Society* 7, 295–310.
- . 2000. "Grassroots globalization and the research imagination." *Public Culture* 1, 1–19.
- Bakker, E. J., I. J. F. de Jong, and H. van Wees, eds. 2002. *Brill's companion to Herodotus*. Leiden: Brill.
- Ball, W. 2015. *The gates of Asia. The Eurasian steppe and Europe's border*. London: East & West Publishing.
- Bang, P. F., C. A. Bayly, and W. Scheidel, eds. 2021a. *The Oxford world history of empire*. Vol. 1, *The imperial experience*. Oxford: Oxford University Press.
- . 2021b. *The Oxford world history of empire*. Vol. 2, *The history of empires*. Oxford: Oxford University Press.
- Barber, B. R. 1995. *Jihad vs. McWorld: How globalism and tribalism are reshaping the world*. New York, NY: Times Books.
- Bauman, Z. 2000. *Liquid modernity*. Cambridge: Polity Press.
- Bayly, C. A. 2004. *The birth of the modern world, 1780–1914: Global connections and comparisons*. Malden, MA: Blackwell.
- Beckert, S. and D. Sachsenmaier. 2018. "Introduction." In S. Beckert and D. Sachsenmaier (eds.), *Global history, globally: Research and practice around the world*, 1–18. London: Bloomsbury.
- Bentley, J. H. 2002. "The new world history." In L. Kramer and S. Maza (eds.), *A companion to western historical thought*, 393–416. Malden, MA: Blackwell.
- . 2005. "Myths, wagers, and some moral implications of world history." *Journal of World History* 16, 1, 51–82.
- . 2011. "The task of world history." In J. H. Bentley (ed.), *The Oxford handbook of world history*, 1–17. Oxford: Oxford University Press.
- Bentley, M. 2011. "Theories of world history since the Enlightenment." In J. H. Bentley (ed.), *The Oxford handbook of world history*, 19–35. Oxford: Oxford University Press.
- Boivin, N. and M. D. Frachetti, eds. 2018. *Globalization in prehistory*. Cambridge: Cambridge University Press.

- Bordo, M. D., A. M. Taylor, and J. G. Williamson, eds. 2003. *Globalization in historical perspective*. Chicago, IL: University of Chicago Press.
- Brosseder, U. and B. K. Miller. 2018. "Global networks and local agents in the Iron Age Eurasian steppe." In Boivin and Frachetti (2018), 162–183.
- Castells, M. 1996. *The information age: Economy, society and culture*. Vol. I, *The rise of the network society*. Cambridge: Blackwell.
- Chanda, N. 2007. *Bound together: How traders, preachers, adventurers, and warriors shaped globalization*. New Haven, CT: Yale University Press.
- Chase-Dunn, C. and T. D. Hall. 1993. "Comparing world-systems: Concepts and working hypotheses." *Social Forces* 71, 851–886.
- . 1997. *Rise and demise: Comparing world-systems*. Boulder, CO: Westview Press.
- Chase-Dunn, C. and D. Khutkyy. 2021. "The evolution of geopolitics and imperialism in interpolity systems." In P. F. Bang, C. A. Bayly, and W. Scheidel (2021b), 111–154.
- Conrad, S. 2016. *What is global history?* Princeton, NJ: Princeton University Press.
- Conrad, S. and A. Eckert. 2007. "Globalgeschichte, Globalisierung, multiple Modernen: Zur Geschichtsschreibung der modernen Welt." In S. Conrad, A. Eckert, and U. Freitag (eds.), *Globalgeschichte: Theorien, Ansätze, Themen*, 7–49. Frankfurt: Campus Verlag.
- Di Cosmo, N. 2002. *Ancient China and its enemies: The rise of nomadic power in East Asian history*. Cambridge: Cambridge University Press.
- . 2010. "Ethnography of the nomads and 'barbarian' history in Han China." In L. Foxhall, H.-J. Gehrke, and N. Luraghi (eds.), *Intentional history: Spinning time in ancient Greece*, 299–325. Stuttgart: Franz Steiner.
- Ferguson, M. 1992. "The mythology about globalization." *European Journal of Communication* 7.1, 69–93.
- Frank, A. G. and B. K. Gill, eds. 1993. *The world system: Five hundred years or five thousand?* London: Routledge.
- Frank, A. G. 1993. "Bronze age world system cycles." *Current Anthropology* 34.4, 383–405.
- Friedman, J. 1997. "Global crises, the struggle for cultural identity and intellectual porkbrelling: Cosmopolitans versus locals, ethnics and nationals in an era of de-hegemonisation." In P. Werbner and T. Modood (eds.), *Debating cultural hybridity: Multi-cultural identities and the politics of anti-racism*, 70–89. London: Zed Books.
- Gehler, M. and R. Rollinger. 2014. "Imperien und Reiche in der Weltgeschichte: Epochenübergreifende und globalhistorische Vergleiche." In M. Gehler and R. Rollinger (eds.), *Imperien und Reiche in der Weltgeschichte: Epochenübergreifende und globalhistorische Vergleiche*, 1–32. Wiesbaden: Harrassowitz.
- Giddens, A. 1990. *The consequences of modernity*. Stanford, CA: Stanford University Press.
- Gills, B. K. and W. R. Thompson, eds. 2006. *Globalization and global history*. London: Routledge.
- Grewal, D. S. 2009. *Network power: The social dynamics of globalization*. New Haven, CT: Yale University Press.
- Hall, T. D., ed. 2017. *Comparing globalizations: Historical and world-systems approaches*. Cham: Springer.
- Hall, T. D., P. N. Kardulias, and C. Chase-Dunn. 2011. "World-systems analysis and archaeology: Continuing the dialogue." *Journal of Archaeological Research* 19.3, 233–279.
- Hannerz, U. 1990. "Cosmopolitans and locals in world culture." *Theory, Culture & Society* 7.2–3, 237–251.
- . 1997. "Scenarios for peripheral cultures." In A. D. King (ed.), *Culture, globalization and the world-system: Contemporary conditions for the representation of identity*, 107–128. Minneapolis, MN: University of Minnesota Press.
- Harvey, D. 1989. *The condition of postmodernity: An enquiry into the origins of cultural change*. Oxford: Blackwell.

- . 1990. “Between space and time: Reflections on the geographical imagination.” *Annals of the Association of American Geographers* 80.3, 418–434.
- Held, D. and A. McGrew. 2000. “The great globalization debate: An introduction.” In D. Held and A. McGrew (eds.), *The global transformations reader: An introduction to the globalization debate*, 1–45. Malden, MA: Polity Press.
- Held, D, A. McGrew, D. Goldblatt, and J. Perraton. 2000. “Rethinking globalization.” In D. Held and A. McGrew (eds.), *The global transformations reader: An introduction to the globalization debate*, 67–74. Malden, MA: Polity Press.
- Hingley, R. 2005. *Globalizing Roman culture: Unity, diversity and empire*. London: Routledge.
- Hodos, T. 2010. “Local and global perspectives in the study of social and cultural identities.” In S. Hales and T. Hodos (eds.), *Material culture and social identities in the ancient world*, 3–31. Cambridge: Cambridge University Press.
- , ed. 2016. *The Routledge handbook of archaeology and globalization*. London: Routledge.
- Hoo, M. 2020. “Globalization and interpreting visual culture.” In R. Mairs (ed.) *The Graeco-Bactrian and Indo-Greek world*, 553–569. London: Routledge.
- Hopkins, A. G., ed. 2002. *Globalisation in world history*. London: Pimliko.
- Jennings, J. 2011. *Globalizations and the ancient world*. Cambridge: Cambridge University Press.
- Kardulias, N. 2014. “Archaeology and the study of globalization in the past.” *Journal of Globalization Studies* 5.1, 110–121.
- LaBianca, Ø. S. and S. A. Scham, eds. 2006. *Connectivity in antiquity: Globalization as long-term historical process*. London: Equinox.
- Lavan, M., R. E. Payne, and J. Weisweiler, eds. 2016. *Cosmopolitanism and empire: Universal rulers, local elites, and cultural integration in the ancient Near East and Mediterranean*. Oxford: Oxford University Press.
- Malkin, I. 2011. *A small Greek world: Networks in the ancient Mediterranean*. Oxford: Oxford University Press.
- Mann, M. (1986) 2012. *The sources of social power*. Cambridge: Cambridge University Press.
- Manning, P., ed. 1996. *Slave trades, 1500–1800: Globalization of forced labour*. London: Routledge.
- . 2003. *Navigating world history: Historians create a global past*. New York, NY: Palgrave Macmillan.
- . 2005. “Concepts and institutions for world history: The next ten years.” In P. Manning (ed.), *World history: Global and local interactions*, 229–258. Princeton, NJ: Markus Wiener.
- Mazlish, B. 1998. “Comparing global history to world history.” *The Journal of Interdisciplinary History* 28.3, 385–395.
- McGrew, A. 2007. “Globalization in hard times: Contention in the academy and beyond.” In G. Ritzer (ed.), *The Blackwell companion to globalization*, 29–53. Malden, MA: Blackwell.
- Miller, B. K. 2015. “Navigating and negotiating the Middle Ground: Cultural politics and the southern Xiongnu in northern China.” In J. Bemmann and M. Schmauder (eds.), *Complexity of interaction along the Eurasian steppe zone in the first millennium CE*, 127–198. Bonn: Vor- und frühgeschichtliche Archäologie, Rheinische Friedrich-Wilhelms-Universität Bonn.
- Miller, B. K. and U. Brosseder. 2016. “Global dynamics in local processes of Iron Age Inner Asia.” In T. Hodos (ed.), *The Routledge handbook of archaeology and globalization*, 470–487. London: Routledge.
- Morley, N. 2007. *Trade in classical antiquity*. Cambridge: Cambridge University Press.
- . 2015. “Globalisation and the Roman economy.” In Pitts and Versluys (2015), 49–68.
- Morris, I. and W. Scheidel, eds. 2010. *The dynamics of ancient empires: State power from Assyria to Byzantium*. Oxford: Oxford University Press.
- Naerebout, F. G. 2006. “Global Romans? Is globalisation a concept that is going to help us understand the Roman Empire?” *Talanta* 38–39, 149–169.

- Nederveen Pieterse, J. 1994. "Globalisation as hybridisation." *International Sociology* 9.2, 161–184.
- . 2009. *Globalisation and culture: Global mélange*. 2nd ed. Lanham, MD: Rowman & Littlefield.
- . 2015. "Ancient Rome and globalisation: Decentering Rome." In Pitts and Versluys (2015), 225–239.
- Ohmae, K. 1995. *The end of the nation state: The rise of regional economies*. New York, NY: The Free Press.
- Osterhammel, J. 2011. "Globalizations." In J. H. Bentley (ed.), *The Oxford handbook of world history*, 89–104. Oxford: Oxford University Press.
- Osterhammel, J. and N. P. Petersson. 2005. *Globalization: A short history*. Princeton, NJ: Princeton University Press.
- Pines, Y. 2005. "Beasts of humans: Pre-imperial origins of the 'Sino-Barbarian' dichotomy." In R. Amitai and M. Biran (eds.), *Mongols, Turks and others: Eurasian nomads and the sedentary world*, 59–102. Leiden: Brill.
- Pitts, M. 2008. "Globalizing the local in Roman Britain: An anthropological approach to social change." *Journal of Anthropological Archaeology* 27, 493–506.
- Pitts, M. and M. J. Versluys, eds. 2015. *Globalisation and the Roman world: World history, connectivity and material culture*. Cambridge: Cambridge University Press.
- Ritzer, G. 1993. *The McDonaldization of society*. London: Sage.
- Robertson, R. 1992. *Globalization: Social theory and global culture*. London: Sage.
- . 1995. "Glocalization: Time-space and homogeneity-heterogeneity." In M. Featherstone and R. Robertson (eds.), *Global Modernities*, 25–44. London: Sage.
- Robinson, W. I. 2007. "Theories of globalization." In G. Ritzer (ed.), *The Blackwell companion to globalization*, 125–143. Oxford: Blackwell.
- Rosenberg, J. 2000. *The follies of globalisation theory: Polemical essays*. London: Verso.
- . 2005. "Globalization theory: A post mortem." *International Politics* 42.1, 2–74.
- Seland, E. H. 2008. "The Indian Ocean and the globalisation of the ancient world." *Ancient West & East* 7, 67–79.
- Steger, M. B. 2003. *Globalization: A very short introduction*. Oxford: Oxford University Press.
- Strootman, R. 2014. *Courts and elites in the Hellenistic empire: The Near East after the Achaemenids, c. 330 to 30 BCE*. Edinburgh: Edinburgh University Press.
- Tomlinson, J. 1997. "Internationalism, globalization and cultural imperialism." In K. Thompson (ed.), *Media and cultural regulation*, 117–162. London: Sage.
- . 1999. *Globalization and culture*. Cambridge: Polity Press.
- . 2006. "Globalization and cultural analysis." In D. Held and A. McGrew (eds.), *Globalization theory: Approaches and controversies*, 148–168. Cambridge: Polity Press.
- Tronchetti, C. and P. van Dommelen. 2005. "Entangled objects and hybrid practices: Colonial contacts and elite connections at Monte Prama, Sardinia." *Journal of Mediterranean Archaeology* 18.2, 183–209.
- Versluys, M. J. 2013. "Material culture and identity in the late Roman Republic (c. 200 BC–c. 20 BC)." In J. D. Evans (ed.), *A companion to the archaeology of the Roman Republic*, 429–440. Malden, MA: Blackwell.
- . 2014. "Understanding objects in motion. An archaeological dialogue on Romanization." *Archaeological Dialogues* 21.1, 1–20.
- . 2017. *Visual style and constructing identity in the Hellenistic world: Nemgrud Dağ and Commagene under Antiochos I*. Cambridge: Cambridge University Press.
- Vlassopoulos, K. 2013. *Greeks and barbarians*. Cambridge: Cambridge University Press.
- von Reden, S. 2015. "Global economic history." In C. Benjamin (ed.), *The Cambridge world history*. Vol. 4, 29–54. Cambridge: Cambridge University Press.
- Wallerstein, I. 1974. *The modern world system*. Vol. 1, *Capitalist agriculture and the origins of the European world-economy in the sixteenth century*. New York, NY: Academic Press.

- . 1979. *The capitalist world-economy*. Cambridge: Cambridge University Press.
- . 2004. *World-systems analysis: An introduction*. Durham, NC: Duke University Press.
- Wilkinson, T. C., S. Sheratt, and J. Bennet, eds. 2011. *Interweaving worlds: Systemic interactions in Eurasia, seventh to first millennia BC*. Oxford: Oxbow Books.
- Woolf, G. 1990. "World-systems analysis and the Roman empire." *Journal of Roman Archaeology* 3, 44–58.
- . 2016. "Movers and stayers." In L. de Ligt and L. E. Tacoma (eds.), *Migration and mobility in the early Roman Empire*, 440–463. Leiden: Brill.

Sitta von Reden

2 Local, Regional, and Imperial Economies

I Introduction

I.1 Globalizing Palmyra

In 137 CE, the council of the city of Palmyra in the Syrian Desert decided to revise and publish a tariff of maximum charges that tax farmers were allowed to collect from merchants, animal drivers, and pastoralists in the market.¹ New regulations had become necessary, so the prescript states, because many disputes had arisen about the amount of fees that could be raised legitimately according to law and custom. The tariff gives a long list of taxes imposed for the import and export of goods and provision of services, such as grazing animals, importing/exporting salt, travel provisions, dried produce, salt fish, olive oil, animal fat, slaves, prostitutes, beasts of burden, cloth, myrrh (*myron*), died fleeces, bronze statues, and a few more. An older law had responded to an edict of a Roman governor some 60 years previously, which itself renewed regulations from the time of Emperor Tiberius (14–37 CE) when Palmyra had become part of the Roman province of Syria.²

Scholars mistakenly take the tax law as a reflection of just the local economy of Palmyra.³ According to this view, it regulated the fees imposed on local imports and grazing rights in a typical provincial town that enjoyed municipal tax autonomy in the Roman Empire. There was, so it is argued, another economy in and around Palmyra. Large volumes of exotic luxuries – spices, pearls, gems, fine garments, and silk – passed through the city, from where they went on to Antiocheia to be taxed at the 25 percent import tax rate that the Roman government claimed at its imperial borders.⁴ Once cleared, some goods stayed in Antiocheia, while others were distributed further to Rome and other cities in the Mediterranean. This economy was in the hands of powerful caravan merchants and financiers who had become enormously wealthy through this trade. The great monumental remains of the city and the richly adorned funerary reliefs discovered in the late eighteenth century were the results of this other economy. The drivers were not just Palmyrenes, but

1 The most valuable analysis of the tax law and its context can still be found in Matthews 1984; for Palmyra and its social and economic history, Seland 2016; Meyer, Seland and Anfiyet 2016; for subtle accounts of its social identity and regional connections, Smith 2013; Sommer 2017, esp. 215–220; for Palmyra as a wider network of ‘caravan cities’ in the Syrian desert, Rostovtzeff 1932; critically Millar 1998.

2 Seland 2016, 12–13.

3 Matthews 1984, 172–173; Millar 1998, 130; Seland 2016, 30–31, more sceptically.

4 Matthews 1984; *Palmyrene Aramaic Texts (PAT)* 1373; for a discussion of the caravan routes from the Euphrates to Antiocheia, Gregoratti 2020.

also inhabitants of cities along the Euphrates, the Arabian Gulf, and the Indian Ocean coast.⁵ The Palmyrene assembly and council officially praised the citizen-financiers and caravan leaders for gaining such profits for the city, while individual or foreign merchants were allowed to use the agora and sanctuaries of Palmyra for the praise of the great benefactors as well.⁶ This economy was visible in the Palmyrene public space, but it was, so it is argued, distinct from the minor local business reflected in the tax law.

Palmyra is an ideal starting point for problematizing economies at the crossroads of local, regional, imperial, and inter-imperial exchange networks. The local and regional exchanges of the Palmyrenes and the luxury trade destined for Antiocheia were not separate economies. Many of the foreign textiles, pearls, and unguents that were imported from a long distance remained in Palmyra, adorning the elite and the dead of the city.⁷ In contrast, among the taxable commodities listed in the tariff were some nonlocal goods as well, such as slaves, purple textiles, and myrrh. The categorical distinction between the commodities taxed in the Palmyrene market and those that went on to Antiocheia was a fiscal one.⁸ The boundary between goods supplied by local, regional, and long-distance trade was much more fluid and their consumption a matter of local social distinction and economic means rather than anything else.

The precious imports, moreover, that went through Palmyra to Antiocheia and from there to other Mediterranean harbors are not well described in terms of Roman 'foreign' or 'external' trade.⁹ Palmyra and its citizens profited from the Roman demand for the luxury goods that went through their city, but neither Roman demand nor Roman trade relationships had initiated Palmyrene trade. Palmyrenes for long had used long-distance trade routes and social networks of supply that were necessary for the acquisition of the paraphernalia of their funerary rituals.¹⁰ Various textiles and myrrh imported from long-distance were essential for the mummification rituals of the elite in Palmyra.¹¹ Their access to these goods gave them great imperial bargaining power once they entered the Roman imperial orbit. The transformation

5 Seland 2013 for the reconstruction of the social and economic networks on which Palmyrene trade was based.

6 The so-called caravan inscriptions which form a small portion of extant honorary decrees from Palmyra are conveniently collected and translated in Fox, Lieu, and Ricklefs 2005.

7 Examples and discussion in, e.g., Young 2001; Schmidt-Colinet 2005; Smith 2013. Note that De Romanis 2020, 180–181 has now argued, against previous scholarship, that also in the case of Egypt most Indian Ocean imports were destined for local markets and Alexandria, rather than for Rome, as Roman authors have it. None of the Upper Egyptian cities, however, became as rich as Palmyra, which shows the particular consumption culture of Palmyra that had spurred foreign imports in the first instance.

8 Seland 2016, 31.

9 See, e.g., Wilson and Bowman 2018, 13.

10 Young 2001, 136–137;

11 Seland 2016, 29.

of Palmyrene imports into Roman ‘imperial capital,’ as it has recently been called,¹² was based on mutual interests and on diplomacy. For example, when Marc Antony raided the city in 41 BCE, Palmyra already had well-established contacts with Babylonia, Seleukeia, the Levant, the Eastern Mediterranean, and the Arabian Peninsula where alone myrrh grew naturally.¹³ When the city became part of the Roman Empire under emperor Tiberius, its territory was demarcated by Roman boundary stones in the west, and regulations for tax farming were introduced. Under emperor Hadrian, most likely during his visit in 129/30 CE, Palmyra received the honorary status of *civitas libera* (which could entail wide-ranging tax exemptions),¹⁴ and became a *colonia* with full Roman citizenship rights in the late second century CE. Several emperors visited the city.¹⁵

Palmyra benefited from its location and network relationships, which the merchants exploited in order to reap the profits of Roman interest in the exotic products of long-distance trade. Pliny observed that the city had its own fate (*sors privata*) due to its location between two empires.¹⁶ But this does not capture the multiple relationships of the Palmyrenes. The inhabitants of Palmyra were settled pastoralists with intimate relationships with the mobile communities and other cities in the Syrian Desert.¹⁷ In the Roman period, they also had intense relationships with cities in Southern Mesopotamia and the upper Gulf region that at that time was only loosely connected to the Arsakid imperial commonwealth.¹⁸ Some Palmyrenes appear in the Palmyrene inscriptions as *archon* (governor) of Maisan (Mesene), *archon* of Phorath (near Spasinou Charax), or *satrap* of Tylos (Bahrain).¹⁹ In Vologaesias, also located on the lower Euphrates, a powerful caravan leader erected a temple for the Roman emperors, for which he was honored in Palmyra.²⁰ Neither Mesene, nor the cities in which Palmyrenes were active, nor the mobile communities with whom the Palmyrenes negotiated their transit routes were under Roman control, as is indicated not least by the fact that Palmyrene territory remained unmarked by Roman boundary stones in the direction of the Euphrates where the Palmyrenes maintained their own guard forces.²¹ The prosperity of Palmyra and its caravan leaders was

12 Haldon 2021.

13 Römer-Strehl 2016 for pre-Roman pottery from the Eastern Mediterranean, the Levant and Mesopotamia among the Hellenistic pottery assemblages of the Palmyrene living quarters.

14 Bernhardt 1971 for the title of *civitas libera* as a diplomatic gesture in Roman provincial politics.

15 Millar 1998, 130; for Palmyra’s relationships with Rome generally, Sommer 2017.

16 Pliny *Naturalis historia* 5. 88.

17 Smith 2013, 68–84; Young 2003, 149–164; Gregoratti 2015.

18 Schuol 2002 for the changing relationships between the largely autonomous kingdom of Mesene/Charakene and the Arsakids.

19 Young 2001, 144 with *Inventaire des Inscriptions de Palmyre (Inv.)* 10. 38, 112 and Schlumberger 1961, 256.

20 *PAT 1062* with Gregoratti 2015, 183, quoted at the end of this chapter.

21 Matthews 1984, 163; Millar 1998, 133 for Palmyrene guards along the Euphrates.

predicated on their belonging to several groups and networks: the citizen body of Palmyra who valued foreign goods in their civic rituals and who praised the traders as benefactors in ways that were comprehensible to the Romans; the regional pastoral communities, which the Palmyrene caravan leaders pacified in order to protect the caravans from raids that rich camel loads inevitably attracted; the urban network of cities in which Palmyrenes held positions of power and influence, and the Roman political network into which they were integrated through titles of honor and distinction.

1.2 Imperial Economies and Market Development

Palmyra is not a typical example of a provincial city in the Roman Empire. Yet it demonstrates that imperial economies ask for analytical frameworks other than those developed for national market economies. Peter Bang is one of the few who has given systematic thought to this question.²² He shows how the theoretical reflection of western economics developed within a long process of transformation in which the formation of national states went along with greater interstate competition, an increase in professional specialization, the growth of bureaucracies based on institutional promotion rather than merit, and above all growing cooperation between states and merchants in strengthening and stabilizing the market system.²³ The European economic development of the early modern period, and its possible difference or comparability to that of the Graeco-Roman world, have long been debated by ancient historians. Did Classical Athens in the fifth century BCE, or the Roman Empire some three hundred years later, undergo similar transformations? And did they develop partly or fully into well-integrated market economies based on supply-and-demand mechanisms at an imperial scale?²⁴ While these questions are still under debate, a great contrast is drawn between Graeco-Roman market economies and those of Asian empires. Most discussions of these latter economies are still locked in early twentieth-century paradigms. Both neo-Marxist constructions of ‘oriental despotism’ and the Polanyean model of ‘redistributive economies’ explain the wealth of tributary empires in terms of centralized politics, farming based on artificial irrigation, and high-rent/high-tribute regimes.²⁵ In both the despotic and redistributive models, centralized states had the power to extract large

²² Bang 2007; 2008, 26–60; 61–131.

²³ Bang 2008, 54; also Eich forthcoming.

²⁴ Bang 2008, 30–36; and von Reden and Speidel, vol. 1, ch. 17.

²⁵ Weaverdyck and Fabian, ch. 8.A, IV.1, this volume for the alleged connection between hydraulic infrastructure and oriental despotism; for the notion of oriental despotism and ancient empires generally, Wiesehöfer, vol. 1, ch. 11, 479; Dwivedi, vol. 1, ch. 15, 649–653; Manning 2018, 138–139; Bang 2008, 60–62; for Karl Polanyi and redistributive economies, von Reden and Speidel, vol. 1, ch. 17, 705–707.

amounts of surplus, with central administrations having the legitimacy to interfere with production, extraction, and exchange. Through the control of vital infrastructures and dominant exchange circuits, despotic rulers of redistributive states gained their income, legitimacy, and universal power. Genuine trade and private economic activity were not only subordinate in tributary states, but also impossible to conceptualize within the theoretical contrasts drawn by modern scholarship. As Bang concludes:

The relationship between traditional empire and trade seems to defy our accustomed categories. According to established notions they ought to be like oil and water: mutually exclusive. The essence of [this] view is neatly summarized in John Hall's notion of *capstone government*. Apparently, an imperial center could only maintain control by weakening its underlying society and economy. For its own survival, it was forced to prey on any dynamic development and finally to block and destroy it. In that way, the empire prevented local groups from becoming wealthy and strong enough successfully to challenge its authority and refuse to pay taxes. Thus imperial rule was secured by creating a powerful stand-off which lowered the level of social activity and put a lid on creative energies. Empires had strong 'blocking but weak enabling powers,' as Hall has phrased it.²⁶

One might object that market economies and tributary systems are simply two poles on a theoretical spectrum. Ancient empires after the Achaemenid period developed a combination of enabling market principles and redistributive structures, the latter serving above all the military and political purposes of the imperial states. Thus, the Roman *annona* (state organized grain supply) supplying large parts of the urban population of the city of Rome with free grain, formed a substantial redistributive element in the Roman economy.²⁷ However, it went along with genuine trade and market development that stimulated private production and distribution of most other commodities and staples. Similarly, recent research on ancient China suggests that here, too, empire building and market development could have been related processes. New excavated texts show that Chinese officials realized that they were incapable of substituting fully for income and structures generated by private economic initiative and monetized markets.²⁸

Yet the observation that administrative control of politically vital production and distribution processes might coincide with free market exchange in ancient empires does not solve the more fundamental issue of integrating trade and economic initiative firmly into the model of tributary empires. Bang addresses both the interdependence of surplus production and trade, and economic integration in the absence of empire-wide integrating supply-and-demand mechanisms. A foundational theorem of classical economics is that markets stimulate production and consumption, while surplus production stimulates markets and trade. Yet imperial tributary

²⁶ Bang 2008, 66.

²⁷ Weaverdyck, ch. 12.C, II.1, this volume, and Erdkamp 2005.

²⁸ Korolkov 2020; Leese-Messing, ch. 6 and ch. 15, IV.2, this volume.

demand stands in the way of such self-regulating mechanisms.²⁹ In Hall’s “capstone” argument, imperial governments, actively or passively, hold down private trade and economic initiative in order not to impair their control over exchange circuits and tax income. However, both comparative and Roman evidence suggest that governments and local aristocracies were rather complicit in the exploitation of fiscal and economic resources, not only in the capital but also in their constituencies or provinces.³⁰ Numerous archaeological and historical studies demonstrate that agrarian development went hand in hand with thriving trade in many parts of the Roman Empire. Yet neither was agrarian surplus fully absorbed by rent-seeking elites nor by the tributary demand of the empire the way the conventional models of Asian empires suggest. Rather, tax collection was passed down to local governments and tax farmers who had better access to the socioeconomic conditions of local populations. Tax farmers and governors could profit substantially by providing credit at high interest rates to provincial communities lacking money to pay their taxes, while members of the local elite involved in tax collection could expand their influence through the patronage of Roman governors and emperors. Bang reminds us that already in the Republican period we can observe great companies of *publicani* (tax farmers) combining tax collection with various commercial, political, and monetary activities.³¹ During the imperial period, we find humble banker-auctioneers engaged in urban tax farming as well as super-rich agrarian financiers involved in Alexandrian politics who used their investment in foreign trade and the provincial fiscal apparatus to transfer wealth from Egypt to Rome.³² The caravan inscriptions from Palmyra provide further examples of merchants honoring a council member and tax collector in Antiocheia for having cleared commercial goods through customs.³³ Such are the strategies that Bang calls with Subrahanjaman and Bayly “portfolio capitalism” and which “dramatically changed and expanded or at least modified pre-existing pattern[s] of economic circulation.”³⁴

Local urban elites were crucial. The empire generated possibilities for participation, incentives for investment, private profit, and expansion of local social power. The symbolic rewards of the empire – titles of honor and negotiation of tax privilege – enhanced the social position of rich citizens and merchants with positive effects on trade, which in turn benefited imperial fiscal and consumption interests.

29 A major reason for why, according to Douglass North, states before the sixth century CE did not develop price-making markets, North 1981, 42.

30 Bang 2008, 110–123.

31 See further on the business of *publicani*, Weaverdyck and Fabian, ch. 8.A, II.2.2, this volume.

32 Bang 2008, 121 with Rathbone 2001.

33 PAT 2763 (157 CE); PAT 1373 (162 CE); in *Inv.* III.7 (266 CE) a certain Septimius Worod, *procurator ducenarius, iuridicus, strategos* and *agoranomos* is praised for his activities in trade; Young 2001, 170–172; Sommer 2017, 213–214.

34 Bang 2008, 114 and Bang 2007, 25 with Subrahanjaman and Bayly 1988; cf. von Reden vol. 1, Introduction, 4.

Bang's suggestions provide powerful explanations for the interdependent role of tribute extraction and agrarian development, without neglecting markets, commercial exchange, and genuine trade in this transformative process.

Yet portfolio capitalism and economic transformation in the Roman world were intimately linked to a particular urban culture, outlined in greater detail in further chapters of this volume.³⁵ It is interesting to note that in Han China neither portfolio-capitalist economic behavior nor *polis*-like forms of urban organization (with at least semi-autonomous civic institutions) are attested.³⁶ The origin of this urban culture lay in the Mediterranean, where local polities constituted themselves as *poleis* of citizens with exclusive property rights and communal action regulated by civic assemblies, civic councils, and law courts. This urban culture became a crucial actor in the process of imperial transformation in the Hellenistic and Roman periods. Local populations concentrated their social and political life in *poleis*, developing strong identity and communication structures that increased their collective agency and at the same time made them more comprehensible to, and governable from, faraway imperial capitals.³⁷ Fiscal and legal infrastructures were integral to this urban culture, as was a particular mode of wealth distribution (*euergetism*).³⁸ While new legal infrastructures provided greater security for economic exchange, *euergetism* was a means by which elites shared their profits with the collective body of fellow citizens. It also expressed common social values, normative behavior, and forms of social power across a wider geographical and temporal space. The *polis* culture can be regarded as a driving factor for what David Grewal has termed “network standardization,” and which drew together cities into wider urban systems.³⁹

II Toward a Globalizing Approach to Local, Regional, and Imperial Economies in the Afro-Eurasian Global Zone

II.1 The Problem of Evidence and Historiographies

Widely divergent bodies of evidence and different explanatory models have shaped our knowledge of the ancient Afro-Eurasian world zone.⁴⁰ Only the Greek, Roman,

³⁵ See esp. Fabian and Weaverdyck, ch. 3.A, II, this volume.

³⁶ Leese-Messing, ch. 15, III. 1-3, this volume.

³⁷ Von Reden, ch. 12.A, VI, this volume, for the complexities of *polis* development in Babylonia.

³⁸ Fabian and Weaverdyck, ch. 3.A, IV.1, this volume.

³⁹ Grewal 2008, esp. 22-33 with Hoo, ch. 1, this volume. Ma 2000, 179-242 for an excellent account of the nature of imperial communication developing through *euergetism*.

⁴⁰ See vol. 1, parts 2 and 3.

and Chinese Empires have left adequate amounts of transmitted and excavated texts to gain deeper insights into fiscal institutions, administrative procedures, and economic motivations across the imperial space. In contrast, early historic India did not leave a comparable textual corpus. Extant transmitted texts cannot be dated securely, are highly normative in nature, and do not allow precise location in social, political, and economic contexts. Epigraphy and archaeology are the most reliable sources for practices of economic behavior here. From the Arsakid and Central Asian empires, moreover, a mere handful of texts have survived, while the pastoral communities of Inner Asia have left no written traces of their own at all. Reconstructing economic and tributary patterns relies here almost entirely on foreign observation, archaeological, numismatic, or comparative material. Research, therefore, has taken different paths as well, and gives unfortunate priority to the Hellenistic, Roman, and, to some extent, Chinese empires.

Within Graeco-Roman history and archaeology there are also various methodological possibilities to approach economic development. One, following the historiographical and sociological traditions of early twentieth-century Europe, has adopted structural and institutional perspectives for explaining economic change at an imperial scale. In more recent years, such approaches have concentrated on tax regimes, property rights, development of state coinages, banking and credit, interstate negotiation, and the formation of alliances, all of which went along with empire formation and economic development.⁴¹ A recent branch of this tradition, grounded in quantifying social science approaches to economic history, has adopted neo-institutional theorems and transaction cost theory in order to analyze conditions of market development and economic growth, often with an emphasis on demographic and other quantifiable developments.⁴² Another tradition, rooted more firmly in archaeological disciplines and grounding research on ancient economies in space, environments, and landscapes, focuses on regional economies and their expansion in scale as well as on phenomena not covered by textual evidence well: development of landscapes, intensification of land use, development of technical implements, water management, transport and mining technology, expansion of exchange networks, and possible influences of climate change.⁴³ In combination, these are brought to bear on questions of production, consumption, changing patterns of land use, scales of distribution systems, and the development of interdependent markets.⁴⁴ Such approaches are by no means mutually exclusive, nor have they developed in academic isolation. Collaborative workshops and comparative research have led to much progress and impressive results. Yet com-

⁴¹ Von Reden and Speidel vol. 1, ch. 17.

⁴² Morris, Scheidel, and Saller 2007; Monson 2012; Mackil 2013; Bresson (2007–2008) 2016.

⁴³ Horden and Purcell 2000; Bowman and Wilson 2009; 2011; 2013; Wilson and Bowman 2018. Manning 2018 for the first time has attempted a combination of ecological, climatic, and institutional approaches to ancient economic history.

⁴⁴ A theme explored in Wilson and Bowman 2018.

mon frameworks for research on empires with widely different data sets are still missing.⁴⁵ Bringing these paths together in a world zone of exchange is crucial, and requires some fundamental rethinking of the ways divergent bodies of evidence and approaches can be brought into a dialogue.

There were common developments across the Afro-Eurasian empires between 300 BCE and 300 CE, such as growing amounts of coinage in circulation, growing amounts of pottery, increasing size and numbers of towns, and greater amounts of monumental architecture. Such visible signs of material changes went together with more enduring institutional structures, more complex monetary practices, and more intense connections between distant locations. The co-evolution of similar phenomena across the entire imperial region suggests some interrelated dynamics of change. One dynamic of shared development may have been the unprecedented size of the Hellenistic imperial space that for the first time spanned from the Mediterranean to the eastern edge of Central Asia and the northwestern parts of the Indian subcontinent. The Achaemenid precedent, moreover, had set a model for the imperial control of vast spaces, which may have gained force under the Hellenistic kings through their politics of monetization, urbanization, and impact on elite behavior.⁴⁶ Nevertheless, imperial tradition and emulation, cannot fully explain the profound and penetrating transformation of the Afro-Eurasian zone. Nor can Achaemenid and Hellenistic influences account for developments in East Asia, which until the time of Emperor Wu (141–87 BCE) was connected to other parts of Asia through the intermediary of mobile Inner Asian steppe communities only.⁴⁷ We are far from understanding the mechanisms of economic transformation of the ancient Afro-Eurasian world zone as a total space. Yet if we want to escape the Silk Road narrative, based as it is on a crude understanding of global markets and trade in the ancient world, we need to get closer to the connection of local, regional and of imperial economic relationships and the ways they stimulated the development of inter-imperial connections. In the following sections, I explore as a prelude to the following chapters four concepts: (1) landscape affordance, (2) networks and network power, (3) standardization, and (4) institutional development.

II.2 Landscape Affordance

The Afro-Eurasian landmass is a heterogeneous environment marked by a mountain skeleton, a steppe corridor, and several desert barriers.⁴⁸ And although this

⁴⁵ Bang 2021 provides important new ground for comparative research, yet leaves the problem of quantitatively and qualitatively different data sets rather unexplored.

⁴⁶ Von Reden, vol. 1, ch. 1.

⁴⁷ Leese-Messing, vol. 1, ch. 4, and ead. ch. 15, this volume. For an excellent account of economic development and exchange networks among the Inner Asian steppe communities, see Brosseder 2015.

⁴⁸ Cunliffe 2015, 8–25.

landmass is not surrounded by a world ocean, as the ancients imagined, its southern latitudes are lapped by oceans that created additional interfaces. Embedded within this tectonic macro-environment, numerous micro-ecologies brought forth cohesive human settlement and political organization before the period under consideration in this volume. All early political organization was ecologically homogeneous, developing in river valleys, mountain regions, desert oases, steppe grassland, or coastal zones that encouraged particular economic strategies. Politically expansive empires, by contrast, cut across ecological zones.⁴⁹ Although ecologically embedded communities also forged relationships beyond their immediate environment, it was only political and military imperial expansion that fostered overarching frameworks for such relationships.⁵⁰ Arguably, the capacity of imperial states to organize human and material resources across ecological zones is one source of their economic power.⁵¹ The example of Palmyra demonstrates by what means such overarching frameworks may be established locally and regionally within imperial practices.

Historians and archaeologists have long focused on how the use of environments influenced human social and economic organization.⁵² After many misconceptions of the environment as either a mere container, or determinant, of human life have successfully been cleared, historians and archaeologists have developed more sophisticated models of human-environment interaction. A crucial concept for such interaction is the landscape.⁵³ Landscapes, as Heras-Escribano and de Pinedo-García have recently put it, are “co-constituted” by humans and the environment. The environment offers many opportunities, while humans attach values, significance, and meanings to it, which modifies the environment and creates particular constraints and responses.⁵⁴ Thus, for example, stone walls in Ireland are a solution of farmers to deal with excess stone. At the same time, stone has inspired Irish artists, shaped the nature of the Irish countryside, attracts tourists, and is made into walls functioning as boundaries for animals and demarcations of private property rights.⁵⁵ At a grander scale, these interactions, both through the agency of the inhabitants and the ways in which outsiders perceive and use the spaces, constituted deserts or steppe as ‘barriers,’ ‘corridors,’ or something else entirely. The highly

⁴⁹ Christian 2011.

⁵⁰ Weaverdyck et al., ch. 7, this volume.

⁵¹ Von Reden 2015.

⁵² A growing literature develops around new ecology and environmental humanities, exploring the social, economic and political implications of human-environmental interaction; pioneering Butzer 1982; succinct surveys are Christian 2011 and Hughes 2016. Most important in ancient history, Horden and Purcell 2000; Schliephake 2020 for discussion and further literature.

⁵³ Förster et al. 2012; and Heras-Escribano and de Pinedo-García 2018 for brief reviews of a large literature.

⁵⁴ Heras-Escribano and de Pinedo-García 2018, 3; see also Weaverdyck et al., ch. 7, this volume.

⁵⁵ Heras-Escribano and de Pinedo-García 2018, *ibid.*

forested and ecologically diverse Indian subcontinent, moreover, does not naturally encourage long-distance human interaction and trade across its vast space. Particularly long coastlines opening into vast ocean spaces in combination with large rivers connecting and separating inland spaces, foster the movement of coastal and non-local products into the hinterlands via large rivers along east-west/west-east axes.⁵⁶ Yet religious sentiments and the institutions that developed to live and express these sentiments made people develop long north-southward routes, which became meaningful metaphors for the long and laborious road to salvation under guidance of the Buddha.⁵⁷ Buddhist faith, in turn, stimulated the long-distance movement of Buddhist religious objects, Buddhist material culture, and worshippers, under strenuous conditions of transport and travel.

Typically, the making of human landscapes takes place at a local scale, as Lauren Morris shows in ch. 7 of this volume. Environmentally, the pocketed niches of the Kugitangtau and Baysuntau piedmonts in modern southern Uzbekistan force sedentary agriculture and subsistence strategies offered by the mountain ranges bounding the valleys. Yet human interests in exchange and interaction with surrounding pastoral and semi-pastoral communities created mixed agrarian-pastoral landscapes – and the opportunity for imperial powers to make people transform their place further into locations of movement and the production of products suitable for trade.

A crucial concept for the development of landscapes is their affordance. As we just saw, landscape theory emphasizes human agency in the development of environments. Theories of landscape affordance find solutions to how this agency unfolds. There are some intrinsic properties in any environment, but human behavior and cognition attach economic value and cultural values to them that guide and constrain their interaction.⁵⁸ This transforms the environment into a landscape, often in aesthetic and transcendental ways: mountains and deserts become objects of local art, or the earth and caves the burial ground for heroes spending happiness, wealth, and identity to their worshippers.⁵⁹ Landscape affordance has important economic implications, as humans exploit their environment according to the values, experiences, and expectations they bring to this environment. Imperial political power, ideology, and tributary claims can be further stimulants for the transformation of value, experiences, and expectations attached to a landscape, as we saw with the example of the development of the Kugitangtau and Baysuntau piedmonts.

⁵⁶ Dwivedi, vol. 1, ch. 3, 95–97.

⁵⁷ Neelis 2011, 3, and *passim*.

⁵⁸ Already Butzer: “It is important to appreciate ... that goals, values, and perceived needs are critical in understanding human actions and that culture, perception, and behaviour conditions the ways in which individuals and societies interact with their environment” (1982, 32). See also Horden and Purcell 2000, 49.

⁵⁹ E.g., von Reden 1998 for an example from the Greek world.

The way an environment affords particular opportunities can also be illustrated with the example of Palmyra. The large hinterland of the city was well endowed with springs and cultivable areas, which provided a habitat for pastoral communities that settled and pursued agriculture there. The primordial spring Efqa still received a cult in the Roman period, and reminded the Palmyrenes of the foundations of their communal life. There was no natural need to venture back into the desert. Yet the Palmyrenes came to rediscover its opportunities, first, by what it meant to their urban rituals and needs, and second by the wealth, status, and cosmopolitanism that it generated for the city once Mediterranean elites began to consume the products of Eastern trade in large quantities.⁶⁰ This transformed the physical infrastructure of the desert and its social organization, henceforth responding to the transient caravans.⁶¹ The perception of the physical and symbolic rewards to be gained from the desert trade – honorific decrees and official letters from governors and emperors – were by no means secondary: they were an important contributor to the transformation of the desert landscape.⁶²

Twenty years ago, when ecological systems theories flourished, Horden and Purcell emphasized the need to historicize human-environment interaction. We needed to pay “attention to what is distinctly historical about the place of humanity within the environment, and particularly the complexity of human interaction across large distances.”⁶³ New ecology and environmental humanities insist on the impact of human cognition on the making and exploitation of landscapes, and help to avoid static constructions of human-environment interactions. At the same time, in conceptualizing landscapes as a dialectic between humans and the environment, they have begun to break down the human/nature dichotomy.⁶⁴ In the simplest terms, this involves acknowledging constructed elements as part of the environment on par with naturally occurring features. More radically, it suggests that ‘social/cultural’ environments and ‘physical/natural’ environments are profoundly intertwined in the experience of individuals and communities. Political, and specifically imperial, forces form a part of the sociocultural environment.

Network approaches have offered new perspectives on how external and internal influences affect the human use of their environment. How do local actors respond to imperial influences? How do such influences reach local economic actors and in what form? Network approaches can help to productively reorient research on local agency and transformations of landscape use under imperial conditions.

60 For the metaphor of detection, Heras-Escribano and de Pinedo-Garcia 2018.

61 See Taasob, ch. 8.B, this volume.

62 There are further implications of the affordance concepts, such as the fusion of the perception of ecological laws and the development of human convention, which creates validity and reliability; see Golonka 2015, and Heras-Escribano and de Pinedo-Garcia 2018 for discussion.

63 Horden and Purcell 2000, 49.

64 Pioneering and stimulating much further research, Ingold 1993.

II.3 Networks and Network Power

The network is both a spatial-relational metaphor and a concrete method of analysis widely adopted in history, archaeology, numismatics, and the social sciences. The major objectives of this approach in the ancient world are to analyze connectivities between human (and nonhuman) actors and their consequences.⁶⁵ Network approaches also offer common analytical ground for investigating archaeologically/numismatically visible and historically explicable axes of interaction. If sufficient data are available, various scientific analytical models and methodologies may help to predict particular outcomes.⁶⁶ A socioeconomic network is a multidirectional web of formal and informal interactions that do not require a state, nor indeed political boundaries within which particular rules of behavior are enforced.⁶⁷ Network terminology undercuts stable center-periphery models that have been highly popular in research on empires and allows instead a perspective on the divergence of political, economic, military, ideological or social centers.⁶⁸ For research on premodern economies, the network metaphor has the additional advantage of not prejudicing the function and motivation of network interaction, nor the mechanisms by which goods or money move from their places of production to places of consumption or deposition.⁶⁹ A wide range of social, political, and economic relationships can be captured as networks without attributing primacy to any of their functions. Yet there are also problems with the network metaphor. First, it must be carefully distinguished from network theory and network analysis, which require particular data sets and methods of analysis. Such methods and analyses are not intended in this volume, as the data available in the different regions under consideration are neither sufficient nor sufficiently comparable. Second, network metaphors often conceal a number of imprecisions: who or what are the nodes of the network, and what kind of relationships do the links between the nodes represent.⁷⁰

The chapters of this volume adopt network approaches in order to provide new avenues for exploring economic activity and connectivity in the ways they unfold over large imperial spaces and landscapes. Human and nonhuman actors, discussed in part I, are our nodes. The links are the relationships through which actors

65 For its application in ancient studies, see briefly Weaverdyck vol. 1, ch. 7, 279–286. Further, Malkin 2011; Malkin, Constantakopoulou, and Panagopoulou 2013; Tailor and Vlassopoulos 2015; Brosseder 2015; Seland 2013. For theoretical discussion, Malkin 2011, 3–69; Knappett 2013; articles in Leidwanger and Knappett 2018; for application in numismatics, van Alfen 2018; and van Alfen forthcoming.

66 Weaverdyck vol. 1, ch. 8.A, 311–325; Malkin 2011, 3–64.

67 Grewal 2008; Seland 2016; Brosseder 2015.

68 Von Reden, vol. 1, 3 and 5 for the both useful and constraining dimensions of center-periphery models.

69 Brosseder 2015.

70 Van Alfen forthcoming.

achieve particular goals in regard to expanding dimensions of their action: local, regional, or global. The tools that we discuss in part II are the social phenomena and structures that facilitated the economic relationships of actors. Outcomes, and the ways particular actors and tools were conducive to these outcomes, are discussed in the more synthetic chapters of part III.

Yet the distinctions between actors, relationships, and tools, and the ways they shape outcomes, are by no means as neat as the network metaphor and its derivatives suggest. Actors tend to be very hybrid and variable nodes.⁷¹ All actors are imbedded in complex networks, and some, such as cities, are networks unto themselves. Moreover, actors use tools within different relationships to produce different outcomes, and tools change their purpose and function in relation to different actors. Coinage and money, for example, fill different functions when dedicated by worshippers to gods than when paid by emperors to armies or spent by merchants in the market. The first coins had a wide range of potential purposes, and only particular relationships and institutions channeled them into particular functions.⁷² Networks, just like landscapes, are not stable and static entities. They are deeply influenced by individual or group agency, social politics, ideology, and above all imperial power.

Michael Mann's concept of network power offers new perspectives for thinking multipolar power relationships in political formations beyond unitary notions of society and state.⁷³ Mann insists that neither societies nor states are totalities that constrain individuals and groups bound through social structures. Instead, states and societies are multiple overlapping and intersecting power networks of social interaction. Four sources of power especially act as integrating mechanisms for developing networks: ideological, economic, military, and political (IEMP model of network power). Ideological power, according to Mann, is wielded by those who monopolize claims to meaning in the form of norms, aesthetics, or ritual practices. Military power mobilizes violence, including forced labor, and is the most concentrated instrument of power. Political powers comprise centralized and institutional kinds of power, and those that regulate territory. They can either be "despotic," with little penetration of local networks, or develop in the form of "infrastructural power" that penetrates societies more thoroughly.⁷⁴ Economic power, finally, monopolizes control over production, distribution, exchange, and consumption. Mann suggests that this may happen either through the control over relations of production (in Marxist terms) or over exchange (in Polanyean terms). Together they offer a particular "socio-spatial blend" of extensive and diffuse power over large numbers

⁷¹ Fabian and Weaverdyck, ch. 3.A, this volume.

⁷² Von Reden 2010, 18–34.

⁷³ Scheidel 2012, 22–25, for discussion and further literature; Manning 2003; Bang 2008; Fischer-Bovet 2014, and Haldon 2021 for application in the histories of ancient empires.

⁷⁴ Ando 2017b for questioning this contrast.

of people and territories, and intensive power requiring a high level of commitment from the participants.⁷⁵

Mann's model of network power explains economic relationships as deeply entangled with imperial power, rather than formed by private initiative and market forces. A perspective on empires as organized power networks, moreover, provides a more dynamic understanding of network expansion and the ways economic behavior transforms within such networks. At the same time, we must not lose sight of the strong tributary pressures exerted on networks and the actors within these networks.

Yet Mann's separation of imperial control over relations of production from control over relationships of exchange is rather conventional. It leaves unanswered the question of how the two are part of interrelated network relationships. Shmuel Eisenstadt in a much-quoted passage also configures this interrelationship in classical economic terms. Under imperial influence labor, capital, and exchange become "disembedded" from "self-contained" local economic units. Free-floating resources come to penetrate all sectors of the economy and become part of more specialized economic units dependent on external markets.⁷⁶

More helpful for our purposes are approaches developed in globalization theory. How do global networks of power emerge in the absence of a global state structure? Standardization and coordination of behavior are crucial conditions for long-distance networks of exchange to develop. Standards are shared norms and practices in this approach.⁷⁷ The process by which individuals subject themselves to increasingly shared standards greatly facilitates coordination among members of exchange networks and at the same time expand their size and influence. Standardization processes affect units of weight and value, monetary media, language use, calendars and technological implements, but standardization can also occur in forms of communication, codes of behavior, and consumption. Their spread among ever larger groups of network participants makes things transacted more comparable and commensurable, and the people transacting more comprehensible to others.⁷⁸ Standardization of weights, measures, coinages, calendars and so on has long been identified as a crucial aspect of empire formation.⁷⁹ Yet as Grewal has emphasized, standardization is above all a way of local participation rather than a top-down process of control. Convergence of standards is the result of the accretion of decentralized choices.⁸⁰ Such choices, of course, involve power, too. Network standardization is by no means an egalitarian process, as standards are not just regularities

⁷⁵ Mann 1986, 25.

⁷⁶ Eisenstadt (1963) 2010, 33–34.

⁷⁷ Grewal 2008, 10.

⁷⁸ Grewal 2008, 23.

⁷⁹ Allsen 2011; for a comparison of empire and globalization dynamics, briefly Grewal 2008, 6–8.

⁸⁰ Grewal 2008, 6.

but also levels of attainment.⁸¹ Participation in a network, moreover, is likely be driven by claims to superiority of the standard: it is *worth* participating.⁸²

A focus on network standardization processes helps to reorientate a number of perspectives on imperial power and economic behavior. First and foremost, the empirical record shows that there was never any empire-wide standardization. As the chapters in part II of this volume show, numerous local languages and dialects, local weight systems, measures, and sometimes coinages continued to be used under imperial domination, only some of them entering bi- or trilingual official documents or tributary prescriptions.⁸³ Local bronze issues coexisted with imperial precious-metal coinages, or coins of different issuing authorities cocirculated.⁸⁴ In the northwestern Indian and western Chinese frontier zones, moreover, coins with bilingual legends are attested at various periods, demonstrating the attempt to produce coinages for payments and exchange networks that were by no means standardized.⁸⁵ Official languages and coinages represented just a veneer of imperial top-down standardization that met with numerous, often small, local network standards responding to imperial networks in different ways.⁸⁶ Against this empirical background, secondly, a focus on standardization processes and its complications escapes the dichotomy of either state-/fiscally driven or market-/locally/profit driven explanations for the expansion of trade, while putting instead due emphasis on overlapping local, regional and imperial politics that impacted trade and exchange networks. Thirdly, it allows us to avoid questionable notions of ‘influence’ of imperial or religious cultures (‘Hellenism,’ ‘Romanization,’ ‘Brahmanization,’ etc.) transforming forms of expression and patterns consumption as a result of simple cultural dominance. Instead, it sharpens an understanding of local cultural behavior (and consumption) as a matter of choice that involved a mixture of local, regional and imperial benefits and costs.⁸⁷ Fourthly and finally, the staying power of particular norms, languages and coin types explains why forms of exchange and relations of production usually transformed much more slowly in times of rapid political or dynastic change. As Grewal notes, network standards, after an initial push, drive toward conventionality. Standards provide security and predictability in a network, making it costly for actors to change their behavior and networks. Imperial change

81 Grewal 2008, 22.

82 Grewal’s theory is formulated explicitly against the background of modern globalization and liberalism, where standardization and homogenization processes threaten local identities and self-assertion. The main thrust of Grewal’s argument is demonstrating power dynamics beyond social and political authority structures.

83 See, e.g., Weaverdyck and Fabian, ch. 8.A, II.3, this volume.

84 See, e.g., Morris, ch. 9, III.1, this volume.

85 Morris, ch. 9, II.3; ch. 14, III.5, this volume; and Morris, vol. 1, ch. 9, III.

86 A central issue in globalization theory, as demonstrated in Hoo, ch. 1, this volume.

87 Consider the example of Palmyra as an illustration.

creates new networks and standards, yet consumption habits, codes of behavior, and modes of expression are slow in adapting. The actors within various imperial power networks are more likely to adjust, or reorientate, their behavior in order to adjust to the new circumstances rather than rebuffing the change. The willingness, for example, of some members of the Hellenistic and Syrian elites to cooperate with changing royal courts (each using different languages, representing different ideologies, and building new networks of followers) shows the flexibility of network actors to adjust their network relationships to new conditions.⁸⁸ By adopting certain standards current among the networks with access to imperial power, individuals could join those networks while simultaneously remaining embedded in local networks through the maintenance of other standards. Standards, thus, relate primarily to network membership. How actors behave within those networks depends more on the institutions that structure their relationships.

II.4 Institutional Development

Standards and institutions share a number of properties and functions: they are common rules and norms of behavior, they allow better coordination of behavior, they reduce uncertainty and costs of transactions, and they have a certain staying power across periods of political change.⁸⁹ However, while standards, according to Grewal, develop in any local, imperial, or global network as a matter of practice, institutions are more closely related to organizational structures – states, religious organizations, or firms.

Institutions have been widely theorized in organization-, systems-, and cognitive theory as a means to regulate human behavior in specific organizational contexts. They have received particular attention in the late twentieth century as an essential building block of neo-institutional economic theory. Through the work of the economist Douglass North, they have entered economic history.⁹⁰ Institutions are, in North's terms, "humanly devised constraints that structure political, economic and social interaction. They consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct), and formal rules (constitutions, laws, property rights)."⁹¹ The development of formal institutions requires states that ensure their enforcement. In combination, states, institutions, and rule enforcement are the conditions for market development and economic growth.

⁸⁸ Von Reden, ch. 12.A, this volume.

⁸⁹ For a brief survey of neo-institutional theory and its wider background in sociology, von Reden and Kowalzig forthcoming; Scheidel, Morris, and Saller 2007 in relation to ancient economic history.

⁹⁰ North 1981; 1990.

⁹¹ North 1991, 97; cf. 1981, 18–19; 1990, 3–4.

Although conceived as a theory of economic growth in rather evolutionary terms, North's institutional approach to economics has been welcomed as a paradigm shift in premodern economic history.⁹² In Graeco-Roman history it has put to rest the lasting conflict between the 'primitivist' argument of economic stagnation and the 'modernizing' view of Mediterranean-wide market development and encouraged instead a shared focus on normative and legal contexts that "constrained" economic processes.⁹³ Rather than focusing on price formation, division of labor, trade, credit, and banking as indicators of market development, scholars have begun to investigate fiscal, legal, and normative conditions that, according to neo-institutional theory, stimulate or constrain market exchange. A greater focus on the legal contexts of economic behavior – especially property rights, contract law, and their enforcement – that reduced uncertainty in the management of land and exchange has offered a new approach to economic development (see above).

It is important to emphasize, however, that North investigated conditions of growth in the context of developed nation states. Weak, or non-national, state structures that are more typical of premodern empires, are in this theoretical framework imperfections. In one of his publications, North contrasts institutional development explicitly with contexts in which the development of public institutions failed. Exchange in bazaars and caravan trade involved enormous transaction costs, as they were not controlled by market rules, common standards, or public norms. They required very intricate individual strategies that were totally opaque to outsiders and newcomers. While bazaars were open to everybody, the challenge of uncertainty, according to North, was met by other-than-public institutional means: the repeated use of the same clients (clientelization), and interpersonal, rather than state-controlled, dispute resolution. Reducing transaction costs by such public means was not a sensible strategy for actors in a bazaar or in caravan trade. Quite on the contrary, generating greater transaction costs for competitors was a fundamental strategy of bazaar merchants.⁹⁴

In the light of the discussion of section I.2, the dichotomy between market institutions and bazaar strategies falls into the orientaling trap.⁹⁵ As we saw in the case of Roman Palmyra, there is much room for historically specific institutional developments – *euergetism* and a wide range of institutions reducing transaction costs in imperial networks – which created strong incentives for trade. Also in other

⁹² E.g., Persson 2010.

⁹³ On the primitivist-modernist debate and more recent trends in Graeco-Roman history, von Reden and Speidel, vol. 1, ch. 17, 705–710; on neo-institutional approaches to ancient economic history, Scheidel, Morris, and Saller 2007; more critically, Verboven 2015; and in relation to ancient Greek economic history, von Reden and Kowalzig forthcoming.

⁹⁴ North 1991, 102–104 with Geertz 1979; for clientelization, see also Granovetter 1985; and Bang 2008, 286–289.

⁹⁵ Terpstra 2019, 13–23 questions the link between formal institutions of law enforcement and market development in the ancient world.

Hellenistic and Roman contexts it can be shown that effective forms of dispute settlement can stand in for of state institutions.⁹⁶ Imperial state structures, better conceived as networks of power, played an important role for the development of public institutions and rule enforcement.⁹⁷ While a focus on formal and informal institutional contexts of land management, trade, and exchange offers opportunities to reflect upon conditions within which they developed, this approach ought to be dissociated from the neo-institutional linkage of state-building and intensive economic growth.

Neo-institutional approaches have been applied preferentially to ancient states that were either small, such as Greek *poleis*, or had a long history of political integration, such as Egypt and Babylonia. The question of whether the Athenian or Roman Empires should also be characterized as states has seen controversial but fruitful debate over the last two decades.⁹⁸ It is generally agreed that all ancient state formations were different from modern nation-states.⁹⁹ States may be defined as institutional and ideological responses to the challenges of integrating larger numbers of people/populations and greater territories.¹⁰⁰ It is unhelpful, however, to approach such responses in evolutionary terms as a process toward modern nation-state building. Research on ancient empires has increasingly moved away from such notions of the state. In these wider contexts of debates on ancient states and empires, more secure property rights, developing infrastructures for the enforcement of laws and contracts, market controls including the control of coinage, and low-tax regimes have all been brought to bear on questions of market development and economic growth.¹⁰¹ Yet scholars of Graeco-Roman history have also pointed to the limited reach of these institutions.¹⁰² Property rights in Athens, for example, were still constrained by the possibility of arbitrary seizure by the state.¹⁰³ Public institutions for the enforcement of contracts did not protect trade and exchange in the peripheries of the Hellenistic and Roman Empires sufficiently. There were, rather, alternative institutions – associations or networks of self-help – that filled these

96 Terpstra 2019, *passim*.

97 See above, and Ando 2017a, 3–7; Ando 2017b, with a particular focus on infrastructural power networks and despotic state models not being mutually exclusive; Scheidel 2012, 27–30 more generally on the relationship of states and empire.

98 Eich and Eich 2005; Goldsmith and Haldon 2009; Morris 2009; von Reden 2015b, 128–133 for discussion and further literature.

99 As defined classically by Max Weber (1925) 1978, 54–56.

100 Goldsmith and Haldon 2009, 4–10.

101 Generally, Scheidel, Morris, and Saller 2007; also Bresson (2007–2008) 2016; Mackil 2013; Kehoe 1994; Monson 2012; Manning 2005; Jursa 2004; Lo Cascio 2007; 2018, alongside a host of studies that use neo-institutional theorems more selectively, see further von Reden vol. 1, ch. 17, 708–710.

102 See Fabian and Weaverdyck, ch. 3.A, IX. 1.2, this volume for several examples.

103 Mackil 2018.

functions effectively.¹⁰⁴ It is important to discuss institutional change in relation to more flexible notions of state transformation.

III Economic Growth and Imperial Economies

It is extremely difficult to identify economic growth in ancient empires. Although the development of formal legal institutions and standardization of norms are likely to have led to greater certainty and lower costs of transactions in expanding networks of exchange, the correlation of these factors with economic growth is difficult to demonstrate. First and foremost, there is a lack of data robust enough to relate institutional change to economic growth even in well-defined sociopolitical settings.¹⁰⁵ Second, it is now abundantly clear that in contrast to national economies, ancient empires were very heterogeneous economic spaces affected very variably and at different temporal scales by political transformation. Third, there is the problem in defining economic growth in empires in ways that economists find useful.¹⁰⁶ As Richard Saller has pointed out, economists identify different forms of economic growth and their causes. Since the emergence of classical economic theory, economic growth is related to well-defined territorial states and their productive outcome (the “Wealth of Nations,” as Adam Smith put it, or Gross Domestic Product, GDP). At the time of Adam Smith, economic growth was a visible development within a national state at two different points of time:

When we compare ... the state of a nation at two different periods, and find that its land and labor is evidently greater at the latter than at the former, that its lands are better cultivated, its manufactures more numerous and more flourishing, and its trade more extensive, we must be assured that its capital must have increased during the interval between those periods, and that more must have been added to it by the good conduct of some, than had been taken from it either by the private misconduct of others or by the extravagance of government.¹⁰⁷

National economic growth was visible from the greater amount of more skilled labor within several economic sectors combined with decreasing economic neglect and decreasing state profligacy. Greater skill and more effective labor input, in turn, were achieved by greater division of labor, regional specialization, and an increase in markets and trade. Increase in productivity due to greater specialization and market exchange thus lays at the heart of economic growth in classical economic terms. Since Smith, the factors that increase productivity have been highly debated, and over time have transformed into less visible data that fill the equations for abstract

104 Terpstra 2019; see also von Reden, ch 12.A; Weaverdyck ch. 12.C, this volume.

105 Granovetter 2005 for a lack of data

106 Saller 2002; and Eich forthcoming.

107 Smith (1769, 2.3.) 1961, 443.

models of national economic growth. Increase in investment into the productive process, increase in investment into new technologies leading to more sustained increase in productivity, or investment into human resources that allow sustained technological innovation, are among the most important factors in classical and neo-classical growth scenarios ('intensive' or *per capita* growth). Neo-institutional economics asks in particular what institutions make actors invest in any of these improvements.

Total economic production in a state can also grow simply because the number of workers grows. This type of economic growth ('aggregate' or 'extensive' growth) might be achieved by mobilizing a larger work force, expanding areas of cultivation and sizes of workshops, or increasing the radius of workers supplying particular places and people. Extensive growth is a factor of power and can quite typically be found in premodern empires: it is visible in the growth of capitals, the growth of armies, or the increasing spending power of kings, courts and elites. Extensive growth is not of particular interest to economists. It does not raise general standards of living, and quickly collapses with political change or imperial decline.¹⁰⁸

The distinction between intensive/*per capita* growth and extensive/aggregate growth is helpful for sharpening debates over economic growth and its underlying factors. Yet it is important to realize that both concepts require a demarcated political economy, or state, in which the factors that led to economic growth (such as investment and innovation) can be assessed. Second, both concepts construct, in rather classical economic fashion, immobile human and natural resources as the foundations of real economic growth. Mobility as an imperial economic resource itself cannot be considered as a factor. And third, both concepts privilege political, social, and ideological centers as the sources of growth and transformation to which local or mobile actors do little more than respond.¹⁰⁹ As Milinda Hoo has shown in the previous chapter, contemporary globalization theories have challenged these assumptions, while also offering new ways of understanding ancient inter-imperial exchange and its local and regional causes and consequences.

IV Global Connectivity

In the attempt to get away from Silk Road trade as an autonomous explanation for Afro-Eurasian connectivity, the chapters of this volume explore the economic conditions for and effects of the expansion of trans-Eurasian exchange. The networks that fostered the inter-imperial movement and consumption of goods typical-

108 Saller 2002, 257–258.

109 For a more complex scenario of center-local elite interaction and competition, Haldon 2021, 206–211.

ly converged in imperial peripheries. Imperial peripheries were connected both to inter-imperial networks of exchange and to local consumption centers, regional hubs of exchange, and imperial courts and capitals.

The development of global connectivity, which in this volume is approached in terms of imperial network ties, was a major dynamic of economic development during the period between 300 BCE and 300 CE. It can explain the growth of capital cities, urbanization, and technological change, as well as their underlying demographic factors. Imperial capitals and courts played an important role in these developments, as they concentrated large amounts of consumption and human resources, as well as the largest bundle of ideological, military, political, and economic power. Yet imperial capitals, emperors and imperial elites directly connected to the centers were by no means autonomous actors. As the network metaphor suggests, there were multiple interconnected actors that conducted their relationships via a number of tools that were shaped by network practices and environments transformed by human influence.

Larger volumes of coinage, greater mobility of goods and people, and larger amounts of more complex communication in the form of writing and written documentation formed the conditions for, and so are indicators of, greater economic connectivity. The connectivity of local, regional and imperial economies led to the expansion of exchange into new areas, a process not to be mistaken as the result of autonomous market forces. Instead, the expansion of network opportunities increased the radius of existing exchange networks. Local people and regional polities participated in and stimulated trans-regional networks of different scales without being politically or economically fully integrated, self-contained political economies.¹¹⁰ Trans-local activities of different kinds and scales led to changing cultures of consumption. Yet foreign goods were integrated into local cultures in very variable ways, as Milinda Hoo emphasizes in the previous chapter. Different contexts of consumption attached very different meanings to imported goods, stimulating also a wide range of motivations for their appropriation and transport.

Institutional innovation lubricated imperial and inter-imperial networks of exchange. Yet such innovations did not just emanate from rulers, as Douglass North rather boldly states.¹¹¹ In his influential work *Institutional Change and Globalization*, the political scientist John L. Campbell addresses the question of institutional inno-

¹¹⁰ Hoo 2020, 556.

¹¹¹ North 1982, 32; in North 1990, he outlines informal institutional innovation as a more incremental process: “Although formal rules may change overnight as the result of political or judicial decision, informal constraints embodied in customs, traditions, and codes of conduct are much more impervious to deliberate policies. These cultural constraints not only connect the past with the present and future, but provide us with a key to explaining the path of historical change” (North 1990, 6; cf. 89–90). Thus, while abrupt formal institutional innovation is one of central political or judicial authority, the change of customs is a more diffused local process.

vation more subtly in the context of contemporary globalization.¹¹² His focus is on institutional change in globally expanding exchange networks. There are two processes, according to Campbell, through which national or transnational institutions transform under the influence of global exchange. One is “bricolage” and “re-combination,” whereby actors combine elements of existing institutional principles and practices in their local environment, which in their combination create new institutional forms and practices. The other process is “translation.” In this case, actors add institutional behavior, which comes from elsewhere, to the preexisting institutional web of their local environment.¹¹³ Campbell’s actor-centered approach directs our attention to innovative and entrepreneurial actors that drive change, rather than to ruler initiative or anonymous processes of state development. Actors’ behavior incrementally transforms institutional patterns and network behavior.¹¹⁴ To be sure, institutional entrepreneurs rely on existing institutions, but they apply innovative strategies to new challenges. Campbell’s concept of “constrained innovation” suggests that institutional innovation is itself path-dependent, that is, limits the range of options from which actors can choose.¹¹⁵

Campbell’s approach to institutional innovation helps explain institutional transformation as a decentralized process. Rather than looking for state actors as the sole drivers of institutional change, our attention is drawn to local actors that adapted their behavior to new network standards. Especially in the context of trans-imperial long-distance trade, the question of how local actors adapted their institutional behavior is crucial. The Muziris contract related to a large business venture between Roman Egypt and India is a good example of local innovation of formal institutions.¹¹⁶ It regulated by way of a written agreement how the cargo arriving from Muziris was transported from the port on the Red Sea via the Nile to Alexandria where it was taxed, and finally handed over to the financier of the trip. The contract of a maritime loan that lay behind these regulations had developed in Classical Greece, but the economic practice to which this legal form was adapted in Roman Egypt was quite different. Instead of an independent merchant having planned a venture to India and borrowed capital wherever he had found it, there was a financier who invested in the trade and recruited merchants to run the trips. As Rathbone comments, in managerial and financial terms the arrangements were quite remote from Greek maritime loans, but structurally more similar to those by which large estate holders in Egypt dealt with their flocks and sheep.¹¹⁷

112 Campbell 2004.

113 For discussion Campbell, Crouch, Streeck, and Whitley 2007.

114 In Campbell and subsequent social theory this is put in terms of system change, but this does not concern us here; Crouch in Campbell, Crouch, Streeck, and Whitley 2007, 529.

115 Campbell 2004, 8.

116 *SB XVIII 13167* (mid-second century CE); Rathbone 2001, De Romanis 2020; also von Reden vol. 1, ch. 8 C, 369–370.

117 Rathbone 2001, 43.

The Palmyrene caravan inscriptions offer a good example for institutional innovation at an informal level. Scholars tend to be divided as to whether Palmyrene *euergesism* and the epigraphic habit that went with it followed typically Hellenistic practices, or radically differed from them, as the nature of the benefactions and the expressions of praise were so different from those in Greek *poleis*.¹¹⁸ In Greek and Roman *poleis*, *euergesism* was a political practice usually related to the sponsoring of local buildings, festivals, and the grain supply, which enhanced the prestige of the benefactors (politicians, kings, and emperors), and at the same time asserted the power of the citizen body who alone were in control of the praise. In Palmyra, by contrast, caravan leaders and financiers were praised for their financial generosity and protection of trade routes, and it was not only the citizens of Palmyra that bestowed honors to the benefactors. Palmyrene *euergesism* is better understood as a “bricolage” of various institutional practices that merged into a new composite institution.

Take the famous example of Soados of Palmyra in the second century CE. In a series of inscriptions, preserved bilingually in Greek and Palmyrene, the praise of Soados’s munificence toward caravan traders, his love of the city of Palmyra, his benefactions to the citizens of Vologaesias, and his awards by Roman emperors and governors are linked to his name that displays (totally inconceivable within Graeco-Roman contexts) his dynastic family descent:

In the year [...]. The council (*boule*) and people (*demos*) [honor] Soados, son of Soados, son of Thaimisamsos, for his piety and love of his city (*philopatris*), and for the nobility and munificence that he has on many important occasions shown to the merchants and the caravans and the citizens (*poleitai*) at Vologaesias. For these services he received testimonial letters (*epistolai*) from the divine Hadrian and from the most divine Emperor Antoninus his son, similarly in an edict (*diatagmata*) of Publicius Marcellus and letters from him and successive consular governors. He has been honored by decrees and statues by the council and people, by the caravans on various occasions, and by individual citizens: and now, he alone of all citizens of all time is on account of his continuous and cumulative good services honored by his city at public expense by four statues mounted on pillars in the *tetradeion* (the *agora*) of the city, and by decision of the council and people, another three at Spasinou Charax and at Vologaesias and at the caravanserai of Gennaes. In addition, he founded and dedicated at Vologaesias a temple of the Augusti [...] and in gratitude for his loyalty and generosity in his management of [every] position of authority [...].¹¹⁹

The Graeco-Roman institution of *euergesism* is here adapted to Palmyrene social organization, urban connections, and religious sentiments.¹²⁰ It was this bricolage of civic institutions and public honors that in combination created new incentive structures for social and economic behavior. Soados also provided not just a local

¹¹⁸ Millar 1998; Young 2001; Smith 2013; Gregoratti 2015 for different evaluation.

¹¹⁹ PAT 1062 (145/6 CE), trans. Matthews 1984, 166–167; Gregoratti 2015 for discussion; see also PAT 0197, and Drijvers 1995, 34–36.

¹²⁰ Local sanctuaries and tribes are mentioned in PAT 0197 and Drijvers 1995, 34–36.

model of behavior, but his praise was designed for reception in the much wider network of cities and urban elites in which Soados was active.¹²¹ In the Palmyrene example of institutional innovation, we can discern a “local move toward the global,” as Hoo puts it in the previous chapter, and which stimulated local economic behavior, network expansion, and inter-imperial trade.

References

- Allsen, T. T. 2011. “Premodern empires.” In J. H. Bentley (ed.), *The Oxford handbook of world history*, 361–379. Oxford: Oxford University Press.
- Ando, C. 2017a. “Introduction: States and state power in antiquity.” In C. Ando and S. Richardson (eds.), *Ancient states and infrastructural power: Europe, Asia, and America*, 1–16. Philadelphia, PA: University of Pennsylvania Press.
- . 2017b. “The ambitions of government: Territoriality and infrastructural power in ancient Rome.” In C. Ando and S. Richardson (eds.), *Ancient states and infrastructural power: Europe, Asia, and America*, 115–148. Philadelphia, PA: University of Pennsylvania Press.
- Bang, P. F. 2007. “Trade and empire: In search of organizing concepts for the Roman economy.” *Past and Present* 195, 3–52.
- . 2008. *The Roman bazaar: A comparative study of trade and markets in a tributary empire*. Cambridge: Cambridge University Press.
- . 2021. “Empire – a world history: Anatomy and concept, theory and synthesis.” In P. F. Bang, C. A. Bayly, and W. Scheidel (eds.) *The Oxford world history of empires*. Vol. 1, 1–90. Oxford: Oxford University Press.
- Bernhardt, R. 1971. *Imperium und eleutheria: Die römische Politik gegenüber den freien Städten des griechischen Ostens*. PhD diss., University of Hamburg.
- Bowman, A. K. and A. Wilson, eds. 2009. *Quantifying the Roman economy: Methods and problems*. Oxford: Oxford University Press.
- . 2011. *Settlement, urbanization, and population*. Oxford: Oxford University Press.
- . 2013. *The Roman agricultural economy: Organization, investment, and production*. Oxford: Oxford University Press.
- Bresson, A. (2007–2008) 2016. *The making of the ancient Greek economy: Institutions, markets, and growth in the city-states*. S. Rendall (trans.). Princeton, NJ: Princeton University Press. Originally published as *L'économie de la Grèce des cités*. 2 vols.
- Brosseder, U. 2015. “A study on the complexity and dynamics of interaction and exchange in Late Iron Age Eurasia.” In J. Bemmann and M. Schmauder (eds.), *Complexity of interaction along the Eurasian steppe zone in the first millennium CE*, 199–332. Bonn: Vor- und frühgeschichtliche Archäologie, Rheinische Friedrich-Wilhelms-Universität Bonn.
- Butzer, K. 1976. *Early hydraulic civilization in Egypt*. Chicago: University of Chicago Press.
- Campbell, J. L. 2004. *Institutional change and globalization*. Princeton: Princeton University Press.
- Campbell, J. L., C. Crouch, W. Streek, and R. Whitley. 2007. “Discussion forum: Institutional change and globalization.” *Socio-Economic Review* 5, 527–567.
- Christian, D. 2011. “World environmental history.” In J. H. Bentley (ed.), *The Oxford handbook of world history*, 125–142. Oxford: Oxford University Press.

¹²¹ Fabian and Weaverdyck, ch. 3.A, VI, this volume, for a discussion of local elite networks as economic actors.

- Cunliffe, B. 2015. *By steppe, desert, and ocean: The birth of Eurasia*. Oxford: Oxford University Press.
- De Romanis, F. 2020. *The Indo-Roman pepper trade and the Muziris papyrus*. Oxford: Oxford University Press.
- Drijvers, H. J. W. 1995. "Greek and Aramaic in Palmyrene inscriptions." In M. J. Gellner, J. C. Greenfield, and M. Weizman (eds.) *Studia Aramaica: New sources and new approaches*, 31–42. Oxford: Oxford University Press.
- Eich, A. Forthcoming. "Political economy and the growth of markets and capital." In S. von Reden (ed.), *The Cambridge companion to the ancient Greek economy*. Cambridge: Cambridge University Press.
- Eich, A. and P. Eich. 2004. "War and state-building in Roman Republican times." *Scripta Classica Israelica* 24, 1–33.
- Eisenstadt, S. (1963) 2010. *The political systems of empires*. New Brunswick, NJ: Transaction Publishers.
- Erdkamp, P. 2005. *The grain market in the Roman Empire: A social, political, and economic study*. Cambridge: Cambridge University Press.
- Fischer-Bovet, C. 2014. *Army and society in Ptolemaic Egypt*. Cambridge: Cambridge University Press.
- Förster, F., K. Iwe, R. Großmann, H. Kinkel, A. Larsen, U. Lungershausen, O. Nelle, C. Matarese, P. Meurer, V. Robin, and M. Teichmann. 2012. "What is a landscape? Towards a common concept within an interdisciplinary research environment." In W. Bebermeier, R. Hebenstreit, E. Kaiser, and J. Krause (eds.), "Landscape archaeology. Proceedings of the international conference held in Berlin, 6–8 June 2012." Special issue, *eTopoi. Journal for Ancient Studies* 3, 169–179.
- Fox, G., S. Lieu, and N. Ricklefs. 2005. „Select Palmyrene inscriptions." In I. Gardner, S. Lieu, and K. Parry (eds.), *From Palmyra to Zayton: Epigraphy and iconography*. Turnhout: Brepols Publishers, 27–126.
- Geertz, C. 1979. "Suq: The bazaar economy in Sefrou." In C. Geertz, H. Geertz, and L. Roan (eds.), *Meaning and order in Moroccan society*, 123–313. Cambridge: Cambridge University Press.
- Goldsmith, J. A. and J. F. Haldon. 2009. "Ancient states, empires, and exploitation: Problems and perspectives." In I. Morris and W. Scheidel (eds.), *The dynamics of ancient empires. State power from Assyria to Byzantium*, 3–29. Oxford: Oxford University Press.
- Golonka, S. 2015. "Laws and conventions in language-related behaviors." *Ecological Psychology* 27, 236–250.
- Granovetter, M. 1985. "Economic action and social structure. The problem of embeddedness." *American Journal of Sociology* 91, 481–510.
- . 2005. "Comment on Liverani and Bedford." In J. G. Manning and I. Morris (eds.), *The ancient economy: Evidence and models*. Stanford, CA: Stanford University Press.
- Gregoratti, L. 2015. "The Palmyrene trade lords and the protection of the caravans." *Aram* 27.1–2, 139–148.
- . 2020. "Temples and traders in Palmyra." In P. Erdkamp, K. Verboven, and A. Zuiderhoek (eds.), *Capital, investment, and innovation in the Roman World*, 461–480. Oxford: Oxford University Press.
- Grewal, D. S. 2008. *Network power: The social dynamics of globalization*, New Haven, CT: Yale University Press.
- Haldon, J. F. 2021. "The political economy of empire: "Imperial capital" and the formation of central and regional elites." In P. F. Bang, C. A. Bayly, and W. Scheidel (eds.) *The Oxford world history of empires*. Vol. 1, 179–202. Oxford: Oxford University Press.
- Heras-Escribano, M. and M. de Pinedo-García. 2018. "Affordances and landscapes: Overcoming the nature-culture dichotomy through niche construction theory." *Frontiers in Psychology* 8, 1–15. <https://doi.org/10.3389/fpsyg.2017.02294>.

- Hoo, M. 2020. "Globalization and the interpretation of visual culture." In R. Mairs (ed.), *The Graeco-Bactrian and Indo-Greek world*, 553–569. London: Routledge.
- Horde, P. and N. Purcell. 2000. *The corrupting sea: A study of Mediterranean history*. Malden, MA: Blackwell.
- Hughes, J. D. 2016. *What is environmental history?* Cambridge: Cambridge University Press.
- Ingold, T. 1993. "The temporality of the landscape." *World Archaeology* 25.2, 152–174.
- Jursa, M. 2004. "Grundzüge der Wirtschaftsformen Babyloniens im ersten Jahrtausend v. Chr." In R. Rollinger and C. Ulf. (eds.), *Commerce and monetary systems in the ancient world: Means of transmission and cultural transaction*, 115–136, Stuttgart: Franz Steiner.
- Kehoe, D. P. 1994. *Management and investment on estates in Roman Egypt during the early empire*. Bonn: Habelt.
- Knappett, C. 2013. "Introduction: Why networks?" in C. Knappett (ed.), *Network analysis in archaeology: New approaches to regional interaction*, 3–15. Oxford: Oxford University Press.
- Korolkov, M. 2020. *Empire-building and market-making at the Qin frontier: Imperial expansion and economic change 221–207 BCE*. PhD diss., Columbia University.
- Leidwanger, J. and C. Knappett. 2018. *Maritime networks in the ancient Mediterranean world*. Cambridge: Cambridge University Press.
- Lo Cascio, E. 2007. "The early Roman Empire: The state and the economy." In Scheidel, Morris, and Saller (2007), 619–650.
- . 2018. "Market regulation and transaction costs in the Roman Empire." In Wilson and Bowman (2018), 117–132.
- Ma, J. 2000. *Antiochos III and the cities of western Asia Minor*. Oxford: Oxford University Press.
- Mackil, E. 2013. *Creating a common polity: Religion, economy, and politics in the making of the Greek koinon*. Berkeley, CA: University of California Press.
- . 2018. "Property security and its limits in Classical Greece." In M. Canevaro, A. Erskine, B. D. Gray, and J. Ober (eds.), *Ancient Greek history and contemporary social science*, 315–343. Edinburgh: Edinburgh University Press.
- Malkin, I. 2011. *A small Greek world: Networks in the ancient Mediterranean*. Oxford: Oxford University Press.
- Malkin, I., C. Constantakopoulou, and K. Panagopoulou, eds. 2013. *Greek and Roman networks in the Mediterranean*. London: Routledge.
- Mann, M. 1986. *The sources of social power*. Vol. 1, *A history of power from the beginning to AD 1760*. Cambridge: Cambridge University Press.
- Manning, J. G. 2003. *Land and power in Ptolemaic Egypt: The structure of land tenure 332–30 BCE*. Cambridge: Cambridge University Press.
- . 2005. "Texts, contexts and subtexts: Beyond the parochial and toward (dynamic) modelling of Ptolemaic Egypt." *Bulletin of the American Society of Papyrologists* 42, 235–256.
- . 2018. *The open sea. The economic life of the ancient Mediterranean world from the Iron Age to the rise of Rome*. Princeton, NJ: Princeton University Press.
- Matthews, J. 1984. "The tax law of Palmyra: Evidence for economic history in a city of the Roman East." *Journal of Roman Studies* 174, 158–182.
- Meyer, J. C., E. H. Seland, and N. Anfiset, eds. 2016. *Palmyrena: City, hinterland, and caravan trade between orient and occident*. Oxford: Archaeopress.
- Millar, F. 1998. "Caravan cities: The Roman Near East and long-distance trade by land." In M. M. Austin, J. Harries, and C. J. Smith (eds.), *Modus operandi: Essays in honour of Geoffrey Rickman*, 119–137. London: Institute of Classical Studies.
- Monson, A. 2012. *From the Ptolemies to the Romans: Political and economic change in Egypt*. Cambridge: Cambridge University Press.
- Morris, I. 2009. "The greater Athenian state." In I. Morris, and W. Scheidel (eds.), *The dynamics of ancient empires: State power from Assyria to Byzantium*, 99–177. Oxford: Oxford University Press.

- Morris, I., R. Saller, and W. Scheidel. 2007. "Introduction." In Scheidel, Morris, and Saller (2007), 1–12.
- Neelis, J. 2010. *Early Buddhist transmission and trade network: Mobility and exchange within and beyond the northwestern borderlands of South Asia*. Leiden: Brill.
- North, D. C. 1981. *Structure and change in economic history*. New York, NY: W. W. Norton & Co.
- . 1990. *Institutions, institutional change and economic performance*. Cambridge: Cambridge University Press.
- . 1991. "Institutions." *The Journal of Economic Perspectives* 5.1, 97–112.
- Persson, K. G. 2010. *An economic history of Europe. Knowledge, institutions and growth, 600 to present*. Cambridge: Cambridge University Press.
- Rathbone, D. W. 2001. "The 'Muziris' papyrus (SB XVIII 13167): Financing Roman trade with India." *Bulletin de la Société d'Archéologie d'Alexandrie* 4–6, 39–50.
- . 2002. "Koptos the emporion: Economy and society, I–III AD" *Topoi. Orient-Occident* Suppl. 3, 178–198.
- Römer-Strehl, C. 2016. "Seleucid, Roman, and Mesopotamian influence in Palmyrene pottery and the question of Palmyrene identities." In Meyer, Seland, and Anfiset (2016), 107–114.
- Rostovtzeff, M. I. 1932. *Caravan cities*. Oxford: Clarendon Press.
- Saller, R. 2001. "Framing the debate over growth in the ancient economy." In W. Scheidel and S. von Reden (eds.), *The ancient economy*, 251–269. Edinburgh: Edinburgh University Press.
- Scheidel, W. 2007. "Demography." In Scheidel, Morris, and Saller (2007), 38–86.
- Scheidel, W., I. Morris, and R. Saller, eds. 2007. *The Cambridge economic history of the Graeco-Roman world*. Cambridge: Cambridge University Press.
- Scheidel, W. 2012. "Studying the state." In P. F. Bang and W. Scheidel (eds.), *The Oxford handbook of the state*, 5–60. Oxford: Oxford University Press.
- Schliephake, C. 2020. *The environmental humanities and the ancient world. Questions and perspectives*. Cambridge: Cambridge University Press.
- Schmidt-Colinet, A., ed. 2005. *Kulturbegegnung im Grenzbereich*. 3rd ed. Mainz: Philipp von Zabern.
- Schuol, M. 2000. *Die Charakene. Ein mesopotamisches Königreich in hellenistisch-parthischer Zeit*. Stuttgart: Franz Steiner Verlag.
- Seland, E. H. 2016. *Ships of the desert and ships of the sea: Palmyra in the world trade of the first three centuries CE*. Wiesbaden: Harrassowitz.
- . 2013. "Networks and social cohesion in ancient Indian Ocean trade: Geography, ethnicity, religion." *Journal of Global History* 8, 373–390.
- Smith, A. (1776) 1961. *An inquiry into the nature and causes of the wealth of nations*. London: Methuen.
- Smith, A. M. 2013. *Roman Palmyra: Identity, community and state formation*. Oxford: Oxford University Press.
- Sommer, M. 2017. *Palmyra. Biographie einer verlorenen Stadt*. Mainz: Philipp von Zabern.
- Subrahmanyam, S. and C. A. Bayly. 1988. "Portfolio capitalists and the political economy of early modern India." *Indian Economic and Social History Review* 4, 401–424.
- Taylor, C. and K. Vlassopoulos, eds. 2015. *Communities and networks in the ancient Greek world*. Oxford: Oxford University Press.
- Terpstra, T. T. 2013. *Trading communities in the Roman world: A micro-economic and institutional perspective*. Leiden: Brill.
- van Alfen, P. G. 2018b. "The destruction and (re)creation of monetary zones in the wake of Alexander the Great." In S. Glenn, F. Duyrat, and A. Meadows (eds.), *Alexander the Great: A linked open world*, 181–94. Bordeaux: Ausonius Édition.
- . Forthcoming. "Monetary networks." In S. von Reden (ed.), *The Cambridge companion to the ancient Greek economy*. Cambridge: Cambridge University Press.

- Verboven, K. 2015. "The knights who say NIE: Can neo-institutional economics live up to its expectations in ancient history research?" In P. Erdkamp and K. Verboven (eds.), *Structure and performance in the Roman economy. Models, methods and case studies*, 33–58. Brussels: Éditions Latomus.
- von Reden, S. 1998. "The well-ordered polis: Topographies of civic space." in P. Cartledge, P. Millett, and S. von Reden (eds.), *Kosmos: Order, individual, and community in Classical Athens*, 170–190. Cambridge: Cambridge University Press.
- . 2010. *Money in classical antiquity*. Cambridge: Cambridge University Press.
- . 2015a. *Die antike Wirtschaft*. Berlin: De Gruyter.
- . 2015b. "Global economic history (1200 BC–AD 900)." In C. Benjamin (ed.), *The Cambridge history of the world*. Vol. 4, 29–54. Cambridge: Cambridge University Press.
- von Reden, S. and B. Kowalzig. Forthcoming. "New Institutional Economics, economic growth and institutional change." In S. von Reden (ed.), *The Cambridge companion to the ancient Greek economy*. Cambridge: Cambridge University Press.
- Weber, M. (1925) 1978. *Economy and society: An outline of interpretive sociology*. 2 vols. G. Roth and C. Wittich (trans.). Berkeley, CA: University of California Press. Originally published as *Wirtschaft und Gesellschaft. Grundriss der verstehenden Soziologie*.
- Wilson, A. and A. K. Bowman, eds. 2018. *Trade, commerce, and the state in the Roman world*. Oxford: Oxford University Press.
- Young, G. K. 2001. *Rome's eastern trade: International commerce and imperial policy, 31 BC–AD 305*. London: Routledge.



Part I: **Actors**

Lara Fabian

Introduction

Our story of local, regional, and imperial Eurasian economies begins with a consideration of the types of actors – both human and nonhuman – that we place at the center of economic life. Some prominent categories treated in most of the following chapters include sovereign rulers, the army, cities or settlement systems, local elites, households, primary producers, craftspeople, and merchants or traders. These actors lie at the core of the multiscalar local, regional, and transregional ‘globalizations’ discussed by Hoo in chapter one, and are the nodes within the network model outlined by von Reden in chapter two. Or to combine these ideas: relationships between the communities of actors (links in the network model) formed the conceptual and physical connective tissue that knit spaces within the Eurasian world region together, both within the territory of a single ruling power and across political frontiers.

Inherent in the idea of an ‘actor’ is a certain sense of agency, which was however constrained both by the nature of the actor category itself – a city having different opportunities and limitations than a sovereign – as well as by institutional factors surrounding the actor categories in specific regional and historical contexts. The fundamental structural characteristics of sovereign power were similar across many of our regions, for example. The exercise of this power, however, was shaped by markedly different cultural expectations about the role of the sovereign and his relationships to others under his rule, which embedded each ruler within a specific constellation of forces that set the terms and scope of his activities. Nevertheless, despite the constraints and path-dependencies, these actor categories stand out for their importance in shaping and in some cases directing economic patterns, although the degree of self-conscious intentionality and explicit economic agency varies considerably.

Production, distribution, and consumption represent fundamental economic building blocks, and our analysis of each actor category is rooted in these processes. However, the coordination of these behaviors at increasingly large scales (primarily spatial, but also temporal and demographically) is a significant trend in the history of this period. Perhaps the most commonly examined form of economic coordination in studies of premodern economies is the integration of markets, but it is not the only one. We should also consider processes of globalization and cultural homogenization as coordinating tendencies in as much as they made certain consumption preferences and values (in the sense of Mokyr) more widespread.¹ More obviously, other examples of coordination lie in the intentional creation and main-

¹ Mokyr 2016.

tenance of organizations, which could vary tremendously in scale as well as internal governing structure, as demonstrated by, for example, a comparison of the role of religious institutions in South and Central Asia to those in the Mediterranean and Southwest Asia.

The state, with its unique access to political and military power, is likely to have had the greatest capacity for this type of organizational coordination. Not only did it actively coordinate the behavior of state agents, it also demanded taxes in particular forms and at particular amounts, promulgated laws, and issued coinage, all of which brought the behavior of its subjects/citizens into somewhat closer alignment. A key challenge, however, lies in articulating the nature of ‘the state’ in the respective regions, and tracing out the contours of how state power was distributed between actor groups.

Considered in total, these types of coordinating tendencies would have reduced transaction costs and brought about efficiencies of scale. And yet, as with the distribution of state power, the precise instantiations of different types of actors in various local and imperial contexts, and therefore their potential to coordinate, were highly variable. In response to this challenge, and in keeping with our project’s commitment to studying diverse regions in an interdisciplinary context while also acknowledging the disciplinary norms that have structured research across this vast space, we have allowed ourselves flexibility in the selection of key actors and considerable variation in their order of discussion. Nevertheless, we have tried to maintain conceptual coherence through both a focus on the four processes of production, distribution, consumption, and coordination, as well as an attention to the relationship of these various actor categories to state power.

References

- Mokyr, J. 2016. *A culture of growth: The origins of the modern economy*. Princeton, NJ: Princeton University Press.

3 Mediterranean, Near East, and Iran

Lara Fabian and Eli J. S. Weaverdyck

3.A Economic Actors in the Hellenistic and Roman Empires: The Mediterranean and Southwest Asia

I Introduction

The economy of the ancient Mediterranean and Southwest Asia was driven by a wide variety of actors whose behavior was shaped by social, cultural, and physical structures.¹ This chapter examines a variety of types of actors who played important roles, both positive and negative, in this development in order to shed light on the ways in which their economic behavior impacted the behavior of others and the structures within which they operated. We start with urban systems, before moving on to consider sovereign rulers, armies, temples, local elites, households, producers, and networking agents like bankers and merchants. The structures within which these actors operated are the focus in part II, which treats economic ‘tools.’

In the ancient Mediterranean and Southwest Asia, state power was distributed across several constituencies. For our present purposes, the most important are cities, which interacted directly with the bulk of the population; imperial and regional rulers, who exercised power at a higher level; courts, who intermediated between rulers and locals; armies, who exercised military power but also consumed a large portion of the resources extracted by the state; and temples, which served as another space of state-population interface. In addition to (or in consequence of) their state functions, these units were both economic actors in their own right (producing, distributing, and consuming goods), and also shaped the structures within which the behavior of others took place. In addition to the coordinating behaviors mentioned above, war-making/conquest and the cultivation of urbanism (both the spread of urbanism and the patronage of capitals that became megacities) were two of the most consequential actions taken by ancient states.

¹ We have decided to unite our consideration of both the Hellenistic and Roman worlds, so the analysis that follows treats these actors across a broad swath of time and space. There was considerable continuity in underlying systems of social organization, although institutional developments – and particularly those in domains close to the state like monetary policy and law – brought significant changes over time. It was, however, a slow and uneven process with significant geographical diversity, and one in which the palimpsests of prior institutional structures had lasting consequences. For an example of considering the continuity in these spaces, see, e.g., Chaniotis 2018.

Nonstate actors, with less political and almost no military power, had somewhat different capacities. The broad, diverse, and fuzzy group of people who were prominent within their local societies ('local elites') were fundamentally important as landholders. But beyond this, they interfaced with and participated in the various state components outlined above, while also maintaining private peer networks among themselves and hierarchical networks with their less prominent neighbors. They thus occupied a pivotal position, mediating between different levels of society. Inter-elite competition at the local and imperial scales drove increased consumption, but also increased production. Commercially oriented agriculture that funded elite consumption has been seen, especially in the Roman context, as a fundamental driver of increased production and urbanism. Cultural values privileging not only agricultural investment but also large-scale money-lending as honorable means of wealth acquisition increased the money supply. Prosocial, city-state-based ideology helped stabilize urban markets and increased the supply of public goods, partly through direct donations but in large part through the support of urban political institutions.

Below and intersecting with local elites are all those actors who produced goods and facilitated the economic activities of others. Greater specialization in production, both primary and secondary, and changes in the distribution of labor between agricultural and nonagricultural sectors increased efficiency. The structures through which agricultural labor was applied to the land (freehold owner/operators, tenancy, slave labor, and wage labor) impacted not only agricultural productivity but also the distribution of the resulting wealth. An increase in the number of urban craftsmen and shopkeepers, which have been labeled a "middle class,"² has been seen as the most likely mechanism by which average living standards might have improved in the Roman period.³

Those who facilitated economic activity, including bankers, merchants, and transporters (e.g., shippers, beast of burden drivers) amplified the impact and reach of all other economic activity. Those involved in financial mediation in particular have been seen as an important locus for institutional innovation. All of the above individuals operated within an organizational context. The two most influential were the household and the private association. Households, in addition to their production and consumption activities, coordinated labor and acted as key hubs in knowledge production and transmission. Associations perform key networking functions in a range of domains: financial, knowledge, and quasi-political.

² Mayer 2005, but cf. Weaverdyck, ch. 12.C, II, n. 4, this volume for controversy surrounding this term.

³ Erdkamp 2016; Weaverdyck, ch 12.C, II.3, this volume.

II Urban Systems as Actors

By the time of Alexander, the Mediterranean and Southwest Asia was a world dominated by cities. While urbanism has a tremendously long history in Southwest Asia, it was a relatively unfamiliar phenomenon in the Mediterranean before the early first millennium BCE, when first Phoenician and eventually Greek and Etruscan communities developed within an increasingly networked and explicitly urban framework, with concentrated populations and built-up urban cores governing wider hinterlands.⁴ The Hellenistic kings and the Roman Empire accelerated the expansion of urbanism through both direct foundations and the encouragement of locally initiated city-formation.⁵

On an economic level, cities first and foremost necessitate surplus production, which shapes larger agricultural patterns. But the concentration of people and social functions in a confined space also has important economic consequences.⁶ With greater population, the demand for certain goods and services increases to such an extent that specialization is both possible and indeed incentivized.⁷ Such density also makes coordination easier, allowing organizations consisting of more people to form without the friction of distance that impedes communication. Urban networks act as bridges that facilitate this communication. In a broader sense then, cities came to serve as economic centers, and hubs of connectivity.

II.1 Urban Forms

Cities in the ancient Mediterranean were organized and conceptualized in a number of different ways. In modern economic scholarship, a sharp boundary has been drawn between Near Eastern cities dominated by palaces and temples, and Graeco-Roman cities dominated by private landowners, but this distinction is currently being challenged.⁸ In fact, we should distinguish between a far wider number of urban forms, with the Classical Greek *polis* standing as only one – and one rather exceptional – example.

The *polis* was a distinctive form of city-state that became dominant across the Mediterranean in large part because of the patronage of the Hellenistic and Roman Empires. It consisted of both a community of people and a territory with, normatively,

⁴ On this trajectory generally, see Woolf 2020.

⁵ For Hellenistic colonization, see von Reden, vol. 1, 33–39; for the role of cities in the Roman Empire, see Weaverdyck, vol. 1, ch. 7, III.2.4.

⁶ Morley 2013.

⁷ This is one of the fundamental insights of Central Place Theory (Christaller 1966).

⁸ Finley at one point excludes Near Eastern cities from his analysis (1977), and elsewhere distinguishes Graeco-Roman from Near Eastern civilization on the basis of private property (1999, 28–29); see Bedford 2005.

a built-up urban core with spaces like the *agora*, which was at once a market space and the site of intense political maneuvering. The institutional structures of the city not only bound citizens to each other, they bound them to a certain territory and created special relationships with certain gods and heroes. The ideology of urbanity also prompted significant public investment in building and infrastructure and demographic concentration in cities. Even when empires dominated cities politically, the *polis* was normatively the focus of patriotic affection.⁹ Each *polis* was a corporate entity with a unitary identity expressed through distinctive symbols, patron deities, genealogy, and history that simultaneously made it unique and situated it within a dense peer-polity network consisting primarily of other homologous *poleis* but also more powerful kings and leagues.¹⁰ *Polis* ideology, and corresponding ideas of civic beneficence that were adopted in the Roman *civitas*, therefore played a role in shaping the economic behavior of residents.¹¹

Out of the world of *poleis*, the Hellenistic period saw the emergence of megacities, in which the political status of the city played an increasingly minor role in its economic might.¹² The renown of Alexandria that echoed in Hellenistic poetry, for example, focused not on political ideology, but on the city's wealth, the conspicuous consumption of its court, and its vast scale.¹³ Ptolemaic Alexandria had many of the institutional structures of a *polis*, but was in fact controlled by the dynastic family. It served at once as a court center, and a bustling commercial hub; its *agora*, now bereft of actual political functions, was instead the transit point for tremendous wealth, grain, and increasingly for luxury goods brought by the Red Sea and Indian Ocean trade networks. By the time of Strabo, Alexandria was acknowledged as "the largest emporium in the inhabited world," and was described as a central point in the transshipping of exotic cargos.¹⁴ Although none matched Alexandria's scale or richness, other Hellenistic capital cities like the Seleucid's Antiocheia-Orontes and Seleukeia-Tigris were built along similar lines in a formal sense, with Hippodamian plans and large monumental quarters, and also played similar roles as "gateway cities" that articulated transit between disparate regions.¹⁵ Not all gateway cities were megalopoleis. On a local scale, regional cities served a similar function as gateways – the so-called caravan cities of the Syrian desert, for example.

⁹ This caused some tension when Roman citizenship was extended far beyond the borders of the city and its territory, prompting Cicero to develop his theory of dual fatherlands (*De legibus* 2. 5).

¹⁰ Ma 2003; Malkin 2011.

¹¹ The debates about whether Republican Rome was itself a *polis* is a question that has occupied historians ever since, as Woolf (2020, 325) points out concerning the first century BCE, without clear resolution.

¹² Compare this pattern of urbanism and its centrality to identity-formation to that in South Asia and China, Dwivedi, ch. 5, VI.1 and Leese-Messing, ch. 6, III.1, this volume.

¹³ Green 1986, 141–142.

¹⁴ Strabo 17. 1. 13.

¹⁵ Woolf 2020, 379–403.

Rome of the Principate, the megacity par excellence of the ancient world, developed into a super-aggregator and hub on an unimaginably large scale. Growing from humble roots as one of a number of settlements in central Italy, Rome came to eclipse all earlier Mediterranean urban centers in terms of scale and monumentality, complexity, and sheer network dominance. Indeed, the political power of the Roman Empire can be seen as a network of relationships between Rome and subject polities, the majority of which were cities organized along *polis* lines. The precise relationship between Rome and these cities was expressed in terms of juridical statuses and privileges that evolved into a hierarchy of prestige.¹⁶ This hierarchy maps very imperfectly onto the economic roles that cities played. The most basic distinction was between a legally autonomous city and a dependent community. Roman administration depended on self-governing communities with a local elite possessing the financial and social means of ensuring compliance. In sparsely populated areas with little history of urbanization, a city overseeing a large territory might be tiny and contain no monumental architecture,¹⁷ while in densely populated regions, dependent villages could reach great size and elaboration.¹⁸ Nevertheless, Roman cities were generally the largest central places in their immediate neighborhood. Within a province, certain cities would be singled out as preeminent, and this could have economic impacts. Cities designated as *conventus* capitals, hosts of the governor's court, profited from the crowds of litigants, for example.¹⁹ But the status distinctions between *municipia*, *colonia*, and *civitas/polis* were more important for their citizens' sense of prestige than for any practical impacts.

II.2 Urban Consumption and Production

Cities of all types were centers of consumption, first and most fundamentally, of foodstuffs. In some cases, most notably in Greece in the Classical period, many of the inhabitants of cities were agriculturalists. This is evident from the dearth of settlements in the cities' hinterlands.²⁰ For the most part, however, especially in the Roman period, the hinterlands around cities were densely inhabited, suggesting that urban inhabitants produced very little of their own food.²¹ Thus, the very existence of urban populations necessitates surplus production in the countryside.²²

¹⁶ Boatwright 2000, 36–56.

¹⁷ Donev 2020.

¹⁸ Sartre 2005, 228–233.

¹⁹ Galsterer 2000, 347.

²⁰ Cf. Hansen 2000, 159–160, who argues that an urban agricultural population is not incompatible with production for the market.

²¹ Garnsey 1979.

²² Lo Cascio 2009; Zuiderhoek 2017.

The economic impact of Graeco-Roman urbanism has traditionally been understood to be directly dependent on the means by which surplus was extracted from the producers. Medieval cities generally bought the food they required with goods manufactured in the city, a pattern that has been seen as crucial to the development of modern capitalism. For the ancient world, socially dominated by a landowning elite, it is usually thought that most of the surplus was extracted from the countryside in the form of rents. This, it used to be thought, explained the relative stagnation of the ancient economy relative to the medieval and early modern European economy.²³ More recently, however, the link between the model of the “consumer city” and economic stagnation has been challenged.²⁴ Even if the producers themselves do not profit much from the surplus, the elites, who sell the grain in the city, could consume enough to support a group of craftspeople and traders who themselves spend the money they receive on other goods and services.²⁵ Even if the consumer-city model is consistent with vibrant urban economies, however, the consequences for the food-producing sector of the economy remain. Small-scale producers could not compete effectively in a grain market dominated by produce extracted as rents, though they might have been able to compete in other sectors, like market gardening.²⁶ An urban system sustained by rents from the countryside therefore concentrates spending power in the hands of the rentiers, then in the hands of those from whom they buy goods and services.

As cities grew in scale, procurement of foodstuffs was handled through both local and long-distance networks, and buffered against calamity through risk-management strategies like granaries and grain funds. In the case of Rome, whose size created particular procurement challenges, supplying the city with grain led to the development of a vast, multi-actor supply-system that spanned the Mediterranean.²⁷ Cities had other consumption needs beyond foodstuffs, and again, the larger the city, the more difficult their fulfillment became. Augustus’s interest in aqueduct management and the supply of municipal water early in the Principate provides an example of how cities’ consumption needs created pressures for infrastructural development.²⁸

Beyond the consumption of basic products, cities – and especially capital cities – were also the most important stage for *conspicuous* consumption, and therefore for the public performance of state power. Thus, Callixeinos’ description of Ptolemy II’s grand procession in Alexandria presents a picture of unimaginable wealth, dripping with gold and exotica.²⁹ Beyond the products consumed in the

²³ Finley 1977.

²⁴ E.g., Morley 2013.

²⁵ Erdkamp 2001.

²⁶ Erdkamp 2005, 134–138.

²⁷ See Kessler and Temin 2007, also Weaverdyck, ch. 12.C, this volume.

²⁸ Wilson 2000.

²⁹ Athenaios 5, 196A, 197C.

course of these events, the capital cities came to set the consumptive tastes of imperial populations. Finally, cities, and their concentration of wealth and population, fostered specialization in productive spheres. Inscriptions that record occupations show a significant level of horizontal specialization in ancient cities (that is, people specializing in the production of a certain product), but vertical specialization (specializing in a certain part of a production process) can be observed in some industries.³⁰

II.3 Centers of Coordination and Rule Enforcement

Beyond their role in the consumption and production of products, cities also served as centers of coordination and rule enforcement. We see this particularly in the context of the monetary economy. In the Classical period, cities played an outsized role in both the minting and circulation of coinage, the collection of tax revenue, and the establishment of norms and institutions surrounding transactions. Although part of its power in some of these spheres waned as the Hellenistic kingdoms rose, they never disappeared entirely.

To understand the connection between cities and the monetary economy, one has to start with the story of the independent Classical *poleis*, which constructed its identity by issuing coinage. In the ancient Mediterranean, issuing coinage was a statement of political power. Although the precise origin of the Greek coinage tradition is controversial, it coincides with a period of intra-*polis* political struggle in which the reform of weight standards was a way to exert authority.³¹ While the first coins were minted for local use, they quickly became a medium of intercommunity exchange.³² The stamp of the *polis* ensured they would be accepted in local transactions, particularly with local authorities, and the constant handling of local symbols must have fostered communal solidarity. At the same time, these local coinages circulated beyond the political boundaries of the city, advertising the city's existence farther afield.³³ Some coins, like the Athenian *tetradrachm*, were so widespread that they inspired many imitations and effectively established weight standards over a large area. Issuing coins with the symbols of the *polis* was a tangible, widely circulating declaration of corporate identity that simultaneously facilitated market-based exchange at multiple scales.

In the early Hellenistic period, a generally valid posthumous Alexander coinage became current, although individual kings minted special coinages that were gener-

³⁰ Zuiderhoek 2017, 134–140.

³¹ Von Reden 2010, 19–25.

³² Osborne 2009, 237–246.

³³ Von Reden 2010, ch. 3 on monetary networks.

ally related to the same (Attic) weight standard, with the major exception of Egypt.³⁴ Over time, as the Hellenistic world fractured, minting practices became more fragmented and varied.³⁵ Then, under the Roman Empire, where coinage production was more centralized, some cities continued to mint their own base-metal coinage that circulated locally while provincial authorities minted silver coinage that circulated more broadly.³⁶

A realm in which we see the power of cities as economic actors is in rule-setting and enforcement, particularly relating to transactions. Urban institutions served to lower transaction costs and ease the distribution of goods. These included the setting of standard weights and measures for use within the particular urban context, as well as the *agoranomoi* magistrates who regulated the marketplace and legal mechanisms to adjudicate disputes. The lack of uniform standards for weights and measures between cities, a phenomenon that persisted throughout the Hellenistic and Roman periods, ensured that local standards held sway.³⁷ Cities often also served to guarantee property rights. For example, in the *polis*, and keeping with the principle that the *polis* was a community of citizens living in a certain territory, the right to own land in that territory was restricted to citizens, with occasional grants of the right to own land given (or sold) to certain outsiders. While protecting citizens' access to land against powerful outsiders, this would have made it very difficult to use land as collateral in transactions with noncitizens.³⁸ Legal negotiations between Romans, locals, and governors eroded the principle of exclusivity in the Late Republican period, easing intercity transactions but also allowing wealthy Romans to acquire land at the expense of provincials.³⁹

Beyond restrictions on ownership, cities also often participated in the transfer of land and other property. These transactions were effected through legal procedures involving written documents, which were stored in the city archives, increasing public confidence. Dio Chrysostom, a first-century CE orator from Prusa in Asia Minor, describes this explicitly:

Then consider, further, that all men regard those agreements as having greater validity which are made with the sanction of the state and are entered in the *polis*'s records; and it is impossible for anything thus administered to be annulled, either in case one buys a piece of land from another, a boat or a slave, or if a man makes a loan to another, or frees a slave, or makes gift to anyone. How in the world, then, has it come to pass that these transactions carry a greater security than any other? It is because the man who has handled an affair of his in this way has made the *polis* a witness to the transaction.⁴⁰

34 On *drachm*-based systems, see Weaverdyck and Fabian, ch. 8A, III.1.2, this volume. On the particular situation in the Ptolemaic Empire, see Lorber 2012.

35 Von Reden 2010, 85.

36 Weaverdyck, vol. 1, ch. 7, III.3.2.

37 On standards, see Weaverdyck and Fabian, ch. 8.A, VI, this volume.

38 Finley 1977.

39 Eberle 2016.

40 Dio Chrysostom, *Orations* 31. 51, trans. slightly modified from Cohoon.

The city archives are the arbiter of who owns what. They function thus not because of the inherent reliability of the written word, but because the *polis* acts as a witness, a role usually played by an individual, who vouches for the truth of something.

II.4 Cities as Network Hubs

Finally, beyond their serving as nodes of consumption and distribution, and beyond their role in rule-setting for economic transactions, cities also served as network hubs or multipliers: as concentrators of political power, centers of peer-polity interaction, and engines of innovation. Cities developed and maintained infrastructures such as harbors, roads, and marketplaces that facilitated economic transactions and maintained funds that were used to buy grain in times of food shortage, which were not infrequent (see below). Some of the money spent in the city context, from a modern perspective, appears wasteful, like the construction of monumental buildings, buying supplies (particularly olive oil) for *gymnasia*, and hosting festivals and athletic competitions. However, these activities shaped consumption patterns that supported certain economic sectors, and shaped community relationships.

The formal institution that most distinctively shaped this economic activity emerged out of the Classical *polis*, and was, in fact, a political one, the assembly: the body that acted on behalf of the people. This formal political organization consisted of large assemblies of citizens, smaller councils of a subset of citizens, usually elites, and magistrates, citizens selected to exercise certain functions. While councils and magistrates retained most power, the assemblies usually retained certain important functions, like ratifying the decisions of the councils. The assembly was the formal political expression of the principle that the *polis* was a community of citizens that transcended divisions of kinship and wealth. The actual power of the assembly relative to other organs of government varied, and there was a trend toward oligarchization that was given formal sanction in the Roman period, but the idea that a city was a community remained.⁴¹

This ideal had economic implications. Elites in Greek cities were expected to directly shoulder a portion of the *polis*'s expenses by paying fees to take on magistracies or enter the council, and by performing 'liturgies,' specific obligatory, often expensive duties. The same idea underlies the institution of *euergetism*, in which elites provide benefactions to the community in return for honors (see below).⁴² Eventually, in the Roman Empire, the system of *munera* developed, which struc-

⁴¹ Zuiderhoek 2009, 54–70.

⁴² For the development of *euergetism* and its dynamic relationship with liturgies, see Domingo Gygax 2016.

tured such contributions. Elites were also expected to undertake embassies at their own expense, which not only established and maintained the position of the *polis* within the larger peer-polity network, but could also convince imperial powers to bestow lucrative privileges or favorable rulings in disputes.

All of these factors contributed to a peer-polity network rooted in urban spaces: a vast set of relationships between communities that ensured mutual intelligibility. Beyond knowledge of others, these urban systems and their structures helped spread standards of behavior that allowed people from distant communities to interact and understand one another. The network of urban nodes was the fundamental context within which the economic life of antiquity unfolded.

III Rulers and their Inner Circles

One of the decisive transformations from the world of the *poleis* of Classical Greece to that of warring Hellenistic kingdoms and eventually the Roman Empire was the expansion of the role of sovereign rulers, who, on the model of Alexander the Great, rose to prominence as the most visible and powerful individuals in antiquity. More than simply standing as figureheads of ancient states, these sovereigns along with their inner circles of elites assumed a number of economic roles that had earlier been conducted by *polis* assemblies, and that, in more modern contexts, are performed by the state.

Impersonal, independent state bureaucracy was limited in the ancient world.⁴³ Instead, political sovereigns relied on an institution rooted in the private sphere to delegate much of their power: that of their (often fictive) household. In the Hellenistic world, we can discuss the *philoï* ('court elite') in this light;⁴⁴ in the Roman world, imperial freedmen played a central role. The status of the participants, the degree to which these relationships were formal rather than informal, and the contemporaneous existence of other parallel institutional channels, like office-holding aristocracy, add considerable variability. Nevertheless, in both the Hellenistic and Roman cases, relationships rooted within the context of the imperial household played a role in coordinating, and regulating, behavior across imperial territories.

Sovereigns themselves were consumers, at enormous scale, and they set the tone for elite consumption more generally. They were the center of extractive systems that collected rents and levied taxes. They distributed the revenues they collected through imperial gifts and donations, as well as through their patronage of critical infrastructural projects, and finally through their spending on war. They exercised both regulatory and coordinating authority that stretched into political,

⁴³ Garnsey and Saller 2015, ch. 2 on the limited bureaucracy in the Roman Empire.

⁴⁴ On whom, see von Reden, vol. 1, ch. 1, 29–30.

social, and economic spheres, and that structured the development of regional connectivity, particularly in frontier zones.

III.1 Models of Sovereignty

One factor that complicates our appreciation for the economic role of sovereign rulers in the Hellenistic and Roman world as a whole is the changing nature of sovereignty; a divide which is especially stark between the Hellenistic and Roman Empires. Different understandings of the power of the sovereign ruler, his source of legitimacy, and his relationships with other powerful constituents in his society shaped which economic levers were available to him, as well as how he expended his resources in the pursuit of power.

Even within the Hellenistic world, there was never a single, uniform version of royal power. In principle, the supraregional monarchical systems that grew in the wake of Alexander the Great's conquests and the battles among his successors each had at its center a king after a Graeco-Macedonian fashion, whose role combined military, political, and economic power. In theory, this centralization of functions gave Hellenistic kings tremendous control over economic systems. Such centralized power was, in fact, often only illusionary. The reality of these systems was more variegated, with preexisting models of sovereignty in different regions shaping the practice of Hellenistic kings, who tended toward pragmatic flexibility. In practice, this could have consequences for fundamental issues such as imperial landownership.

In Egypt, for example, Ptolemaic kings claimed royal legitimacy not only on the basis of Graeco-Macedonian models, but also in accordance with preexisting pharaonic norms.⁴⁵ This was not simply titular – beyond the rhetorical fashioning of kingship, the “basic patterns of governance” in terms of imperial interaction with institutions of Ptolemaic Egypt continued many practices that were in force in the Pharaonic, Saite, and Persian periods, and chiefly the relationship between the monarch and temple authorities. And yet, the Ptolemies introduced changes, perhaps the clearest of which concerned the widespread use of coinage. Despite Greek administrative innovations, however, the strength and continuity of low-to-the-ground bureaucratic structures in Ptolemaic Egypt, along with the numerous indigenous institutional structures, shaped the nature of Ptolemaic rule. One example lies in the sphere of water management. Although the ‘despotic’ control of water resources was long a mainstay in studies of royal authority in Egypt, papyrological research has demonstrated that the regular running of irrigation systems was in fact a local issue that fell under the purview of a large bureaucratic establishment, with

⁴⁵ Bingen 2007, 28–30.

kings acting rather as coordinators.⁴⁶ Since successful irrigation is essential to the fertility of Egypt, and therefore to the taxes and rents collected by the Ptolemaic kings, the fact that this domain remained in local hands speaks for the negotiated nature of Ptolemaic rule.⁴⁷

Similarly, recent research on Seleukid authority has stressed the debt that the Seleukids owe to previous Achaemenid models of sovereignty both in the presentation of their rule to local populations, and also in the formal characteristics of their administration, including at least some of their interactions with the massive temple complexes that anchored many Near Eastern cities.⁴⁸ The case for this is not entirely straightforward: the titular formulae used to refer to Seleukid kings in the cuneiform evidence from Babylon, for example, suggest that the Babylonian scribes seem to have been mirroring the Greek vocabulary to describe kings, rather than drawing on older Achaemenid models.⁴⁹ Nevertheless, it is likely that, as in Egypt, Seleukid kingship was neither a wholesale importation of a foreign monarchical system nor a complete continuation of what had come before, but instead the development of the intersection of these spheres.⁵⁰

Beyond the massive Seleukid and Ptolemaic kingdoms, Southwest Asia and Anatolia in the Hellenistic and Roman periods also saw the persistence of kings who operated on what might best be described as a regional level. In concrete terms, some of these ‘regional’ dynasts controlled a single city and its hinterland, while others ruled territories that themselves might be considered empires.⁵¹ The most persistent regional rulers clustered along the fringes of the great empires, often in territories that were either difficult to control or ecologically marginal. Owing to generally insufficient evidence, it is difficult to analyze the internal nature of sovereignty in these spaces. The rulers, however, were linked to each other as well as to pan-regional empires through bonds of obligation, which took many forms from full independence to vassalhood and subjugation, and shifted over time. The hyperconnected nature of this world of minor rulers can be seen in an economic light, as one of the building blocks for a durable network of connectivity across the region, which would continue to shape both local affairs and the expansion of imperial power through the Roman period.

46 On Hellenistic kingdoms as complex coordinating actors, see, e.g., Manning 2010.

47 For exceptions, see for example the Fayum reclamation project, on which Weaverdyck and Fabian ch. 8.A, IV.1.2, this volume.

48 E.g., Capdetrey 2007; but see also Monson 2015, 174 on this question from the perspective of fiscal policy.

49 I.e., there was not a continuation of Achaemenid titles such as ‘King of all the Lands’ (Sum. lugal.kur.kur). Instead, and quite to the contrary, there was a tendency to simply title the ruler a ‘king’ (Gr. *basileus*; Sum. lugal).

50 See also Kosmin 2014 on a similar question in a religious context.

51 See, e.g., the territory of Hatra in comparison to that of Armenia.

Unlike the variety of Hellenistic kings, the Roman emperor emerged explicitly from a Republican system. While viewed as a semidivine ruler figure throughout the empire, the emperor remained embedded in a Rome-based aristocracy.⁵² In addition to the army, he required the support of the upper levels of the Roman elite and the urban populace of Rome. This accounts not only for the vast amount of resources channeled from the empire to Rome and Italy, but also for certain ambiguities in the role of the emperor. Although he was able to make new laws at will, the good emperor, as ‘first citizen,’ respected the law and the opinions of jurists, allowing Roman law to develop more or less autonomously.⁵³ The emperor, just like a Republican magistrate, was simultaneously a private landowner and an administrator of public business. But the role of the emperor was so bound up with that of the state that the difference between his private property (the *patrimonium* and the *fisci*) and the state treasury (the *aerarium*) was, in practice, meaningless.⁵⁴ The emperor modeled good aristocratic behavior by making benefactions, but these could have much greater structural impact than normal *euergetism*, as in the case of Rome’s water supply (see below). The emperor managed his land like any other aristocrat, through agents from within and outside his household, slaves and freedmen on the one hand, and equestrians on the other. However, these managers could also collect taxes in provinces that the emperor governed directly and had jurisdictional power.⁵⁵ Soon an entire equestrian office-holding career structure emerged alongside the imperial household structure.⁵⁶ The emergence of the role of emperor from a Republican system, therefore, created a public/private ambiguity that pervaded the imperial administration. As a result, the economic role of the emperor is ambiguous. On the one hand, it cannot be meaningfully distinguished from that of the Roman state, but on the other, it was similar in many ways to the role of any Roman aristocrat.

Kings and emperors, in both the Hellenistic and Roman context, were surrounded by a coterie of elites. These inner circles mediated the interaction of the monarch with the wider world. Although the ruling monarch stood at the center of these power systems, twentieth-century thought on the political relevance of medieval and early modern courts has emphasized that courts served as a balancing and moderating power vis-à-vis the monarch.⁵⁷

52 Wallace-Hadrill 1982 stresses the ambiguity of Roman imperial ideology as compared to Hellenistic kings. For the development of Hellenistic and Roman monarchic ideology, see Noreña 2011, 37–100, 314–316. For a model of the emperor’s political power, see Flaig 1992; 2015. For the role of the emperor in the provinces, see Ando 2000; Edmondson 2015.

53 Weaverdyck and Fabian, ch. 8.A, V.1.2, this volume.

54 Rathbone 1996.

55 Taxes: Davenport 2019, 179–183. Jurisdiction: Brunt 1990, 163–187.

56 Davenport 2019, 299–369 for equestrian administrative careers. Kłodziński 2019 for the relationship between equestrian and freedmen administrators.

57 Especially influential was Elias’s work on the French court (1969), although the absolute monarchical manipulation of a weak court that it posits has been widely reconsidered in more recent works. See Duindam 2011, 5–9 for a discussion of the evolution of court studies concerning antiquity.

In the Hellenistic world, this elite sphere is generally conceived of explicitly as court, and discussed as such. The Hellenistic courts brought a monarch and his dynastic family into regular, structured contact with social elites from across the Greek world, providing a stage on which dynastic and civic power were enacted through diverse performative practices ranging from commensality to *euergetism*. Specifically, *philo*i retained relationships with their cities and families of origin after joining fictive brotherhood of a Hellenistic royal family, thus becoming fulcrums through which cities and kings were connected, and could be entrusted to care for the emperor's affairs in far-flung corners of the empire.⁵⁸

The degree of hierarchy of the Hellenistic courts and the configuration of players inside these hierarchies were variable. A restructuring and formalization of the Ptolemaic court in the second century BCE, for example, has been hypothesized to have increased the participation of local Egyptian elites, expanding the reach of royal power deeper into the Egyptian hinterland.⁵⁹ In general, it appears that the class of *philo*i, who began as the at-will courtiers of a given Hellenistic king, tended to develop over time into first a veritable institution, and then eventually a type of hereditary aristocracy, whereby the sons of the *philo*i were raised at other courts as pages of a type, thus extending the in-group bonds and strengthening their collective power.⁶⁰ At the same time, the courts were not closed systems, and individuals with the status of 'outsiders,' whether by virtue of their family background (i.e., as non-Greeks), or their political history (i.e., as exiles from other realms) could – and often did – rise to prominence within Hellenistic courts.⁶¹ Members of the court came to play important roles at the top of every branch of Hellenistic administration.

In scholarship on the Roman world, the language of an 'imperial court' is far rarer.⁶² Nevertheless, the existence of a class of extreme imperial elites surrounding the emperor is clear, who served broadly similar functions as courts did in the Hellenistic period. There were, on the one hand, the equestrians and particularly the senators, ultrawealthy citizens who occupied administrative offices. There were also, however, a different group of imperial dependents who assumed central roles: imperial freedmen.

Imperial freedmen were trained administrators, so they would have known how to manage their own property as well as the emperor's. Because they were able to

⁵⁸ For the *philo*i and court organization, von Reden, vol. 1, ch. 1, V.

⁵⁹ Moyer 2011a.

⁶⁰ Strootman 2014, 183–184.

⁶¹ Strootman 2013, 51–52.

⁶² Bang 2011; A.-C. Michel 2015; Pani 2003; Wallace-Hadrill 1996; 2011; Winterling 1999. Because the Roman monarchy emerged from a Republican form of government, scholarship on the power of the emperor has tended to focus on its legal basis, its bureaucracy, or on the personal relations and charisma of the emperor. See, e.g., Millar 1977 on the bureaucracy of empire; Lendon 1997 and Ando 2000 on the emperor's personal relationships and charisma, respectively.

serve in one location for a long period of time, unlike administrators drawn from the social elite, they were able to build up a store of local knowledge and local relationships that were impossible for higher-ranking officials to achieve, and therefore might have served as more enduring nodes in networks that linked the highest imperial elite to local communities across the empire. Although details elude us, the results are occasionally visible when freedmen are honored by cities for their benefactions.⁶³ In addition to collecting money for the emperor and the state, imperial freedmen and even slaves could get quite wealthy in their own right. They earned a salary for their work, and there were opportunities for illicit profit.⁶⁴ More importantly, they surely also invested in legitimate business interests and land. Thus, participation in the imperial household system allowed personnel at all levels to concentrate wealth for themselves and forge connections between imperial and local social networks.

III.2 Consumption

Kings, emperors, their courts, and their dependents were, in a literal sense, prolific consumers. There are two ways to evaluate this consumptive power: the first comes from textual and archaeological evidence pertaining to consumption habits; the second concerns the accumulation of wealth in royal or imperial hands, which indicate the potential to consume more generally. In the latter case, however, it becomes quite difficult to disentangle the wealth of the sovereign from that of his kingdom: Even in the Roman period, the emperor's personal property (the *fiscus*) is scarcely distinguishable from the treasury of the Roman state (the *aerarium*).⁶⁵ It is possible, however, to discuss, and in some cases to quantify, the concentration of wealth in the sovereign's inner circle – a social elite to which access was controlled by the sovereign. In this way, we can get a glimpse at the consumptive power that surrounded, and in some cases was explicitly nurtured by, sovereigns.

In the Hellenistic period, most evidence we have for royal consumption itself comes from the context of court life. Monarchs conceived of their kingdom as their house (*oikos*), using domestic vocabulary to articulate its structures, and often relying on private law to adjudicate imperial issues.⁶⁶ Palaces were themselves the center of court consumption. They were lavish spaces, which, if ancient accounts are to be trusted, occupied vast tracts of urban space – Strabo estimates that the late

⁶³ Dalla Rosa 2016, 323–328 on Phrygia.

⁶⁴ Haensch 2006.

⁶⁵ Cassius Dio (Cass. Dio) 53. 22. 2–4.

⁶⁶ Two terms used in Greek to denote the Hellenistic courts emphasize the spatial character of the court: *to basileion* ('palace') or more commonly *aule* ('hall'). The more common term was *hoi periten aulen* ('those around the hall'), which stressed the physical presence of the core group of courtiers in the palace.

Ptolemaic palaces and court spaces occupied one-quarter to one-third of the territory of Alexandria.⁶⁷ In some cases, dynasties had multiple palaces spread across their territory, creating a network of consumption centers. The Seleukids, for example, held a main seat at Antiocheia, but other residences at Sardis, Seleukeia-Tigris, Susa, and elsewhere, but unfortunately, the limited archaeological remains preclude deep analysis.⁶⁸ Similar models of multifocal court dynamics have also been proposed for some periods of Arsakid history.⁶⁹

The most direct outlay of the court, and a central driver of consumption, was the monarch's spending on the upkeep of his retinue. Alexander the Great set the tone in this as in much concerning court culture, with lavish feasts becoming an important component of court life, in a pattern adopted at least partially from the Achaemenid courts which he conquered.⁷⁰ In one description of Alexander's dining culture, Plutarch writes: "His suppers, however, were always magnificent, and the outlay upon them increased with his successes until it reached the sum of ten thousand *drachmas*."⁷¹ Beyond the significant expense of these meals,⁷² they also drove a market for rare and exotic foodstuffs as well as the attendant luxury tableware.⁷³ The courts also became the center for other types of non-alimentary consumption. This was exemplified in the collecting practices of the court, which included collections of art and exotica, as well as in the centers of learning and science that grew around Hellenistic courts.⁷⁴ The overwhelming scale of Herod the Great's building program in Judaea demonstrates how the fashioning of the largest Hellenistic courts filtered into the courts of the so-called minor kings.

In the Roman period, it becomes easier to quantify the wealth that was held by the elites surrounding the emperor – wealth which helps us to appreciate the consumptive potential of the imperial inner circle. Although held in private hands, this wealth was entwined with the sovereign. Beginning already in the reign of Augustus, the Roman emperor controlled access to the senatorial and equestrian orders, the highest statuses in the Roman imperial social hierarchy. He also largely controlled the acquisition of the formal ranks and distinctions that defined the hierarchies within those orders.⁷⁵ The promise of admission and advancement thus bound the wealthiest portion of the imperial population to the imperial system.

⁶⁷ Strabo 17. 1. 8.

⁶⁸ For an overview of Hellenistic palace architecture, Nielsen 1995.

⁶⁹ Fabian vol. 1, ch. 6, III.

⁷⁰ On the court of Alexander, Weber 2009. On feasting specifically – and its ties to pre-Hellenistic Achaemenid practices – see Spawforth 2007, 99–101.

⁷¹ Plutarch *Alexander* 23. 10, trans. Perrin.

⁷² On which quantitatively, Aperghis 2004, 207.

⁷³ See Josephus *Antiquitates Judaicae* (Joseph. *AJ*) 12. 2. 15 for an example of the gifting of tableware along with other luxury goods by Ptolemy II to his guests.

⁷⁴ On court collecting practices, Kuttner 2014; on science, Berrey 2017.

⁷⁵ Millar 1977, 275–361.

These imperial elites were fabulously wealthy. Each order had a minimum property requirement (400,000 sesterces for the equestrian, 1,000,000 for the senate) ensuring that only the wealthy could enter, and many had much more than the minimum. Pliny the Younger was probably worth around 20 million sesterces, and he was not the richest senator in Rome.⁷⁶ Scheidel and Friesen have estimated average senatorial and equestrian fortunes at 5 million and 600,000 sesterces respectively, though these figures obscure significant variations among these classes.⁷⁷ For comparison, local elites are worth, on average, only 150,000 sesterces. If one assumes a 6 percent return on property, it is possible to compare elite annual income with those of soldiers and other laborers. Legionary soldiers earned 1,200 sesterces per year in the second century. The average equestrian in Scheidel and Friesen's model earned more than 33 times a soldier's salary, and Pliny the Younger earned a thousand times as much. This concentration of wealth allowed elites to invest their money in a variety of capital-intensive ventures, like shipping, mining, or moneylending, either on their own or in partnership.

Although quantification is difficult, then, it is possible to draw the rough outline of the tremendous consumptive power of sovereigns. The conspicuous consumption and the habits of luxury that developed at the imperial centers, furthermore, spread, as elite emulation and habits of imperial largesse disseminated goods and ideas outward.⁷⁸

III.3 Extraction

The next domain in which we see the economic activity of kings, emperors, and their inner circles is in extraction of rents and taxes, as well as through their control of other types of revenue streams, for example, state monopolies, and finally through the irregular extraction of wealth in the form of booty collected in the course of military activities. Regular forms of extraction are predicated fundamentally on the imbalance of power between the sovereign and those from whom he is extracting resources, making this one sphere in which the sovereign himself fully assumes the economic power of the state. Beyond the sovereign, this process also requires the cooperation of a range of middlemen like tax collectors. Along the line, these extractive processes brought income not only to the state, but to many of the intermediary officials, where it became a major source of personal enrichment. Leaving the technical details of the extraction regimes for chapter 8.A, we focus

⁷⁶ Duncan-Jones 1982, 17–32.

⁷⁷ Scheidel and Friesen 2009 tab. 6. It should also be remembered that membership in the senate was capped at 600, so there must have been equestrians rich enough to enter the senate but excluded from that order.

⁷⁸ Rotroff 2019; von Reden 2007, 48–56.

here on the extractive capacities of sovereigns, and on the relationships between the sovereign and his various dependents which facilitated this extraction.

Our clearest evidence for the specific workings of a Hellenistic extractive system comes from Egypt, where papyrological records preserve considerable, if not comprehensive, details about taxation and revenue collection.⁷⁹ We know relatively much about the system, which was organized around the fundamental unit of administration in Egypt, the *nome*, and in which local *nome* officials played a considerable role.⁸⁰ As has been the case with respect to the person of Ptolemaic kings, questions of the degree of centralization of Ptolemaic state and its extractive administrative mechanisms have been the subject of long discussion. Current thought highlights the fact that the power of the Ptolemaic kings was articulated through a network of agents who were drawn from the Egyptian elite holding hereditary claims on the control of affairs at the local level.⁸¹ Although the Ptolemies did seek to exercise control over the appointment of some of local officials, they were not uniformly successful, and the local elite continued to hold considerable power.⁸² Although the tax regimes varied from region to region, the bulk of extraction levied on agricultural products (whether taxes or rents) were paid in kind, and were collected in local granaries under the supervision of an official explicitly responsible for the granaries (the *sitologos*). Monetary taxes, on the other hand, were collected by tax farmers (*telonai*) who bid on contracts – a largely new innovation in the Egyptian landscape.⁸³ Although the idea of tax farming was fundamentally imported from Greek practice, the Ptolemaic variant had been adapted to suit the unique characteristics of Egypt as well as the priorities of the Ptolemies. Chiefly, the accurate land registers made the expected tax volumes predictable, and the process of their collection involved a higher degree of oversight and interaction between the tax farmers and state authorities than attested elsewhere.⁸⁴

In the Seleukid case, the details of extractive power are far fuzzier, although of course revenue from land comprised the most significant income source. There are several terms used for land in the texts – some of which familiar also from Ptolemaic Egypt – that point to the variable exploitative systems that were used by the kings, although both the meaning and the functions of these categories remain subject to debate. Chiefly, there were lands deemed *basilike chora* ('royal land') which were worked by *basilikoi laoi* ('royal cultivators'), who paid rents (presumably in kind?), and also lands called *phorologoumene chora* ('taxed land') or simply *chora*, which were subject to taxation of some type.⁸⁵

⁷⁹ Derow and Bagnall 2004, especially appendix 1; also von Reden vol. 1, ch.1.

⁸⁰ For an overview of organization, see von Reden, vol. 1, ch. 1, V.2, with bibliography.

⁸¹ E.g., Manning 2019.

⁸² Manning 2019, 105–106.

⁸³ Manning 2010.

⁸⁴ A state official, the *logeutes*, supported in their collection.

⁸⁵ Aperghis 2004, ch. 6 on land categories.

The identity of the tax officials who collected these incomes is also opaque. The presence of a formal system of financial administration within the Seleukid *satrapies* is not attested at the start of Seleukid rule, but rather seems to have developed by the time of Antiochos II.⁸⁶ Discussion has focused on the roles of two individuals: that of the *dioiketes* and the *oikonomos*, the former of which is often understood as a financial administrator operating at the satrapal level and in secular contexts, while the latter may have been a subordinate.⁸⁷ Several other titles are attested for financial administrators responsible for affairs in temples.⁸⁸ For the present purpose, it is enough to say that the nature and range of the financial officials documented in the texts demonstrate a multilayered and likely spatially and temporally flexible system for extracting income from land and tribute territories.

Similarly, the emperor remained the largest landowner in the Roman world.⁸⁹ He acquired these lands through a mix of mechanisms, many of which were only available to him. The emperor was entitled to claim ownerless land, the goods of people who died intestate or whose will was invalid, and the property of the condemned.⁹⁰ Much of this was immediately sold, but some was retained.⁹¹ Septimius Severus, at the end of the second century CE, broke with this tradition by seizing and keeping the land of those who had opposed him in the civil war that brought him to power, thus enlarging the imperial patrimony very quickly.⁹² Prior to this, much of the emperor's land came through inheritance. It was customary for Roman elites to leave legacies for their friends and patrons in their will as a demonstration of esteem and to discharge the debts of reciprocity they owed.⁹³ As the most esteemed and beneficent individual in the empire, the emperor would have been in a position to benefit handsomely from the wills of powerful Roman elites.⁹⁴

The mechanisms by which the emperor exploited the land were not qualitatively different from the way any absentee landowner might manage their estates, except that their size perhaps required an extra level of management. The emperor appointed a *procurator*, either an equestrian or an imperial freedman, to oversee some portion of his patrimony. The *procurator* then rented the right to exploit the

86 Aperghis 2004, 280.

87 Opinions differ widely. See Aperghis 2004, 280–281 for one interpretation and an overview of the debates.

88 E.g., *padqu* in the Babylonian context, and the *prostates tou hierou* ('the official in charge of the sanctuary') attested at Jerusalem. On these, see Aperghis 2004, 287–288.

89 Maiuro 2012; Lo Cascio 2015; Millar 1977, 153–189.

90 Millar 1977, 158–163; Maiuro 2012, 55–67, 81–88.

91 Maiuro 2012, 88–117.

92 Lo Cascio 2015, 66–67.

93 Verboven 2002, 183–223.

94 However, Maiuro (2012, 70–80) has recently argued that this source of land was less important than had previously been thought, and that the wills of the emperor's freedmen, who were obligated to leave half of their estates to their patrons if they died childless, were much more significant.

land to *conductores*, who did not farm it themselves, but rather collected the rent owed by the tenants, the *coloni*. Tenants of the Roman emperor may have been in an especially good position, as they had an avenue of redress against the abuse of the managers and contractors who administered the estates and the land they worked was unlikely to be sold out from under them. The emperor also enacted policies that encouraged the exploitation of marginal land by remitting rent on newly cultivated plots. Thus, imperial ownership of land might have actually increased access to land for small-scale cultivators.⁹⁵ Freedmen and slaves were primarily responsible for managing the emperor's property, though freedmen can also be found overseeing taxation.

Beyond land that he owned directly, the Roman emperor also collected taxes on land as well as a range of other sectors. Tax farmers, or *publicani*, who were not imperial officials, played a central role in this system, which is discussed at more length in chapter 8.A. For now, it suffices to say that, in the Republican period, the equestrian order was associated with tax farming. While the association was less explicit in the Principate, equestrians and even some senators must have been involved.⁹⁶

More importantly, equestrian and senatorial status made one eligible to hold certain offices within the imperial system. While many of these positions were salaried, the performance of them also provided opportunities for licit and illicit gain. In the provinces, the most prominent imperial official was the governor, who commanded armies and adjudicated legal disputes.⁹⁷ Although a provincial governor and his staff spent only a limited amount of time in any one province, they had ample opportunities to enrich themselves.⁹⁸ The judicial duties of the governor and his legates would have allowed them to take bribes on a regular basis, and the sums involved could be substantial, four million sesterces in one case.⁹⁹ Governors and their staff also had legal means of extracting money from the provincials. They were allowed, for example, to requisition whatever supplies they deemed necessary as they traveled through the province with very little practical oversight. True, the governor might have provided provincials access to imperial elite networks, and his judicial functions might have lowered transaction costs, but for most in the provinces, the most immediate economic role played by the governor and his staff would have been that of a parasite.

⁹⁵ Kehoe 2013; 2015.

⁹⁶ Brunt 1990, 354–432; Duncan-Jones 2016, 118–122. For tax farming in the Republican period, Badian 1972.

⁹⁷ For the duties of the governor in provincial administration, see Weaverdyck, vol. 1, 261–267.

⁹⁸ Tan 2017, 68–90 provides a detailed account of Republican period profiteering. Brunt 1990, 53–95 argues for continued corruption in the Principate. For judicial corruption in the Late Antiquity, see Slootjes 2006, 61–68, and 61–62 for the appropriateness of the term ‘corruption.’

⁹⁹ Pliny *Epistulae* (Plin. *Ep.*) 3. 9. 13.

We also see extractive power in other domains. The emperor or the Roman state (it is not quite clear and functionally irrelevant) owned, for example, many decorative stone quarries throughout the empire.¹⁰⁰ In places where transportation costs were low enough that a private contractor might make a profit, the right to exploit these quarries was leased for a portion of the product.¹⁰¹ In more remote areas, like the Eastern Desert in Egypt, the emperor managed the quarry directly through a *procurator* overseeing a hierarchically organized staff and many free-born laborers, along with, possibly, slaves and convicts.¹⁰² Beyond this, the emperor also owned a variety of other productive resources, including mines, sources of luxury products like the balsam groves around Jericho, and certain trees in the forests of Lebanon and elsewhere, which were used to build ships and military infrastructure.¹⁰³ Imperial dominion over extractive resources, therefore, was a way of mobilizing heavy goods over long distances, and sometimes in great quantities.

III.4 Distribution

Another direct role of sovereigns in supply systems came through their role as redistributors of resources *par excellence*. Spending on the army was a significant part of this, which will be treated in the following section. Beyond spending on the army, other exchanges between sovereigns and those they ruled (donations, gifts, land grants etc.) were, by definition, not reciprocal. As a result, the largesse of sovereigns was a distinct form of nonmarket exchange that, because of the tremendous wealth of sovereigns, had outsized economic consequences.

Gift-giving was a mainstay of the Hellenistic court system.¹⁰⁴ In this system, the monarch distributed intrinsically valuable gifts like land and precious metals as well as royal titles or rights that conferred privileged status to members of his court, in exchange for their support.¹⁰⁵ The grants could be bestowed upon social elites, as well as to local organizations like cities and temples, or at a smaller scale to individuals like military veterans. Land grants to cities and temples, which are the best-attested example of imperial largesse, demonstrate how such an arrangement enabled a monarch to transform an available resource into both social and economic value. In principle, Seleukid monarchs appear to have used land grants as a way of stimulating economic behavior, by spurring the development of extractive regimes in territories with untapped agricultural potential.¹⁰⁶

100 Hirt 2010, 10–32; Russell 2013, 37–94 for the question of imperial ownership.

101 Russell 2013, 45–49.

102 Russell 2013, 39–45.

103 Hirt 2010, 32–46 (mines); Sartre 2005, 208 (timber in Lebanon), 210 (balsam); Harris 2018, 224–225 (imperial timber in general).

104 On this, Ma 2013, 344–345.

105 Strootman 2013, 47–48 provides a succinct description.

106 On which, Aperghis 2004, ch. 6. On the Hellenistic situation in Asia Minor, see Mileta 2008.

But the effect expanded beyond increased production. In one episode recounted by Seneca the Younger, Alexander the Great gifted a favored companion an entire city. When the companion balked at accepting the gift, saying that it was too great for him to receive, Alexander responded: “I am concerned, not in what is becoming for you to receive, but in what is becoming for me to give.”¹⁰⁷ Beyond distributing resources, grandiose imperial largesse of this type created bonds of obligation between the monarchs and their court. The habit of gift-giving therefore reinforced the unequal power relationships that bound a monarch with his courtiers, as well as with other actors like the temples that benefited from these land transfers.

The Roman emperor, similarly, was expected to be generous, and his generosity reflected his greatness. However, the terms in which this beneficence was expressed shifted, with land grants assuming a less important role, replaced in a certain sense by the funding of massive infrastructural projects. Indeed, while any wealthy citizen was expected to perform acts of benefaction for his community, generosity (*liberalitas*) was one of the defining virtues of a monarch.¹⁰⁸ For the Roman emperor, this took various forms, including regular cash handouts to the citizens of Rome and soldiers on important occasions. Perhaps more impactful, though, was the emperor’s benefactions for the city of Rome, which included ensuring a steady supply of grain and public building on a spectacular scale. The emperor’s patronage of the capital city helped make it the largest center of consumption in the Graeco-Roman world.

Distributions of grain to the urban citizenry at Rome began in the Late Republican period, but the emperors reformed the practice and claimed the distribution as a personal benefaction that reinforced their position as patron of the city of Rome.¹⁰⁹ Although the grain distribution only supported a subset of the urban population, the emperor also took pains to stabilize the grain market. Further, by subsidizing this subsistence food, the emperor also, indirectly, supported markets for other foodstuffs.¹¹⁰

The emperors also patronized Rome through building projects. The construction and maintenance of aqueducts was particularly important and explicitly associated with the emperor. Agrippa, Augustus’s lieutenant, built two aqueducts in the late first century BCE and formed a body of slaves for their upkeep, which he left to Augustus when he died. Augustus turned this gang over to the *res publica* and it was supported by the *aerarium*. Emperor Claudius, in the mid-first century CE, formed a second larger gang of slaves when he constructed his own aqueduct and

107 Seneca the Younger *De beneficiis* 2. 16. 1, trans. Basore.

108 Noreña 2011, 82–92.

109 Bernard 2016, 65–70 discusses the ideology of grain distribution. The economic impacts of efforts to ensure the food supply of Rome have already been discussed in volume 1 in terms of their impact on shipping.

110 Tchernia 2016, 103.

this gang was supported from the *fiscus*, which also paid for the material required for maintenance.¹¹¹ No less than the grain supply, the aqueducts allowed the population of Rome to reach massive proportions.

The emperors' other building projects were less regular and, from a purely biological perspective, less fundamental, but they had important economic consequences nevertheless. While all elites and cities built monumental buildings, imperial projects were characterized by their size and by the liberal use of exotic decorative stones from the far corners of the empire.¹¹² The use of these stones demonstrated the wealth and power of the emperor and displayed, through their distant origins, the geographic extent of the empire to the inhabitants of Rome, who lived at its center.¹¹³ This not only supported the construction industry in the city, it also fueled widespread demand for decorative stone across the empire. Even if non-imperial projects could not afford to deploy this stone on the scale of imperial projects, there emerged a market for veneers that produced a similar effect.

III.5 Coordination and Networks

In addition to economic behaviors to which sovereigns or their agents contributed directly, their economic importance can be traced in two related domains: coordination and regulation related to economic processes, and the expansion of the networks that knit the region together in a sociopolitical sense, creating the massive supraregional empires that we associate with Southwest Asia and the Mediterranean in antiquity.

One example of the role that sovereigns in the Hellenistic period played in increasing coordination and regulation comes from an explicitly economic domain: coinage systems. In contrast to earlier periods, when the seat of coinage production rested in the *polis*, starting in the Hellenistic period, royal currencies minted in the name of dynasts and bearing the portrait of the sovereign himself came to dominate many of the western Asian and Mediterranean markets.

These currencies were explicitly linked to the personhood of the sovereign, bearing his name and portrait.¹¹⁴ They were, then, personalized in a conceptually different way from older Greek currencies, with their legitimacy linked to the charisma of a specific ruler. As the Hellenistic Empires expanded, the coins came to circulate in increasingly geographically extensive regions. This ensured, over time, that the image of the sovereign would be linked to monetary practice across broad terri-

111 Frontinus, *De aquaeductu urbis Romae* 119.

112 Hirt 2010; 2015; Russell 2013; 2018.

113 There is a debate as to whether the emperor monopolized the use of certain stones. For contrasting summaries, see Hirt 2015, 290–296 arguing in favor of monopolization, and Russell 2013, 193–197.

114 Thonemann 2015, ch. 8 especially.

tories. More concretely, it also gave sovereigns extensive power in influencing coin-based transactions within these territories, in contrast to the preexisting patchwork of civic coinages, which were regulated at a more local level. Egypt, with its controlled monetary zone, is the clearest example of this.¹¹⁵

Finally, the story of smaller, regional rulers in Southwest Asia offers an opportunity to consider how the minor monarchs and their social networks shaped patterns of regional connectivity. Although regional rulers are principally analyzed as political rather than economic actors, the pressures of negotiating their sovereignty within regional and ‘global’ contexts had important ramifications on the development of frontier economies. As regional rulers engaged in these negotiations, they faced choices regarding their degree of integration into global networks, on the one hand, and independence from outside powers, on the other. The tensions between greater connectivity and greater division, and the variety of strategies that regional rulers employed in balancing these tensions, had variable economic consequences on the local level, which in turn could shape imperial systems.

In the Hellenistic period, these rulers were in charge of what have often been called the ‘minor kingdoms’ including for example Armenia, Pontos, and Bithynia, which were only incompletely integrated into the structures of the Seleukid state. More than formal political arrangements, it was actually kinship relationships that connected Graeco-Macedonian families and other local dynasties across this region, such as that of the marriage between Seleukid Antiochos III and Laodike, a Pontic princess.¹¹⁶ Marriages between different regional dynastic families and the Arsakid dynasts, such as that between a Kommagenian princess and Orodes II,¹¹⁷ highlight the multipolarity of these ties.

The spread of Roman power affected the status and organization of these older minor kingdoms and city-states. It also brought players from the major dynastic empires – the final Ptolemies, for example – into the Roman system. Some territories merged into the provincial structure of the Roman Empire, as with Kappadokia in 17 CE, while others like Armenia remained at least somewhat independent longer. The growth of Rome also spurred the emergence of new regional powers like the Nabataeans and Palmyrenes, who were minor players in preceding periods. As in the Hellenistic period, regional rulers in the Roman period continued to maintain political relationships with multiple external powers, as with Armenia and both its Roman and Arsakid ties.

In the diplomatic language of the Roman world, these relationships were couched in the vocabulary of friendship, with the monarchs frequently described as *amici* (friends) and *socii* (allies). And indeed, even in the world of fairly centralized Roman imperial power, these “friendly kings” served an important function in regu-

¹¹⁵ Von Reden 2007, 31–58. See also Weaverdyck and Fabian, ch. 8.A, III.1.2, this volume.

¹¹⁶ Polybius (Polyb.) 5. 43. 3–4.

¹¹⁷ Cass. Dio 49. 23. 4.

lating Roman foreign policy, supporting the empire's political and military interests.¹¹⁸ Behind the veneer of politesse, however, was the threat of coercive power that carried an existential threat for regional leaders. As Plutarch's Marius said to the restless Mithridates, "either strive to be stronger than Rome, or do what is ordered in silence."¹¹⁹

The suppression of the independent tendencies of the allies did, however, sometimes necessitate Roman military investment, defense against which created particularly acute pressures on the budget of local authorities. At the same time, the desire for local sovereignty, or at least the illusion of it, also affected the development of currency systems across western Asia, as the right to mint coinage was typically the prerogative of a sovereign. One significant cause for the diversity of coinages that circulated in western Asia even into the Roman and Arsakid periods was the continued prominence of regional dynasties.

The tendency toward greater integration, on the other hand, created an incentive for regional rulers to establish and maintain relationships with neighbors, and particularly with the most powerful states. These relationships often entailed the exchange of financial resources in return for various types of allegiance or protection. Regional rulers spent money – sometimes tremendous sums – currying favor with important intermediaries in the Roman Empire, with provincial governors and senators being the most important targets.¹²⁰ The question of whether formal payments of tribute flowed from allied kings to Rome has been the subject of disagreement, but the practice is only sporadically and tenuously apparent in the transmitted texts, and likely was not a central characteristic of such relationships.¹²¹

The Roman Empire in turn showered allies with gifts and sometimes subsidies. Many of the standard gifts were laden with symbolic value, evoking the pomp of kingship.¹²² The Roman state also did occasionally pay straightforward subsidies to some of its allies.¹²³ Moreover, the Roman Empire also invested in technological and infrastructural development of allied territories, a fact attested even at the far reaches of Roman influence in the South Caucasus.¹²⁴ This type of infrastructural aid was likely intended to keep regional friends happy and in power, but at the same time, it served as a technology transfer system that spread Roman construction methods far and wide.

118 Braund 1984.

119 Plutarch *Marius* 31. 3. This was not an idle threat, as the Roman annexation of much of Mithridates' kingdom demonstrates.

120 See Cicero *Pro Rabirio Postumo* 4 for the case of Ptolemy XII Auletes, who ran up massive debts in his efforts to secure his position vis-à-vis the Romans, Siani-Davies 1997.

121 See the discussion in Braund 1984, 63–67 and notes.

122 Braund 1984, 27–29.

123 Braund 1984, 62.

124 E.g., Braund 1991.

Beyond the financial ties binding the regional rulers to the Roman state, the practices of intermarriage between Hellenistic dynastic families continued in the Roman period, with Roman emperors taking an interest in the affairs.¹²⁵ Proximity to the city of Rome also grew in importance. The practice of fostering the youth of regional rulers at Rome – as well as more explicit cases of hostage-taking – ensured that the upper echelon of the client states, along with neighboring empires, was deeply familiar with personal politics of the Roman capital.¹²⁶

IV Armies

Next, we treat an organization that was the key to royal and imperial power within states of all sizes: the army. From the time of the Hellenistic monarchies until the height of the Roman Empire, armies facilitated the expansion and maintenance of imperial territory and thus the acquisition of tributary and tax-paying lands – lands that, as discussed above, were the central component of state wealth. That said, the professional standing army of the Roman Empire, which eventually spread broadly and more or less permanently across imperial space, can be contrasted sharply with the shifting constellations of armed forces (both professional forces and mercenaries) that characterized the early Hellenistic world, or even the more stable military configurations of the late Hellenistic period.

Armies were not producers in a classical sense. However, they were capable of ‘producing’ both destruction and peace, and as such played an important role in setting the parameters for the production of others. They brought ruinous destruction in the wake of their campaigns, damaging cities and local populations, and hindering their productive capabilities; at other times, however, they acted as stabilizing forces, creating stable conditions that allowed local populations to flourish.

IV.1 Consumption

IV.1.1 Provisioning

When considered as economic agents, armies were first and foremost a consumptive power on a massive scale. From wartime military encampments to permanent bases, armies were comprised of soldiers who were at least at the moment not working as agriculturalists. The basic supplies of food, clothing, and equipment required to support these soldiers – whether paid directly by the state or by soldiers themselves,

¹²⁵ Suetonius *Divus Augustus* 4.

¹²⁶ Nabel 2017.

perhaps out of their salaries – would have increased and/or redirected surplus production throughout the wider economic system.

The scale and complexity of the consumptive demands depended both on the nature of the forces to be supplied, and on their patterns of deployment. Operational strengths for the Hellenistic armies of Southwest Asia, generally multiethnic and including both levied territorial ('national') and allied troops as well as mercenaries, have been long-debated, but the scale was, by any estimate, vast.¹²⁷ Beyond the land forces, the major Hellenistic armies also fielded navies, which served a primary function in protecting port access, but also extended the reach of the empires across seas.¹²⁸ Given the variety of Hellenistic military configurations, it is difficult to generalize about their consumptive demands. Speaking of equipment, for example, consider the very different needs of the various specialized force types that comprised Hellenistic armies: light- and heavy infantry, elite troops, cavalry, and sailors.¹²⁹ The armies also included nonhuman actors – horses but also, according to one account of Seleukos I's campaign to Ipsos, 480 elephants.¹³⁰

The citizen-soldiers of the Greek world were expected to supply their own weapons. Large donations of armor by Hellenistic kings – such as Ptolemy V, who according to an account in Polybius provided armor for 6,000 foot-soldiers to the Achaian League¹³¹ – demonstrate, however, that mass-scale provisioning was also a possibility. Liturgies could also be used to raise money for equipment and war supplies.

In the Roman period, with the standardization and formalization of army provisioning, it becomes possible to track the different ways that centralized provisioning at the level of the unit differed from that of individual soldiers. In the interest of organization efficiency, units probably bought supplies from large-scale suppliers or simply drew on goods controlled by the state, while individual soldiers are more

127 Recent overviews estimate an overall force sizes in the third century BCE of about 50,000 for the Seleukid army, and 30,000–40,000 for the Ptolemaic, with perhaps up to twice that number of troops raised for specific campaigns in each case. Some ancient sources furnish troop numbers far beyond these, Appian for example suggests an army of 240,000. On the numerical strength of the Seleukid army, see Aperghis 2004, 197, who further specifies that roughly 15,000 of these troops were mercenaries. On the figures for the Ptolemaic army, see Fischer-Bovet 2014, 54.

128 Figures for the naval forces of the Hellenistic monarchies are even more speculative than those concerning the land armies (De Souza 2007, 434). On the idea of a Hellenistic army as maritime power, see Strootman 2019. On the thin line between the actions of the 'official' navies and of piratic opportunists, see Chaniotis 2008, 134.

129 These troops were commanded by a hierarchy of officers, including three named in sources, the *strategos*, *hegemon*, and *hipparchos*, although their precise functions are unclear. For an overview of organizational debates, see Fischer-Bovet 2014, 116–118; and Bar-Kochva 1976, 85–93 on the organizational structure of the Seleukid army.

130 Diodorus Siculus (Diod. Sic.) 20. 113. 4. This ratio of infantry to cavalry was quite high, with the Hellenistic norm being closer to 10:1 or even lower, see Aperghis 2004, 194. On elephants elsewhere, see Diod. Sic. 18. 71. 2–6; Plutarch *Demetrius* 29. 4–5.

131 Polybius 22. 9. 3.

likely to have bought goods locally, possibly from smaller-scale producers, or acquired them through their personal networks. Two accounts of soldiers' pay that include amounts withheld to pay for basic necessities hint at a shift in the method by which goods were acquired.¹³² The first, from 81 CE, shows that roughly three-quarters of the total salary was withheld for things like clothing and food.¹³³ The second, from 192 CE, shows that, at this point, automatic deductions were much lower, suggesting that either the state no longer charged soldiers for necessary supplies or the soldiers were expected to acquire more of their supplies themselves.¹³⁴ In the early second century CE, private letters preserved on papyri record soldiers requesting goods like shoes and even a sword from their family, so the latter explanation is more likely.¹³⁵ The precise timing of the shift in supply practice is unclear, but it might be related to Hadrian's reforms, elliptically referred to in the *Historia Augusta*.¹³⁶ Prior to this, the army would have either consumed more goods extracted through rents or taxes or goods bought from large-scale producers, which would have concentrated wealth in the hands of the wealthy. After this shift, consumption by individual soldiers would have dispersed more wealth into the local economies.

IV.1.2 Salaries and Land Grants

Beyond the consumption of soldiers themselves and the costs of war supplies, there is also the question of payment for soldiers. Hellenistic troops could be remunerated in different ways depending on their agreements with a given monarch, but the methods included payment in coin, the provision of rations, and grants of land, although not all strategies were used by all monarchs. It has long been accepted that the costs of armed conflict were a central driver in the expansion of coinage in the Hellenistic period.¹³⁷ More detailed research has suggested that it was a very specific type of soldier who drove the minting of coinage: mercenaries.¹³⁸ We also do, however, have some evidence that garrison soldiers were also paid in silver, at least some of the time.¹³⁹ This practice of payment in coin, even if limited to some sectors of the army or some periods, spread the use of imperial coinage into remote outposts, and thus created an expanded monetized zone that reduced the friction of payment in these spaces.

132 For soldiers' pay and deductions, see Speidel 2009, 349–380.

133 Fink 1971 no. 68.

134 Fink 1971 no. 70.

135 Wierschowski 1984, 121.

136 *Scriptores Historia Augusta*, *Hadrian* 10. 3; Speidel 2009, 366.

137 See, e.g., Bresson 2005, 50. Compare to the situation in China, Leese-Messing, ch. 6, IX.2, this volume.

138 De Callatay 2000.

139 SEG 32–1400, Sherwin-White 1982.

Not all soldiers were paid in coin, with land grants representing another common form of remuneration, although these took different forms in the Seleukid and Ptolemaic spaces. Land grants and the long-term military settlement that followed in their wake restructured local landownership and created closer relationships between landowners and monarchical authorities. They also placed military settlers in close proximity to local residents (both Greek and non-Greek) across the space, and they extended the area of agricultural cultivation. The massive agricultural reclamation project undertaken in the Fayum in Egypt stands as the clearest example of this.¹⁴⁰

The Roman army's pay scale was more regularized, based on multiples of a basic wage. This wage was very static over time, with rare, but dramatic raises. Domitian increased it by a third in 84 CE, then it was static until Septimius Severus doubled it in 197 CE. This was partly to account for inflation in the previous decades.¹⁴¹ Compared to other laborers, Roman soldiers were comfortable but not particularly wealthy.¹⁴² Most soldiers received a similar wage: infantry in auxiliary units were paid five-sixths as much as those in the legions, and cavalrymen in both the *auxilia* and legions were paid seven-sixths as much as legionary infantry. Each unit had a few low-level officers that were paid one-and-a-half times and two times as much as an infantryman, but above this level, wages rise much more dramatically. Most legionary centurions were paid 15 times as much as an infantryman, but some were paid 30 times as much and one received 60 times as much. The salary of auxiliary commanders was actually lower than that of legionary centurions, but of the same order of magnitude. In addition to their salaries, soldiers also received special gifts of cash on important occasions ('*donativa*'), and legionary soldiers received a substantial discharge bonus.

Legionary centurions, then, could be as wealthy as some local elites – which in turn increased the consumption power of soldiers. Indeed, a Talmudic source illustrating the social hierarchy places the centurion above the town councilor,¹⁴³ and centurions are found lending money to local notables in the Babatha archive.¹⁴⁴ The army, then, injected a new type of elite personage into local society who enjoyed unique legal privileges and social authority stemming from his role in the imperial apparatus.

IV.2 Production

The Hellenistic world was born out of armed conflict, and there is a consensus among modern scholars that frequent – nearly uninterrupted – interstate conflict is

140 On which, see Weaverdyck and Fabian, ch. 8.A, IV.1.2, this volume.

141 Rathbone 2009, 312. In the third century, as the political order became strained, emperors increased military pay more frequently to secure their support, but this was also a period of monetary collapse, so the meaning of the salary is difficult to understand.

142 Alston 1995, 105–108; Rathbone 2009, 310–312.

143 Isaac 1990, 137.

144 P. Yadin 11.

a defining characteristic of the period.¹⁴⁵ The prevalence of war in this period can be understood as the result of overlapping political and economic factors. On the one hand and in terms of politics, given the polycentricity of Hellenistic power, there were a great number of sovereigns, each of whom could exercise state-sanctioned violence in the pursuit of his own goals. Such violence was glorified because ideological power in the Hellenistic monarchies was based on the military prowess of the king as evidenced by his ability to win victories, in a model that has its roots in Greek thought about kingship, but which was anathematic to political organization in democratic *poleis*.¹⁴⁶ At the same time, Hellenistic conflicts – beginning with Alexander’s own conquests – were frequent battles over land, territorial control, and booty, and in this sense, they can be seen as economic as well as political conflicts.¹⁴⁷ Eckstein has summarized the key features of Hellenistic state relationships that lead to hypermilitarization as “anarchy; militarization; multipolarity; the offensive as ideology, strategy, and technique; the primitive character of interstate diplomacy.”¹⁴⁸ The frequency and massive cost of wars in the Hellenistic world in fact functioned as a check on the concentration of wealth in imperial coffers, given the great expense required to recruit and maintain a competitive Hellenistic army.

Although this type of interstate warfare could be ‘productive’ from the perspective of a state looking to expand its territory and tax base and indeed military power, it caused enormous damage along the way. Furthermore, if a monarch was unsuccessful, a loss could have long-term economic consequences in terms of lost territory, beyond the costs incurred in war. In the course of warfare, forces turned their destructive power most often against rival cities.¹⁴⁹ Technological developments in the field of siege machinery increased the effectiveness of these tools in attacking fortified sites. Massive state investment in fortifications at urban sites and hinterland systems was therefore necessary.¹⁵⁰ In this way, the money spent on war was not all directed outward from imperial centers to mercenaries and provisions, but was also in some cases inwardly directed. In the case of Greek *poleis* in the Hellenistic period, the funding for the construction and maintenance of these fortifications was sourced at least in part from the low-interest loans and donations of wealthy citizens (as well as foreign metics), whose benefaction was announced through public contribution lists (*epidoseis*) bestowing honor on those who donated. In this way,

145 Chaniotis 2008, ch. 1; Eckstein 2006, ch. 4. This model pushes against an earlier understanding of the Hellenistic period that stressed the development of a balance of power after ca. 280 BCE, on which, Austin 1986.

146 The Byzantine *Suda* defines kingship as follows: “Neither has nature produced the institution of kingship (*basileiai*) among men, but it is the creation of those who can command armies and administer affairs with expertise,” trans. Sage 1996, n. 271.

147 Chaniotis 2008, 14–16.

148 Eckstein 2006, 99.

149 E.g., Lysimacheia: Livy 33. 38. 10–12.

150 On the city-hinterland fortification systems and their administration, Baker 2000.

funding the military defense of a city was one avenue for transforming money into social and political power.¹⁵¹

It was not just the world of cities that was affected, however, with literary and inscriptional evidence speaking repeatedly about damage to agricultural territories in the course of war.¹⁵² One evocative, if ultimately impressionistic, account comes from an inscription from the city of Sestos, which describes how after many years of war, “... everything in the fields had been carried off, most of the land not sown, and the dearth of crops which recurred continuously reduced the people publicly and every individual citizen privately to penury.”¹⁵³

In reality, the true extent of this damage is difficult to estimate, and it has been argued that agricultural damage sustained in the course of war was rarely severe enough to imperil cities,¹⁵⁴ nevertheless, it likely depressed agricultural yields and caused considerable local pain and hardship. That the damage to agricultural lands presented a problem is, furthermore, evidenced by guidance concerning the burning fields and destroying crops that appeared in normative texts. Philo of Byzantium’s guide to siege warfare, for example, advocates for destroying agricultural lands only after a failed siege attempt, thus ensuring that in the case of a successful campaign, the territory will be productive for the victors.¹⁵⁵

Beyond intentional and collateral damage to crops, the armies also exacted a heavy economic toll on an occupied rural landscape simply through their subsistence requirements. Alongside the destruction of city infrastructure and the spoiling of rural land, the sacking for booty and particularly enslavement of vanquished populations are two other consequences that should be mentioned here, although in this case, one community’s loss was very much another’s gain.¹⁵⁶

The rise of Roman power, while initially a catalyst for even more wars, eventually ushered in a fundamental change: a single hegemony. Polybius deemed this change, which had its roots in the late third century BCE, to be the stitching-together of the Eastern and Western Mediterranean into a *somatoeide*, an organic whole.¹⁵⁷ The Roman period saw very little interstate violence. Even before the creation of provinces in the Near East, the Romans suppressed large-scale violence by preventing the kings under their sway from going to war with each other. The famous ‘Day of Eleusis’ in 169 BCE, when a Roman ambassador prevented the Seleukid king, Antiochos IV, from invading Ptolemaic Egypt, was an early demonstration of the

151 Chaniotis 2013.

152 E.g., Chandezon 1999; Chaniotis 2008, 122.

153 *OGIS* 339, *I.Sestos* 1. Trans. and discussion, Chaniotis 2011, 122.

154 Foxhall 1993.

155 D 87 and 90–1, ed. Garlan 1974, 325; Chaniotis 2008, 123.

156 For the position that the spoils of war did not constitute an important source of revenue, see Aperghis 2004, 175, but cf. Chaniotis 2008, 129–137. On plunder as a motivator of troop loyalty, see Austin 1986, 464–465.

157 Polyb. 1. 3. 4.

Romans' ability to prevent large-scale, state-led violence, and represented a decisive shift in the system of interstate relations that had developed in the later Hellenistic world. Although the Roman army was not directly involved, the ultimatum that checked Antiochos's advance was only effective because Roman armies had defeated the Seleukid king Antiochos III over 20 years earlier and had just crushed the Antigonid king Perseus at the battle of Pydna.¹⁵⁸ Interstate warfare would not really abate for over a century, but now the contenders had to consider Roman interests. After Pompey's defeat of Mithridates and the establishment of the province of Syria in 63 BCE, every ruler west of the Euphrates had some form of friendly relationship with Rome, so interstate warfare was very difficult. When the Judaeen king Herodes attacked the Nabataeans, he took pains to publicly justify his actions, but a Nabataean official was in Rome at the time and appealed to Augustus personally. A strongly worded letter from Augustus was enough to end the war.¹⁵⁹

As 'client kingdoms' became provinces, warfare between states became impossible, with the exception of the Parthians. Warfare did not cease altogether. There were Roman-Parthian wars, Roman civil wars, and two great Jewish rebellions, but these conflicts were separated by decades of peace such as were unknown in the Hellenistic period. Even in the face of reduced interstate warfare, medium- and small-scale violence persisted. However, the Roman army took at various moments aggressive measures to intervene and settle even these smaller threats.

One way the army accomplished this, indirectly, was by employing young men from areas known for banditry.¹⁶⁰ Indeed, the third-century historian Cassius Dio, in a fictionalized exchange between Augustus's advisors states that one of the advantages of a standing army is that "the most active and vigorous element of the population, which is generally obliged to gain its livelihood by brigandage, will support itself without molesting others."¹⁶¹ That such a policy was actually followed, at least in part, is evident from the names of auxiliary units that attest to the place in which they were initially recruited. A larger portion of those recruited in the Near East come from mountainous areas or regions near the desert – zones known for supporting banditry.¹⁶²

IV.3 (Re)distribution and Connectivity

Armies, in part by virtue of their wide geographic spread, played an important role in a variety of distribution systems, both literal and metaphorical. They were, on

¹⁵⁸ Polyb. 29. 27; Livy 45. 12.

¹⁵⁹ Joseph. *AJ* 16. 9.

¹⁶⁰ Haynes 2013, 106–109.

¹⁶¹ Cass. Dio 52. 27. 5, trans. Cary.

¹⁶² Kennedy 1989.

the one hand, a central vector through which both inter- and intrastate resources were redistributed – in addition to land seizure and plunder, the salaries of soldiers themselves, just mentioned above as an indicator of army consumption, can also be seen as a component in intrastate redistribution of wealth. On a more physical level, army installations also came to serve as nodal points in networks of imperial expansion and control. The installations served both as physical instantiations of imperial power over space, but also as outposts of imperial economic regimes. Armies were finally also often active in the creation and protection of infrastructure that facilitated connectivity. Although much of this activity advanced military aims, it had consequences for the freedom of movement across space, which impacted distribution mechanisms.

In the Hellenistic period, we see the start of long-term military outposts, with some proportion of troops – perhaps tens of thousands of men in the Seleukid world – stationed in the military garrisons (*phourai*) and guard posts (*stathmoi*, *phulakai*) that dotted the landscape of western Asia.¹⁶³ These garrisons, which were staffed with forces of various sizes who remained at the garrison for variable periods, were placed often in dependent cities, and marked a certain loss of autonomy of a city.¹⁶⁴ They tended to sit at nodal points within the territory of the respective empire, existing in order to extend rule far from imperial centers. Like the broader composition of Hellenistic armies, the garrisons could be manned by troops from a variety of ethnic backgrounds, including by nonlocal mercenaries, which facilitated the movement of individuals far and wide across imperial space. The multiethnic character of the army and the geographic movement of these people served to integrate distant areas of the empire.

The Roman army similarly moved people across regions. Soldiers stationed in Southwest Asia and Egypt generally came from the eastern provinces of the Empire.¹⁶⁵ While some soldiers served close to home, many were stationed either far from their city of origin in the same province or in a different province altogether. Soldiers serving in Syria came from the Levant as well as from Egypt, Asia Minor, and even Thrace. The army in the Near East, then, served to integrate the wider region more closely. But soldiers from Syria served even farther afield.¹⁶⁶ A well-excavated auxiliary fort on the Middle Danube was manned by the *cohors I Hemesenorum*, which formed the core of a community that maintained close ties to its Syrian homeland.¹⁶⁷ The practical impact of military service on social networks is illustrated in a second-century letter of recommendation found in Karanis. The letter writer instructs his brother to help the bearer, a veteran named Terentianus, to set-

163 Aperghis (2004, 200) rates the strength of peacetime garrisons at perhaps 30,000.

164 Chaniotis 2002, 101–103.

165 Pollard 2000, 111–134; Stoll 2015, 137–167.

166 Grainger 2018, 77–145 collects the evidence, but cf. Olshanetsky 2019 for a sharp critique.

167 Fitz 1972.

tle in Karanis by renting him a house and a field, connecting him with a linen merchant from whom he can buy furnishings, and by informing him about “what sort of villagers we have, lest he get into trouble.”¹⁶⁸ Soldiers were nodes that linked their home communities not only to the areas in which they served, but to the soldiers that they served with, facilitating the mobility of goods, people, habits, and ideas across the empire.

Furthermore, we see in the Roman period a clear example of how spending on the military could amount to a large-scale redistribution of wealth between regions. While it is generally thought that the provinces of Syria and Egypt paid more in taxes than they received in the form of salaries, Judaea was probably a net importer of taxes.¹⁶⁹ The army also redistributed capital through imperial investments in infrastructure. The construction of roads, bridges, canals, and ports needed to move soldiers and supplies quickly facilitated the movement of all kinds of goods. In addition, soldiers trained to build military infrastructure were often sent to advise and manage purely civilian projects, so the army created human capital that was invested throughout the empire.¹⁷⁰

This redistribution of wealth had significant implications for the population of the Roman Near East. The construction of roads seems to have stimulated the growth of permanent settlement in areas where they had previously been sparse.¹⁷¹ Veterans, with their discharge bonuses, savings, skills, and social connections, were well-placed to become modestly wealthy farmers and traders upon retirement, and they are well-represented among upper echelons of urban and village societies in the Near East.¹⁷² In a few places, like Berytus, Heliopolis, Ptolemais, and Jerusalem after the Bar Kokhba revolt (132–136 CE), the Roman emperor founded formal colonies populated by veterans, dispossessing the previous inhabitants of their land and creating communities of people who identified with the empire.¹⁷³ The Latin culture of some of these places, most famously Berytus, which became a major center for the study of Roman law in the Late Roman Empire, helped plug them into larger imperial networks. However, the epigraphic record shows that veterans settled in many places beyond these formal colonies. The areas around legionary bases, like Bostra, had significant veteran populations.¹⁷⁴ These people brought money and their own labor into local economies, increasing production and consumption, and, by virtue of the personal relationships and identities forged during their service in the army, spread social networks.

168 SB 6. 9636 = <http://papyri.info/ddbdp/sb;6;9636> (accessed Jan 3rd, 2021); trans. Lewis 1959.

169 Roth 2002, 382–383.

170 Weaverdyck vol. 1, 273; Pollard 2000, 242–247; Roth 2002, 388–391.

171 Liebeschuetz 2007, 435.

172 Stoll 2015.

173 Isaac 1990, 318–325; for Berytus and Heliopolis, see now Paturel 2019.

174 Stoll 2015.

Roman armies also built infrastructure, including roads and fortifications, to solidify their hold on power and prevent the emergence even of small-scale violence. This would have been particularly important in protecting trade routes. In the first half of the first century BCE, widespread warfare drove many in the Mediterranean to piracy, increasing the risks of shipping to such a degree that the grain supply of Rome and other imports were seriously threatened. In response, Pompey was given an extraordinary command with a huge fleet and authority over the entire Mediterranean, allowing him to coordinate attacks on pirate strongholds, leaving them no escape. He also allowed many to surrender and settled them in sparsely populated areas.¹⁷⁵ Although piracy persisted, the scale of the problem was greatly reduced.¹⁷⁶ Similarly, the Roman outpost on the Farasan Islands and the fleet in the Red Sea probably suppressed piracy by attacking pirates and their strongholds rather than defending individual merchant ships.¹⁷⁷ Since Roman warships were not suited for the journey across the Indian Ocean,¹⁷⁸ merchant ships carried guards for their own defense.¹⁷⁹

On land, Roman forces sometimes attacked bandits, but securing transportation routes from banditry in the long-term required heavy investments in infrastructure. Strabo notes that Arabian merchants were robbed less often after Roman soldiers from Syria broke up the band of robbers under the leadership of Zenodorus.¹⁸⁰ These robbers had been living in Trachonitis, a rocky region with many caves, providing refuge and hindering the advance of armies. Despite the fall of Zenodorus, Trachonitis remained a haven for bandits, a problem that King Herodes tried to solve by settling people from elsewhere in and around the region, but this was only partially successful.¹⁸¹ In the second century CE, the Romans built a road with watchtowers through Trachonitis linking Damascus to Bostra, the capital of Arabia and headquarters of a legion, which must have facilitated the safe passage of traffic.¹⁸² Recent work in the Eastern Desert of Egypt has provided new evidence for the role of military infrastructure in securing the routes from the Red Sea ports to the Nile.¹⁸³ These older routes were equipped with wells and guard posts by Ptolemy II to facilitate the import of war elephants from eastern Africa, but they were further developed and maintained after the Roman conquest of Egypt.

175 Cass. Dio 36. 20–37.

176 De Souza 1999, 149–178.

177 The fleet might also have prevented smuggling and maintained Roman military supremacy over Arabian and East African polities (Cobb 2018, 119–120).

178 Cobb 2018, 119–120.

179 Cobb 2018, 117–118.

180 Strabo 16. 2. 20; Joseph. *AJ* 16. 9.

181 Isaac 1990, 62–66.

182 Isaac 1990, 134–137. Stoll has recently argued that the settlement of veterans might have increased security as well (2015, 122–136).

183 Cobb 2018, 92–126 with further literature.

Armies, then, played the following roles: They were significant centers of consumption. They consumed vast amounts of foodstuffs, while their pay requirements consumed a tremendous portion of state wealth. Finally, functioning across broad geographies, armies unsurprisingly also had broad consequences in the sphere of (re)distribution. From the capture of booty to the payment of wages, armies were a key mechanism in the redistribution of resources between communities, and also into nonelite spaces. On a physical level, army communities became hubs at the frontiers of imperial space – often monetized hubs at that; while infrastructural projects of armies contributed to increased stability of both land and in some cases maritime trade routes, reducing risk and instability for merchants and other travelers. But at the same time, when evaluating the economic role of the army, its overwhelming potential to produce violence can never fall out of consideration.

V Temples

From Rome to Alexandria to Babylon, temples or sanctuaries, composed of assemblages of individuals including priests, worshippers, or dedicants, were the sites of ritual practices, regulated by the norms and ideologies of the relevant region, ranging from that of the Sumero-Akkadian temples, to *polis*-based practices (including structures often termed ‘state cults’), through to Judaism. The affairs of the temples – and therefore much of their economic activity – were conducted within concrete physical spaces, often monumental in scale. Temple life often involved specific material practices, such as the collection and storage of particular types of objects; the production, consumption, or redistribution of foodstuffs; and precise recordkeeping. The material demands of cult practice meant that the temples were major hubs of consumption, while widespread practices of *euergetism* on the part of both private citizens and political authorities ensured that temples amassed considerable stores of wealth that, although not fully liquid, enabled the temples to develop a range of banking and credit-related functions.¹⁸⁴ On a more abstract level, temple involvement in landownership in some regions positioned this institution as a driving force behind the creation of agricultural surplus, at least some of which they then redistributed to other temple employees: non-agriculturalists who relied on the temple-held surplus. Finally, temples and the associated religious norms may have in some cases played a role in rule-setting and compliance, particularly in the realm of trust networks.¹⁸⁵

The degree to which temples have been considered as economic actors varies by region. In contrast to the Mediterranean world, where the *polis* has been under-

¹⁸⁴ Dignas 2002, 21–25.

¹⁸⁵ Padilla Peralta 2020.

stood as a central feature of political organization, traditional approaches to the Near Eastern have focused attention on these temple- or palace-complexes, whose vast powers led to the appellation “temple-states.”¹⁸⁶ The economic ramifications of this organizational difference found full expression in Moses Finley’s *Ancient Economy*, which describes the Near Eastern system as follows:

The Near Eastern economies were dominated by large palace- or temple-complexes, who owned the greater part of the arable, virtually monopolized anything that can be called “industrial production” as well as foreign trade ... and organized the economic, military, political and religious life of the society through a single complicated, bureaucratic, record-keeping operation ...¹⁸⁷

Even after Alexander the Great’s conquests and the rise of the Hellenistic monarchies that restructured political systems, it is indeed clear that temples owned and even directly administered vast tracts of arable land in the Near East and Egypt.¹⁸⁸ However, a more complicated picture of the position of temples has emerged in recent years, inspired by an increasing body of late cuneiform evidence that has expanded our understanding of economic activity in the Near East,¹⁸⁹ as well as by reconsiderations of sanctuaries’ interaction with states.¹⁹⁰ Pushback against Finley’s sharp distinction between Near Eastern and Graeco-Roman models, furthermore, has animated attempts to integrate Seleucid western Asia more fully into models of the ancient economic system.¹⁹¹ Thus, even as the nearly exclusive importance of the temple-complex has waned in economic thought about Near Eastern economies, the diverse instantiations of ‘sacred economies’ that developed in the Near East and the Mediterranean have received renewed attention, positioning temples not just as centers of agricultural production, but also as concentrators of a specific type of sacred wealth and as hubs of diverse consumption and distribution.

V.1 Organizational Variety

There have been long debates about the degree to which the various economic actions of temples constituted independent economic behavior – about whether, for

186 The phenomenon is traced back to much earlier periods in the Near East, but has been used in reference to the Hellenistic period, see classically Rostovtzeff 1: 1941, 502–517 and *passim*.

187 Finley 1999, 28.

188 On the Near East, van der Spek 2004. On Egypt (and including the nominal temple hold on some of this land), Manning 1999, 32, 50.

189 Chiefly the *Astronomical Diaries*, on which, see, e.g., Pirngruber 2017; van der Spek and Leeuwen 2014; see also Taasob, ch. 3.B, this volume

190 E.g., Dignas 2002. See also Aperghis 2004, 107–108 on temple-state relations in the Seleukid context.

191 Davies 2001, 7–9.

example, income raised by temples can be understood to be separate from civic revenue – and also about the scale of this activity and therefore its consequences for wider economic systems.¹⁹² In the context of the variegated landscape of post-Achaemenid Southwest Asia and the evidentiary disparities therein, there is no single answer to these questions.

Owing to the rich body of cuneiform evidence, Hellenistic Babylon provides a singular window into economic activities connected with temples, and particularly with the Esagila complex at Babylon.¹⁹³ The evidence documents the explicit economic activity of the temple as it relates to (1) temple staff and wages; (2) land-tenure regimes; and (3) incomes and expenditures.¹⁹⁴ They, and particularly the records of wages and rations paid to craftspeople and agriculturalists, demonstrate the wide involvement of the temple in local life.¹⁹⁵ The core individuals administering Mesopotamian temple systems like that at Babylon were members of an urban elite with deep roots in the region's cities – a sort of urban nobility.¹⁹⁶ The interaction between temple elites and both civic and imperial administrative systems changed over time, but at least in the case of the largest cities, there was a nominal separation of religious and secular administration, even if many of the same individuals were involved in both.¹⁹⁷

A different version of temples as core economic engines comes from Jerusalem. In contrast to the previous example, however, the activities of the temple of Jerusalem are reported not in temple records, but rather in the body of Hebrew and Aramaic religious texts and rabbinic commentaries, and also in Graeco-Roman transmitted texts. The scope of what we might consider direct economic data is, therefore, more restricted. There is, for example, more uncertainty about the nature of landholdings of the temple of Jerusalem, with debates about whether there were temple estates at all.¹⁹⁸ Nevertheless, the tremendous scale of Herod's temple construction project as well as the rich records surrounding temple income from donation and particularly the fees paid by pilgrims highlight the temple's functions as both a center of consumption and a concentrator of wealth.¹⁹⁹

Both of the examples discussed thus far concern temples or religious identities that were, in at least some senses, non-Greek both socially and politically – perhaps seeming to bolster Finley's argument. But this line is not always easy to draw, as the development of ambiguous and syncretized religious practice across the ancient

192 On this, see Dignas 2002, 13–16.

193 Boiy 2004, 265–275; Oelsner 1986; see further Taasob ch. 3.B, III.

194 The *Astronomical Diaries* also provide extensive data on commodities' prices, see van der Spek and Leeuwen 2014.

195 Boiy 2004, 241–262.

196 Clancier 2007, 28–30; see also von Reden, ch. 12.A, VI, this volume for discussion

197 Clancier and Gorre 2021, cf. Aperghis 2004, 109.

198 Safrai 2003.

199 Broshi 1987.

world demonstrates.²⁰⁰ There were sanctuaries that were anchored in the Greek religious system, which seem to have engaged in a similar range of economic activities to those discussed above, including the ownership of land.²⁰¹ In Asia Minor, the temples and other sanctuaries played an important political role as intermediaries between the populations of the Greek *poleis* and their Hellenistic monarchs.²⁰² Lavish donations are attested at some such sites as a result of attempts to curry favor, translating their political power into concrete economic wealth. As the Roman Empire expanded into these spaces, there was a general approach to tolerate the pre-existing sacred infrastructure and even to grant sacred properties special rights.²⁰³ At the same time, the expansion brought the Roman state religion into the east, implanting the Roman emperor as the subject of veneration himself, and situating the Roman governors as important arbiters in affairs of local cult practice.²⁰⁴

V.2 Consumption, Production, and Distribution

Landownership, particularly in areas where irrigation agriculture dominated like southern Mesopotamia and Egypt, but also elsewhere, positioned the temples as central figures within agricultural production systems.²⁰⁵ Beyond landholdings, there is also evidence for the existence of herdsmen and pastoral activities in association with both Egyptian and Babylonian temples.²⁰⁶ The legal structures surrounding both the ownership of temple lands and the labor systems by which they were cultivated were variable and often poorly understood. Temple estates in Seleukid Babylon and Ptolemaic Egypt provide a useful point of comparison, as in each case the temple institutions predated the monarchical structures of the Hellenistic period, and their priesthoods remained as bastions of preexisting elite structures. In Seleukid Babylonia, however, we know that at least some temple estates were not actually owned by the temples, but rather granted to them in usufruct by the new monarchs.²⁰⁷ Additionally, the practice of leasing temple lands to others who cultivated them is well attested, which offered a channel to collect rents.²⁰⁸ In Ptolemaic

200 See, e.g., Aliquot 2008 on rural sanctuaries in the Levant in the Roman period.

201 See the classic discussion of Kent 1948 and more recently Reger 1992.

202 Dignas 2002, 108–109.

203 Dignas 2002, 119 ff.

204 Beard, North, and Price 1998, 320–321.

205 See, e.g., Philo *De Specialibus Legibus* 1.76 on the profits of the temple in Jerusalem from landownership.

206 E.g., the herdsmen in Edfu, Manning 1999, 98–99. On the long Babylonian tradition of associating pastoral activities with temples, see Kozuh 2010. See also van der Spek 2004, 307.

207 In the Seleukid context, Aperghis 2004, 108. For Egypt, see the similar point in Manning 1999, 101.

208 In the case of leases from the Ptolemaic period, the taxes on such land were paid to the Ptolemaic state rather than to the temple institutions, Manning 2003, 198–201.

Egypt, lands that were designated as temple lands were able to be inherited, sold, or given as gifts, implying that the categories of temple land and privately owned land were not binary.²⁰⁹

Although this engagement in agricultural production has received the most attention from economic historians, temple organizations also engaged in a wide range of consumptive economic activities, and served as the stage for dedicatory activities. Between temple offerings and income from agropastoral activities among other things, a tremendous quantity of wealth came to be concentrated in temples.

Temples were also physical structures: usually monumental complexes that were expensive and labor-intensive to construct, and required ongoing investment in the form of maintenance.²¹⁰ The cult practices that occurred in the framework of the temples were also resource-intensive, driving consumption, but also distribution within the local community. Epigraphic evidence from second-century BCE Delos, for example, testifies to the considerable expense of buying sacrificial animals slaughtered as part of temple festivals, and even mentions the cost of importing animals not available locally.²¹¹ Temple festivals also acted as economic attractors, evidenced by the frequent association of periodic markets with temple gatherings.²¹² This association between temples and markets is a subject of discussion of a number of classical sources, with Strabo noting that Apollo's festival at Delos "serves the purposes of commerce."²¹³ The regular activities of temple festivals, ranging from the fairly local to the Pan-Hellenic, created one important framework for the expression of peer-polity networks, and provided an alternative to the networks rooted in urban centers themselves.

These wealthy temple organizations came, in some cases, to assume banking functions like the safe storage of wealth, and the extension of credit, including making resources available in times of crisis.²¹⁴ Even in Rome, where the economic behavior of temple organizations is generally considered to be far more attenuated than in earlier periods or in more eastern territories, temples continued to serve as safe deposits for wealth.²¹⁵

209 Manning 2003, ch. 6.

210 On construction costs, see, e.g., Barresi 2015.

211 Linders 1994.

212 De Ligt and de Neeve 1988. It should, however, be noted that these periodic markets were not limited to the sphere of what we might today group strictly under temple organizations, but also occurred alongside festivals held in conjunction with athletic events. Although these other types of performances were certainly 'religious' in a certain sense, the direct link to temple organizations is more attenuated in some cases than in others.

213 Strabo 10. 5. 4.

214 Dignas 2002, 21–25. There have been considerable debates about the scale of temple banking activity, particularly since much of the temple holdings comprised sacred wealth that was not freely available for secular use.

215 Herodianos 1. 14. 2–3 describes a fire in the late second century CE in the Forum of Peace that destroyed the wealth of many elite individuals. See Duncan-Jones 1994, 8–10 for other examples from the Roman world.

VI Local Elites

We turn now from actors whose economic behaviors can be understood as elements of state power, to those with a more tenuous connection to political authority. We consider first local elites, who in the Graeco-Roman world were characterized by the confluence of superiority of wealth and honor – played out in urban contexts.²¹⁶ In addition to their urban contexts, these elites were landowners on a vast scale, and had a hand in controlling agricultural prosperity. A central motivating factor for these elites, and a factor that therefore shaped their economic decision-making, was the markers of esteem that were bestowed upon them for their civic-minded behavior, including election to political office (for males), public declarations, and statues, all honors that enhanced one's total honor.²¹⁷ The system of honor in which they competed depended on the estimation of others, so the local elites were particularly well networked, as they interfaced with their own peers, as well as the larger community, including social inferiors.²¹⁸

VI.1 Production, Consumption, and Distribution

The social elites held land on vast scales. The most honorable way to acquire wealth according to Graeco-Roman moral thought was through agriculture, so those with money who aspired to honor invested heavily in land.²¹⁹ To make one's living through manual labor was similar to slavery, and trade on anything but a very large scale sordid.²²⁰ Of course, aristocrats did not always conform to this norm and they

216 For Mediterranean honor, see Horden and Purcell 2000, 487–523. For Roman honor, see Lendon 1997, 30–106; 2011; Verboven 2002, 45–48.

217 The esteem of the emperor and imperial elites is of less immediate import for the moment, and in any case, these could be thought of as particularly privileged members of the aristocrats' peer group. The emperor's ability to distribute political office in Rome made him uniquely similar to a public collective.

218 For alternative systems, see Lendon 1997, 89–105. In our period, the most important differences were in the value attached to different forms of making money: see Verboven 2007 on business classes; Mayer 2012 on middle classes with review Mouritsen 2012; Mouritsen 2011 on freedmen; also Wilson and Flohr 2016. For the confluence of the systems of Greek civic honor and Roman honor, see Heller and van Nijf 2017.

219 The *locus classicus* for the moral evaluation of various means of acquiring wealth is Cicero, *De officiis* 1. 150–151. Disreputable occupations include those that incur the ill will of others, require unskilled manual labor, rely on dishonesty (this includes all short-term retail), and those that cater to sensual pleasures. Honorable occupations include those requiring intelligence and those that are beneficial to society, including importing large quantities of goods from distant places. Cicero takes it as self-evident that agriculture is the most honorable occupation. For a defense of the general applicability of this passage in antiquity, see Finley 1999, 41–61.

220 Verboven 2012a, 601.

could mask their commercial interests through intermediaries, but even so, the ideal that aristocratic wealth was based on property, and more particularly on agriculture, meant that most wealthy people invested heavily in land. Whether they cultivated this land themselves through servile agents (*vilici*) or leased it to tenants, the aristocracy controlled large agricultural surpluses.²²¹ While their ideological ties to local cities, along with the friction of transportation costs, ensured that much of this surplus was used to support urban populations in the area in which it was produced,²²² the concentration of agricultural surpluses in a few hands would also have facilitated long-distance trade through efficiencies of scale. On the other hand, investments in real estate also froze assets, which could lead to a shortage of cash.²²³

The Roman period, partly as a result of the agricultural handbooks of Cato (second century BCE), Varro (first century BCE), and Columella (first century CE), offers evidence for the significant intellectual investment and development of farming techniques intended to maximize productivity while minimizing risk.²²⁴ For example, the treatment and application of manure and particularly the cultivation of plants specifically to replenish the soil was quite sophisticated.²²⁵ Faunal evidence from Italy and the western provinces shows that Roman livestock was generally larger than what had come before, suggesting improvements in breeding and care.²²⁶ The Roman agronomists recognize their debt to older Carthaginian and Hellenistic agricultural writings, most of which are now lost, so it is difficult to tell how uniquely ‘Roman’ these techniques were. Despite the marginality of the Mediterranean climate, it was possible to achieve yields comparable to those achieved in the eighteenth and nineteenth centuries in Europe.²²⁷ The degree to which these results actually were achieved is a different question, and one that surely varied between regions and even estates.

Turning to elite consumption patterns, we find that they served simultaneously to demonstrate the wealth and cultural knowledge of the consumer. Conspicuous consumption, particularly in the context of feasts, set off an emulative cycle that has been characterized as a “consumer revolution.”²²⁸ The spread of tableware associated with elite commensality practices, which can be connected also to develop-

221 Erdkamp 2005; Erdkamp, Verboven, and Zuiderhoek 2015.

222 This fact has led historians to classify ancient cities as Weberian “consumer cities,” but the heuristic utility of this label has been exhausted (Erdkamp 2001).

223 The example of Pliny relying on a loan from his mother-in-law to buy a farm has already been mentioned (*Ep.* 3. 19).

224 Kron 2008b, 2012 emphasizes the productivity of Roman agriculture. For innovations within the Roman agricultural writers, see Diederich 2007; Marcone 2006.

225 Kron 2008b, 76; White 1970, 125–145.

226 Kron 2008a.

227 Kron 2008b, 76–77.

228 Wallace-Hadrill 2008.

ments at Hellenistic courts, reflect developments in not just style, but actually in the dietary practices in elite centers across the ancient world.²²⁹

Local elites did not distribute their wealth without a purpose. In order to achieve honor within the city, an aristocrat was expected to use part of their wealth for the benefit of the citizenry, the practice known as *euergetism*.²³⁰ The construction of monumental public buildings, or parts thereof, sponsoring games and festivals, and distributions of oil, money, grain, or wine were common forms.²³¹ There is some debate about the economic significance of *euergetism*. Zuiderhoek has argued that elites spent only a small part of their wealth on this and that the city's resources covered most of the costs,²³² but Verboven has argued that this *euergetism* contributed to the construction and maintenance of physical infrastructure,²³³ and Hoyer has argued that it stimulated market development and monetization in Roman North Africa.²³⁴

Regardless of the effects of formal acts of *euergetism*, a sense of obligation to the city directed the distribution of elite resources, particularly grain. This was particularly important in times of food crisis. An anecdote from Philostratos's *Life of Apollonios of Tyana* is illustrative.²³⁵ The philosopher Apollonios was visiting the town of Aspendos in Pamphylia (modern Turkey) when he observed a food riot in progress. The only thing available for sale was bitter vetch, because 'the powerful' (*hoi dunatoi*) were keeping grain locked away to be exported. A mob, holding the leading magistrate responsible, was about to burn him alive when Apollonios interceded on his behalf. The magistrate, in turn, passed the blame to certain named people who were responsible because "taking away the grain, they were hoarding it" in various places in the countryside. These people were apparently landowners, for the mob intended to go to their estates (*agros*). But Apollonios, when he had convinced the mob to summon them instead, calls them 'corn dealers' (*sitokapeloï*), using a term that generally referred to small-scale retailers and therefore should be understood as derogatory in this context.²³⁶ In his accusation of these men, Apollonios says "the earth is mother of all ... but you have pretended that she is your own

229 The contributions in van den Eijnde, Blok, and Strootman 2018 explore Greek feasting habits from the archaic through the Hellenistic period. For a wide-ranging introduction to food in the Graeco-Roman world, see Wilkins and Nadeau 2015.

230 *Euergetism* has enjoyed a long history of scholarship, for which Veyne 1976 is foundational. More recently, see Domingo Gyax 2016, for *euergetism* in the Greek city from the Archaic to the Hellenistic period and Zuiderhoek 2009 for *euergetism* in the Greek cities of the Roman province of Asia.

231 Zuiderhoek 2009, 76–109.

232 Zuiderhoek 2009, esp. 23–52 for the economic argument.

233 Verboven 2012a.

234 Hoyer 2013.

235 Philostratos *Life of Apollonios of Tyana* 1. 15.

236 Yon 2007, 54–55.

mother alone,” expressing an ethos that entitles the entire community to share in the produce of its land, despite the private ownership of it. Local elites were firmly rooted within their community and had an obligation to assist it in times of scarcity.²³⁷ This restricted the scope of their profit-seeking behavior, checked the extent to which they could accumulate wealth, helped to ensure the survival of the less-wealthy urban population, and could be seen as restricting interregional economic integration.

Grain was not the only resource expended for the good of the city. The rich body of epigraphic evidence from the desert city and trading center of Palmyra (discussed at length in chapter two) offers insights into elite support for trade activity.²³⁸ Here, the so-called ‘caravan inscriptions’ offer praise for elites from the community who facilitated caravan expeditions.²³⁹ The variety of individuals and official structures named as dedicators suggest that there were numerous configurations of caravan activity, which can be differentiated at least in part by the level of direct civic/state participation.²⁴⁰ The inscriptions suggest that, in this particular civic context, financing trade caravans counted as a type of civic *euergetism*, demonstrating the flexibility of the idea and its contextual deployment.

Beyond their own productive and consumptive behavior, local elites in the Roman world, and likely before it as well, had access to a lively system of credit, in which elites were both borrowers and lenders. This positioned local elites as financiers, and enhanced the productive behavior of others. As with other elements of the elite system, beliefs about honor set key terms for this activity. Elites were supposed to be generous with their friends, and this generosity could take the form of monetary gifts or interest-free loans to help them in times of crisis or invest in activities that would enhance their social status.²⁴¹ In addition, a person’s *fides*, their reputation for both trustworthiness and financial solvency, was an important component of their honor. To default on a loan was dishonorable, and bailing out a friend in need was an honorable and significant favor to bestow upon them.²⁴²

237 Erdkamp 2002.

238 Rostovtzeff 1932; Will 1957. See recently particularly Yon 2002. The Palmyrene epigraphic evidence is particularly noteworthy because it is generally bilingual (Greek or occasionally Latin and Palmyrene), and comes from a variety of contexts around the city.

239 See the list assembled in Gawlikowski 1994, 32–33. There is a wealth of epigraphic material beyond this, especially associated with funerary monuments, which provides detailed information about families and social organization within the city. Most follow Will 1957 on this point.

240 In addition to the names of the honorees, the inscriptions list a range of dedicators, from the ‘council’ (Gr. *boule*; Aram. *bwl*) the inscriptions to collectives of individuals (e.g., “the merchants back from Charax”), as well as several offices associated with caravan activity, chiefly the ‘caravan leader’ (Gr. *synodiarch*; Aram. *rb syrt*). Understanding these relationships is made more difficult by the fact that the Greek and Palmyrene terms used on a single inscription do not always correspond perfectly, see, e.g., *CIS* II 3916.

241 Verboven 2002, 71–125.

242 Verboven 2012a.

Lending at interest also seems to have been fairly common at least from the Late Republican period, despite frequent denunciations of the practice.²⁴³ Elites would seek loans within their social network, and lenders would often give better rates as a favor to their friends and family.²⁴⁴ Standing as surety for the loans of others was an important social obligation that marked one as beneficent and faithful, not only to the debtor but to the creditor as well.²⁴⁵ Honor might not have effectively prevented lending money at interest, but it was far from inconsequential in the system of credit. Indeed, the strictures of honor encouraged some forms of loans and facilitated others. In every case, however, elite reputations and networks made it easier for elites to access credit than for nonelites.

VI.2 Connectivity

Finally, local elites served a crucial role as nodes that linked local and imperial networks. The concept that local elites were central mediators in the waves of socio-cultural change that were spurred by the expansion of the ancient Mediterranean world has been a mainstay of scholarship on the Roman Empire. ‘Indigenous’ local elites, studied largely in the context of the western Roman world, have been understood as a primary vector for assimilation for wider non-Roman populations within the Roman Empire.²⁴⁶ As the thinking goes, elite emulation and adaptation of cultural practices introduced through imperial contact created a new set of behavioral norms, which overlapped with norms in the imperial heartland as well as other frontiers. Over time, as these norms converged, they facilitated increased integration, leading to the creation of sprawling networks of local elites within the Roman Empire. As with local elites in other imperial contexts, they were internally diverse and yet with enough shared practices to act as a flexible infrastructure across which goods and ideas flowed.²⁴⁷

In contrast to non-Roman local elites from the western Roman Empire, for whom the Roman Empire was the only universal power, those who dwelt in the post-Achaemenid Southwest Asia inhabited a space of intersecting Greek, Iranian, and eventually Roman spheres. Their cultural patterns developed through interaction with norms within these multiple spheres. The resultant elite networks transcended imperial boundaries, and served as a particularly important connective framework across the region. Primary evidence for how these networks were understood by their elite participants is, unfortunately, relatively scarce. Material evi-

243 Andraeu 1999, 9–29.

244 Verboven 2002, 125–132.

245 Verboven 2002, 140–148.

246 On these issues in the Hellenistic world, see particularly Chrubasik and King 2017. See also older debates about Romanization, e.g., Brunt 1974; Millett 1992.

247 Lavan, Payne, and Weisweiler 2016.

dence can contribute little on this count, and textual sources are rare. One important exception lies in the writings of the satirist of the Second Sophistic, Lucian of Samosata (125–after 180 CE), a Syrian who wrote in Greek.

Lucian's birthplace was the important crossing-points of the Euphrates River – a city that had been the capital of Hellenistic Kommagene until it fell to Rome – while his professional oeuvre led him to develop mastery of Attic Greek literary style.²⁴⁸ Our interest in Lucian is what his work suggests about how local elites from non-Roman communities in the Roman East understood their place within global systems. First, it bears note that the polarizing dichotomy that emerges from Lucian's works is between Syrians and Greeks, rather than between Greeks and Romans.²⁴⁹ This, despite the fact that Lucian was writing in the second century CE, hundreds of years after the rise of the Hellenistic *oikoumene* of which Kommagene was a participant. Second, the concept of 'barbarian-ness' (in opposition to 'Greekness') is a central trope of Lucian's work. Framing this idea in personal terms, Facella has commented that, "Lucian's lifelong attempt to wholly belong to the world of the Greek intellectuals never takes him to the point of disowning that he was *barbaros* by birth."²⁵⁰ Thus, despite the vast reach of both the Hellenistic and Roman waves of elite integration, it was entirely possible that many communities within this space maintained a strong sense of otherness over the centuries.

The need to maintain honor in the eyes of one's peers affected the ways that local elites generated wealth for themselves, consumed that wealth, and transferred it to each other. Their own consumption patterns, generally patterned on that of the hyperelite ruling class, acted as a multiplier, spreading consumption norms more widely. They fostered distribution systems both through their own benefactions, and also through their financial backing of other, rather more private, financial activities. Beyond their own productive activities, they also supported those of others through their financial investments. Finally, they were particularly dynamic agents, with wide-ranging contacts up and down prevailing social hierarchies, which gave them unusual power in spurring innovation and knowledge production, particularly at the interface of different imperial systems.

VII Producers

Primary production was rooted in the rural landscape. Access to land, the means of cultivating it, as well as the means of processing its products, were decisive factors

248 Owing to the prominent place of Syrianness in Lucian's works, discussions about his personal 'identity' and how it filtered into his work have a long history in attempts to interpret his works, although we know nothing about his life other than what he tells us himself, always couched in layers of satire. For an overview of approaches to Lucian, see Richter 2005.

249 Richter 2017, 328.

250 Facella 2012, 86.

in the success of rural residents. The agricultural economy was furthermore integrated with animal husbandry, and the differential strategies that people adopted to manage these two sectors had profound effects on economic development across various regions. Secondary production, meanwhile, happened both at a household and workshop level, and in both rural and urban contexts. Decisive factors in the success of these endeavors rested on the knowledge of skilled labor as well as access to resources, capital or otherwise.

VII.1 Primary Producers

VII.1.1 Agriculturalists

Agriculture in the Mediterranean is limited by the Mediterranean climate, characterized by hot, dry summers, wet winters, and significant interannual variations in precipitation. Average yearly precipitation levels in most places are not far above the minimum needed for rain-fed agriculture. In the Levant, the coastal region west of the Lebanon and Anti-Lebanon mountains receives enough rain, but precipitation levels drop quickly as one moves east from the coast, especially in the southern part of the region.²⁵¹ The risk of crop failure was omnipresent. The most commonly cultivated grains were barley and wheat, grown over the winter with millet serving as an emergency summer crop. It is generally assumed that cultivators alternated grain and fallow, legumes, or fodder in alternate years, but alternate systems have been proposed that may have increased not only grain yields, but also the health and productivity of animals.²⁵² Southern Mesopotamia and Egypt are the only two regions where agriculture was based on large-scale irrigation. Egypt was also exceptional because the Nile floods deposited fertile silt, obviating the need for fallow. Alongside grain, olives and grape vines were also cultivated in a system of polyculture. Dates were cultivated as well in the Levant. Although certain crops might be emphasized on different estates and some were produced specifically for the market, monoculture in the modern sense was not practiced. That would have exposed the farmer to unacceptable risks from the weather, pests, and market conditions. Polyculture also spread labor requirements more evenly throughout the year. Animals were also raised on most farms, including some combination of cattle, horses, donkeys, sheep, goats, pigs, and poultry. These provided manure and traction along with meat, leather, wool, eggs, and other secondary products. The agriculturalist who worked these lands could be operating in one of a range of labor regimes: they could be tenant farmers, slaves, or small-scale landowners, so-called peasants.

²⁵¹ Sallares 2007; Wilkinson 2003, 15–32.

²⁵² Kron 2000; cf. Kehoe 2007, 551 citing Spurr 1986, 23–40. However, Spurr (1986, 117–122) emphasizes the variety of crop rotation techniques attested in Roman literature.

As discussed in conjunction with the local elite, we have considerable information about the large-scale landowners that evolved in the Roman period, who exploited their holdings in one of two ways: they either managed them closely using slave labor or they leased them to tenants. The former method seems to have been common in parts of Italy from the Late Republic through the first century CE.²⁵³ Estates were of moderate size, perhaps several hundred hectares, and worked by slaves under the supervision of a slave overseer. This form of estate management is prominent in Latin literary sources because most of the sources were produced in the same geographic, temporal, and social context. It should be noted, however, that a similar form of management is attested in Egypt in the third century CE in the Heroninos archive, but under a different labor regime,²⁵⁴ and that Rabbinic sources attest to estates sold along with slaves.²⁵⁵ It should be noted that this system of land management appears to have evolved in the Roman context, and to have been unfamiliar in the Hellenistic one.²⁵⁶

Taken as a whole across both time and space, however, literary and documentary sources show that tenancy was the more common method of exploiting the land. It should be noted, though, that tenancy and slave labor were not mutually exclusive. Many people also cultivated their own land directly, but outside of a few glimpses from tax registers in Egypt, the balance between land cultivated by owners, tenants, and slaves is impossible to determine. Furthermore, in the course of the lifecycle of a household, the availability of labor fluctuates. Therefore, a small-scale landowning household that cultivates its own land might rent an extra field when their children are old enough to work it or they might rent out their own land to another if their children have left home. Tenancy allows a household to adjust its land to match its labor. Rabbinic sources describe several types of tenants, some of which are permanent,²⁵⁷ but others of which rent land for one to two years at a time. Similarly, a mid-third century contract from the middle Euphrates also attests to a single year term of rental.²⁵⁸ Payment could be either a share of the crop (usually half in Rabbinic sources) or a fixed amount of produce or cash.²⁵⁹ While permanent tenants are unlikely to be landowners, short-term leases would seem to be well suited to households looking to make use of temporary labor surpluses. Although tenants are sometimes seen as disadvantaged relative to freeholders, this could be a very profitable relationship that combined the capital of the landowner with the labor of the tenant.²⁶⁰

253 Kehoe 2007, 553–557; Launaro 2015.

254 Kehoe 2007, 556–557; 1992; Rathbone 1991.

255 Safrai 1994, 86; Sartre 2005, 216–217.

256 Descat 2011, 211.

257 Safrai 1994, 335–337.

258 Sartre 2005, 217.

259 Alon 1980, 157–160.

260 Erdkamp 2005, 23–33.

Small-scale landowners, ‘peasants,’ also played an important part in the agricultural economy. We should not distinguish peasants and tenants too sharply, since small holders could rent fields, and the behavior of long-term tenants was similar in many ways.²⁶¹ Nevertheless, there were important differences. Landowners got to keep a larger share of their produce, increasing their consumption capacity, but they also bore the costs of capital investment on their properties. The wealthiest small holders had or could borrow enough capital to invest in things like presses, but others would have had to pool resources.²⁶² Ancient peasants are difficult to detect, making their contribution to the economy hard to gauge. It was long thought that the peasantry of Republican Italy was replaced by slave-run estates, but de Ligt has shown that the free rural population, though impoverished, continued to grow.²⁶³ Conditions improved at the end of the Republican period, when colonization, emigration, and a change of recruitment patterns led to both an increase in small holdings and in tenancy in first-century CE Italy.

Archaeological survey evidence and the size of the plots distributed in colonization schemes indicate that most Italian smallholders’ plots were sufficient for subsistence, and many, especially those of the later colonists, were larger.²⁶⁴ Papyrological evidence from Roman Egypt and Rabbinic literature from Roman Palestine similarly suggest the existence of cultivators operating comfortably above subsistence.²⁶⁵ These peasants must have been engaged in market exchange.²⁶⁶ The impact of peasant demand depends on the scale at which it can be effectively aggregated.²⁶⁷ This impact was felt mostly on a local and regional scale, but the empire-wide demand of moderately wealthy peasants for pepper and other eastern imports might have contributed significantly to Roman trade in the Indian Ocean.²⁶⁸ The main contribution of peasants, however, was as surplus producers.

261 Erdkamp 2005, 55–105; Garnsey 1998, 91–106. Rathbone 2008, 321 points out that Latin vocabulary lumps landless and poor landed agriculturalists together.

262 *Institutes* 3. 24. 2 for shared draft animals. Vaccaro et al. 2013 for an isolated pressing facility excavated in Italy. The excavators are confident that the facility was used by multiple cultivators, but suggest it might have been paid for by a single household. They summarize comparable evidence for communal facilities at 171–172.

263 De Ligt 2012. See also Launaro 2011.

264 Rathbone 2008; de Ligt 2012, 274–275.

265 Erdkamp 2005, 18–22 summarizes the Italian and Egyptian evidence. Rosenfeld and Perlmutter 2020, 116–140 for Palestine. Based on the dearth of architecturally elaborate rural residences (‘villas’) in the Near East and the prevalence of villages (Sartre 2005, 224–232), it is tempting to conclude that there were fewer large-scale landowners and more comfortable peasants in the East than in the West, but this could also simply reflect differences in the geographic location of status displays.

266 De Ligt 1990; Erdkamp 2005, 95–104; Hollander 2019. Plot size and market engagement are not directly correlated, since market gardening, which favors free over servile labor, in the vicinity of cities could take place on very small plots (Morley 1996, 101–102).

267 De Ligt 1990, 54–55.

268 *Contra* de Ligt 1990, 54. The bottleneck of the Indian Ocean crossing means pepper importers were in a position to tap the demand of the entire Empire.

Ancient cultivation practices could yield significant surpluses, but the economic context of this production varied. With the exception of the *annona*, grain was sold primarily in local or close-regional markets.²⁶⁹ Large-scale landowners, who could afford to store grain after harvest until prices rose, could make money on the grain market, but small-scale producers consumed most of the grain they grew or transferred it to a landlord as rent.²⁷⁰ Olive oil and wine, on the other hand, were cash crops for large and small producers alike. Presses are ubiquitous in many regions, and are found both singly in small settlements and in larger complexes.²⁷¹ The Western Mediterranean, North Africa and southern Spain exported olive oil in large quantities to Rome and the northern frontiers, but in the Eastern Mediterranean, the oil trade was more regional. Wine varies in quality more than oil, and some wines were traded over very long distances. Laodicean wine was even exported to India. Presses are difficult to date, but settlement dynamics hint at increasing agricultural production throughout the region beginning in the Hellenistic period but accelerating in the Roman period.²⁷² Some of this settlement can be attributed to Graeco-Macedonian colonization, but increased sedentarization of previously more mobile groups also played a role.²⁷³

We must mention here one other type of surplus production: wood, both as construction material and as fuel.²⁷⁴ Little is known about wood production. We hear of peasants selling firewood,²⁷⁵ but elites took an interest too. The agronomists include planted trees that produce vine props and other useful goods among their ideal estates. Cato recommends that suburban farms include a plantation from which firewood can be sold in the nearby city, and management techniques like short-cycle coppicing were used to sustainably supply the demand for fuel.²⁷⁶ Charcoal, necessary for metal production, also required specialized production techniques.²⁷⁷ When used for building, the particular qualities of the wood matter more, and merchants traded timber at a regional scale.²⁷⁸ We hear of state-owned forests at the imperial and local level, so there must have been contractors who bought the

269 Rabbinic sources describe regional grain trade primarily within Palestine (Safrai 1994, 110–116; Sartre 2005, 220–221).

270 Erdkamp 2005, 147–174.

271 Syria/Palestine: Safrai 1994, 118–136; Sartre 2005, 221–223; Waliszewski 2014, 298–300. Multi-press facilities throughout the Empire: Marzano 2013a.

272 Zerbini 2013 synthesizes settlement dynamics in the Limestone Massif, the Golan Heights, and the Hauran. See also Frankel et al. 2001 for Galilee; De Giorgi 2007 for the Amuq river valley; Al-Fuqaha 2018 for the Nabataeans in Jordan. For a large-scale, longue durée examination of population in the Levant, see Palmisano et al. 2019.

273 E.g., Al-Fuqaha 2018, 37–71.

274 Harris 2018; Veal 2017.

275 E.g., *Life of Aesop*, 57.

276 Cato *De agricultura*, 7; Harris 2018.

277 Veal 2017.

278 Harris 2018, 229–231.

right to exploit them.²⁷⁹ Thus, wood production occurred both on public and private lands and involved actors ranging from individuals gathering firewood to specialist managers and loggers.

VII.1.2 Pastoralists and Animal Economies

Despite agricultural changes, lifeways based on mobility never fully disappeared. Pastoralism, in the broadest sense of the word, refers to the raising of livestock as a central economic activity. In some cases, these patterns of animal husbandry include significant mobility – nomadic pastoralism, mobile pastoralism, or transhumance. Many of the landscapes of Southwest Asia facilitate pastoralist strategies – from the Anatolian highlands, the Syrian steppe, the Arabian Desert, and the Egyptian deserts, and so it is not surprising that ancient ethnographies of these lands note many nomadic groups. One thinks, for example, of the Blemmyes in the Egyptian Eastern Desert,²⁸⁰ or of the Skenitai of Arabia.²⁸¹ The productive activities of pastoralism created products (wool, leather, meat) that often went on to participate in market exchange.

The management of animal economies across Southwest Asia and the Mediterranean varied tremendously. Species commonly raised as livestock included large animals ranging from cattle to horses to camels, smaller ones like sheep, goats, and pigs, and various types of fowl. These animals could be raised by a single family on small holdings for subsistence, or they could be kept as parts of large, specialized herds managed by fulltime shepherds. In some cases, the animals were kept as transport or traction, while in other circumstances they were valued predominantly for their secondary products (chiefly milk and wool), or for their meat. Organizational factors like the size and composition of the herds, their private or collective ownership, and the primary use of the animals mean that it is scarcely possible to generalize about animal husbandry as a single economic sector.²⁸²

There were, on the one hand, systems of mixed-farming that places the role of animal husbandry within the sphere of agriculture production, forming an agricultural-pastoralist symbiosis.²⁸³ The economic behaviors of this type of animal management are best understood through the wider lens of agricultural activity already discussed. On the other hand, more specialized animal management strategies, divorced from agricultural affairs to a greater degree, create different dependencies.

²⁷⁹ Veal 2017, 347–348.

²⁸⁰ Strabo 17. 1. 53–54, see Barnard 2005.

²⁸¹ Strabo 16. 1. 26, see Cameron 2019, 203–214.

²⁸² For these particular factors as of particular importance to understanding economic consequences, see Chaniotis 1999, 41.

²⁸³ On the idea of this symbiosis, see in general contributions in Whittaker 1988.

These typically involved some type of transhumance, which is to say the regular and often cyclical movement of animals (and people) across medium- to long distances, usually in order to take advantage of seasonal availability of fodder in different locations.

A widely practiced pattern of transhumance in the mountainous flanks of the Mediterranean basin, for example is ‘alpine’ or ‘vertical’ transhumance, where shepherds move flocks from lowland winter pastures up to highland summer grazing territories, before returning to permanent winter homes in the lowlands.²⁸⁴ In other regions, the seasonal movements are ‘horizontal’: moving between pastureland in the same elevation, and often moving longer distances.²⁸⁵ Related to transhumance is the practice of fully mobile pastoralism, also known as nomadism, where an entire community moves along with its animals, without any fixed permanent homes. Studies of *longue durée* movement patterns in the ancient world have shown that the balance of different types of mobility was extremely varied across time.²⁸⁶

The spectrum of mobile herding practices created economic relationships and opportunities that differed from those of more sedentary agriculture. Principally, transhumance allowed for a more flexible and widescale exploitation of the landscape than sedentary farming, creating a “complex mosaic of habitats” that expanded the amount of productive territory available to a population.²⁸⁷ Although often understood to have emerged as a risk-buffering strategy that responded to the instability of the Mediterranean climate, herding strategies based on mobility could themselves serve as a central source of wealth and profit. At the same time, the mobilities themselves created opportunities for social and economic interaction that are not naturally present in sedentary contexts.²⁸⁸ By virtue of their mobility, these transhumant or mobile pastoralist actors were important in the periodic markets that served as key economic nodes in antiquity,²⁸⁹ as well as in the trade routes that came to stretch across Southwest Asia’s deserts.²⁹⁰

In seeking to understand the economic consequences of this sector of primary production, however, we face a stark evidentiary problem. In contrast to farming, which often leaves at least some traces in the archaeological record,²⁹¹ transhumance and mobile pastoralism leaves many fewer marks. The attitudes of Greek and Roman authors toward ‘nomadism’ (broadly construed) add to our difficulties.

284 Alpine and vertical transhumance refer to slightly different practices, see Carrer 2015 for a discussion.

285 Ocak 2016, 440.

286 Hammer and Arbuckle 2017.

287 Oteros-Rozas et al. 2012, 14.

288 Frachetti et al. 2017; Hammer and Arbuckle 2017.

289 E.g., discussions of North African markets, Fentress 2007; Shaw 1981; Vanacker 2014.

290 E.g., in Palmyra, Seland 2014.

291 E.g., farmhouses, barns, and other built infrastructure as well as farming equipment, but also traces reflecting landownership arrangements, like cadastration.

There was a profound skepticism and antagonism that was directed at mobile pastoralist communities in the corpus of Graeco-Latin literature.²⁹² Although mobile herding practices were clearly practiced by cultural insiders,²⁹³ the role of nomad was intrinsically that of an outsider, who by virtue of their mobile lifeways was less-than-civilized. Nomads are often presented as a prevalent threat to regional stability, and particularly to trade routes.²⁹⁴

The stark dichotomy between sedentary and mobile animal management strategies has obscured, on the one hand, the degree of specialized mobility that was a regular part of ‘normal’ sedentary agricultural regimes in the Hellenistic and Roman worlds.²⁹⁵ And on the other hand, it has downplayed the complex systems of animal management that were practiced at the fringes of imperial space, by the so-called nomads. Beyond their productive activities, there is also evidence that at least some of these mobile groups were in fact collaborative facilitators of trade activity, allowing merchants to traverse their territory in exchange for payment.²⁹⁶

VII.2 Manufacturers

Secondary production activities were conducted both at the household and workshop level, although both the wealth and scale of these operations were dwarfed by agricultural pursuits.²⁹⁷ Nevertheless, from the small-scale workshops that dotted Classical Athens to the vertically integrated industries involved in some Roman industries, like fish-salting, craft production from textiles to ceramics was an undeniable factor of life, and was particularly visible in urban contexts. Quantifying the scale of economic activity in the craft industries has proven elusive, with many discussions of the economic role of secondary producers becoming enmeshed in long-standing debates about consumer vs. producer cities.

Textile production is one of the most widespread craft traditions of the Mediterranean. Because of the variety of archaeological, papyrological, and literary evidence related to different stages and types of textile production, it offers an exemplary window into the diversity of production strategies within a single manufacturing sphere. In particular, evidence from Egypt highlights the complex networks and pressures that shaped the choices of textile producers, which emanated from state agents, consumers, and community networks, with social relationships appearing to have been an important factor in coordinating steps of the process be-

292 See classically Shaw 1982–1983.

293 E.g., the variety of relationships between shepherds and settled agriculturalists described by Thompson 2011a, 392–396.

294 E.g., debates between the position of Parker 1987 and Graf 1989.

295 E.g., Keenan 1989.

296 Strabo 16. 1. 27, see Millar 1998, 126–127; Seland 2014.

297 On this sector in general, Mattingly and Salmon 2002.

tween different production units. Despite the specialization of the production, however, there is little evidence for strong vertical integration.

Textile production at the household level – often carried out by women – served the needs of household members, and was a mainstay of the first-millennium Greek world. Small-scale domestic weaving activities known from Crete demonstrate that this scale of production remained widespread into the Hellenistic period.²⁹⁸ At the same time, there is evidence from household contexts at the Greek city of Olynthus that at least some households already in the fifth and fourth centuries were producing more textiles than they could have been consuming themselves, suggesting that fabric was commoditized.²⁹⁹ This should come as no surprise: specialized production of textiles for marketing is attested already in Middle Bronze Age Anatolia, in the Kültepe-Kanesh texts.³⁰⁰

As Bresson has discussed, textile production was an industry that, because of the range of raw materials that were required (ranging from fibers, to dyes and setting agents like natron), made the development of complex supply chains a necessary precondition for fine textile production.³⁰¹ Shifts in the forms of loom-weights – a critical component of weaving technology – suggest that, although weaving might have often been carried out in domestic contexts, innovations in the Hellenistic period spread widely, as regional networks became increasingly connected.³⁰² In Ptolemaic Egypt, where fine textiles were items of significant value among the Ptolemies, the presence of specialized textile production is attested in papyrological sources. Dozens of job titles listed describe stages of production, from fullers and dyers of specific colors, to weavers, menders, and finally merchants of different fabrics, indicating that it was a complex and segmented system.³⁰³ Wage records reflect the involvement of paid labor in the process, although some textile manufactures may have also been slaves.³⁰⁴ Furthermore, it was production in which the state took an interest: inspection of weaving facilities was listed among the duties ascribed to local administrators.³⁰⁵ More than just inspection, as documented in the papyri of the Zenon archive, Ptolemaic elites played an active role in promoting production by managing estates directly involved in production coordination. Temples, however, remained key sites of coordination as well.³⁰⁶ There has been speculation that the royal family and imperial elites themselves comprised the most important market for these textiles.

298 Chaniotis 1999.

299 Cahill 2002, 250 ff.

300 C. Michel 2014.

301 Bresson 2000, ch. 7.

302 Lawall 2014.

303 For a detailed discussion, see Droß-Krüpe 2011.

304 Papadopoulou 2016, 197.

305 *P.Teub.* III 703.

306 Papadopoulou 2016, 201.

Roman Egypt continued to be a center of textile production, even after the decline of the Ptolemaic monarchy, as demonstrated for example in papyrological evidence from the *nome* of Oxyrhynchus.³⁰⁷ There is also occasional evidence from Roman Egypt of larger-scale production in the context of true workshops (*ergasteria*).³⁰⁸ But, in general, producers working on the various stages of production were connected not by formally integrated production structures. Neither were they, in the rule, participants in ‘putting-out’ systems, whereby piecework was assigned by a central coordinator to low-skilled workers.³⁰⁹ Instead, the relationships between producers and their clients were interpersonal, and only minimally intermediated.

The prominence of textile production was not limited to Egypt: Archaeological evidence from elsewhere in North Africa attests the presence of significant facilities for fiber processing in urban contexts such as those at Timgad, which by the fourth century CE, boasted two markets specializing in the sale of textiles.³¹⁰ Natron, a salt used in fiber processing and dye-setting, was sourced from Egypt.³¹¹ Another element of textile production – the manufacture of dye agents and subsequent dyeing of fibers and fabrics – is also attested in the region. This is particularly true in the case of the prestigious and in-demand purple *murex*, harvested from sea snails and produced at scale in coastal North African sites like Jerba.³¹² Thus, North Africa and Egypt appear to have been a center for the production of both animal (wool) and plant (linen and flax) fibers, as well as processing (e.g., natron) and dyeing agents. Although the production units appear to have remained quite small in general,³¹³ the regional concentration of these complementary branches of textile production likely contributed to the growth of an export-driven textile production industry.

VIII Households

We turn now to the household, perhaps the most fundamental economic organization in any society.³¹⁴ Households implicate, in one way or another, every individual in a series of relationships with other individuals and with society more broadly.³¹⁵ The concept of the household, as well as household management, also sits at the

307 Van Minnen 1986.

308 Van Minnen 1987, 47.

309 On theories of ‘putting-out’ or *Verlagssystem* production, see recently Droß-Krüpe 2020.

310 Wilson 2002.

311 Bresson 2016, 354–355.

312 Marzano 2013b, on Jerba specifically, Wilson 2004.

313 Kehoe 2007, 566.

314 Hirth 2020, 13, 17–42.

315 Although closely related, the family and the household are distinct organizations. The household is defined by co-residence while the family is defined by conjugal and kinship relations.

center of ancient thought on economic questions – *oikos*, Greek for ‘house’ itself being the root of the word ‘economy’ (*oikonomia*). Ideas about the household and economic management can be seen already in the Homeric tradition, with the trope remaining central in Classical and Hellenistic thought.³¹⁶ We have already discussed the specialized role of the imperial household. Now, however, we turn to a focused discussion of the household itself.

From an economic perspective, the household is an administrative production and consumption unit that coordinates and organizes the labor of its members.³¹⁷ The biological and social sustenance of the household and its members is the primary aim of the household, though actively improving the conditions of existence was also a common goal. To achieve this goal, the members of the household coordinated their productive and consumptive activities and manipulated the membership of the household itself through family planning, sending members of the family out of the household, or incorporating external individuals. Each household is in a constant state of evolution as members marry, are born, grow, leave home, divorce, and die. Certain implications of household formation are biological and physical, but the sociocultural institutions, both formal and informal, that shape household dynamics also have significant implications for the entire economy: A shift away from autarchic households feeds in to demand cycles, and expands the role of marketed goods in daily life. Here, we examine the ways in which ancient Mediterranean household institutions shaped labor organization, consumption, the transfer of property, and the development of human capital.

VIII.1 Consumption and Distribution

The household was a node of consumption. On a subsistence level, households consumed their own agricultural products. However, despite the ancient ideal of a self-sufficient autarchic household, Mediterranean households in the late first millennium BCE tended to produce at least some surplus, which was used to acquire other goods, either through market or other forms of exchange. Beyond subsistence means, the household consumed various goods to create and communicate its social position in both the world of daily life, but also in religious spheres through acts like sacrifice and mortuary ritual.

The formal institutions that governed the ownership and transfer of household property in the ancient Mediterranean and beyond had significant impacts on the organization of economic activity. Most of our evidence comes from Roman legal sources, but Rabbinic sources and some evidence for Classical Athens are also useful in this regard, as are a small number of cuneiform records from Babylonia. In

³¹⁶ See sources in Audring and Brodersen 2008.

³¹⁷ Lowry 1987, ch. 3.

the Roman family, property ownership was governed by the institution of *potestas* ('power').³¹⁸ A free man (called a *pater familias*) held his children and slaves *in potestate*, meaning he had complete legal authority over them. Only the death of the *pater familias* or the explicit emancipation or manumission of a dependent ended the father's *potestas*. A person *in potestate* had no legal property rights; all of the property of the *familia* technically belonged to the *pater familias*. The family depicted in Rabbinic writing is similar in many ways to the one in Roman sources, but there is greater recognition of the independence of adult children.³¹⁹

A Roman woman remained *in potestate* of her own father even when married, and when her father died, she became independent, so husbands and wives held property separately.³²⁰ Indeed, Roman law went so far as to prohibit substantial gifts between husband and wife. Rabbinic writings display ambiguity about this point, but the late first and early second-century archive of a Jewish woman named Babatha contain records of her independent financial action. She even lends money to her husband in the same way one would lend money to a stranger, including demanding security.³²¹ This separation of property meant that each spouse had less capital to invest, but at the same time, it protected each from possible bad investments on the part of the other. Further, the ability to lend money within the family allowed resources to be temporarily and strategically pooled. Indeed, Pliny the Younger, when contemplating buying an estate for three million sesterces, felt confident he could borrow from his mother-in-law, "whose purse I use as freely as my own."³²²

Although marriage did not involve a merger of the husband's and wife's property, it did entail a transfer of wealth from the bride's family to the husband's household in the form of a dowry. The payment of a dowry, meant to cover the costs of supporting the wife, seems to have been traditional throughout the Mediterranean. In Rome, the dowry was supposed to be about five to ten percent of the value of the bride's father's estate,³²³ but in other contexts it might have been larger, representing the woman's entire inheritance.³²⁴ In the Roman context, if the marriage was dissolved, the dowry returned to the woman. Divorce was common and relatively easy, requiring only that either party withdraw their consent to be married.³²⁵

318 Riggsby 2010, 106–108, 173–185 provides an accessible introduction to the legal side of the Roman *familia*. For a thorough discussion of Roman conceptions of family, see Saller 1994, 74–101.

319 Sivertsev 2010, 238–239.

320 An archaic form of marriage called *manus* marriage transferred a woman into the *potestas* of her husband, but this was obsolete by our period.

321 Sivertsev 2010, 239–244.

322 Plin. *Ep.* 3. 19.

323 Saller 2007, 96.

324 Sivertsev 2010, 242–243.

325 Riggsby 2010, 174–180.

Inheritance transferred property between generations. Writing a will was fairly common practice, and Roman judges recognized both formal *testamenta*, which had to be drawn up in a very specific format, and written declarations of the decedent's intentions, which could be more informal.³²⁶ This provided a great deal of flexibility. However, it was also possible to challenge a will on the grounds that it was unjust. These grounds, along with rules regarding the disposition of property in the absence of a valid will, reveal the ideological assumptions that shaped inheritance patterns. Most notable is the idea that all children, regardless of gender or birth order, had a right to share in the inheritance. The assumption of partible inheritance, along with the common practice among elite Romans of leaving legacies to each other as a sign of respect, would have served to break up estates over time. However, the prevalence of wills gave people the flexibility to adjust inheritance arrangements to suit their particular situation. The strategies they adopted, as evident from the wills preserved as examples in legal sources, suggest that the primary goal was to ensure the short-term comfort of the decedent's family, rather than the perpetual cohesion of a single estate.³²⁷

The household also served as a risk buffering mechanism, which could distribute goods between its living members, a fact that is simultaneously obvious and significant in several ways. First, it has implications for the production of goods and services. The fact that the household provided food to its members allows its members to engage in other forms of labor that would not themselves be enough to support them. If sustenance derives from an activity that requires variable amounts of labor, as in Mediterranean agriculture, there will be periods of slack and there will be people whose labor is not as heavily and consistently invested in producing that food. This labor time can then be invested in producing other goods and services that could be sold for less than the price charged by a specialist, who depends on those goods and services for sustenance. This low-cost production not only brings in extra money to the producing household, but it also makes these products affordable to other households with little extra money. This would facilitate small-scale market exchange, but it would also make wage labor and transportation cheaper.³²⁸

Goods could also be distributed over very long distances within a household, or rather, a family. Wealthy families with scattered holdings would move large quantities of goods from one holding to another. Unfortunately, there is no way of knowing how much was distributed over what distance in this way, but it could have been significant.³²⁹ Familial ties could also be used to acquire property and

326 Saller 1994, 161–180.

327 Saller 1994, 178–180.

328 Erdkamp 2005.

329 Erdkamp 2005, 114–118.

do business over long distances. Slaves were seen as extensions of their master, which put them in a uniquely good position to act as agents under Roman law.³³⁰

VIII.2 Production and Labor

The primary economic power of the household lay in its ability to coordinate. This was an idea that seems to have been recognized already in the Classical period: the word *oikonomia*, while used in a literal way to describe household management, was also used in a variety of nonhousehold contexts to describe “any environment in which the capacity to manage a complex structure (big or small) well can be applied with success,” including for example the organization of military equipment and army installations.³³¹ Above all, the household was the most common institution for mobilizing labor, in which (ideally) each member is motivated by a commitment to the whole. As noted above, the household has the ability to coordinate labor surplus across the year, such that nonagricultural work can supplement the agricultural labor that provides the household subsistence minimum.³³²

The form of a household, especially whether it was primarily that of a nuclear or extended family, had implications for its access to labor.³³³ Extended households provide more labor, which is especially important when children are young and unable to work. In agricultural societies, grain harvesting requires the deployment of a significant amount of labor in a relatively short time, which an extended household can provide. Nuclear households contain less labor, but they also require less space and food. Therefore, one might expect that nuclear households would be common in urban settings while extended households would be more typical of the countryside. Things are not so simple, though. In villages, as opposed to isolated farmsteads, co-residence is less important for the coordination of labor.³³⁴ Furthermore, labor can be acquired through community obligations or hiring temporary workers. Finally, detailed examinations of modern family structures indicate a great deal of diversity between and within regions and between socioeconomic statuses.³³⁵ The actual makeup of ancient Mediterranean households is difficult to discern because of a lack of evidence, but we do have nearly 400 census declarations from Roman Egypt preserved on papyri, although there are many particularities to

330 See Weaverdyck and Fabian, ch. 8.A, V.3.3, this volume.

331 Natali 1995, 98.

332 Erdkamp 2015.

333 The terms ‘extended’ and ‘nuclear’ are simplifications of more formal classification systems, for which, see Huebner 2017, 5. Here, ‘nuclear’ indicates a household consisting of a conjugal pair and their children, and ‘extended’ refers to households that include additional family members. We should also remember that many households in antiquity also included slaves.

334 Erdkamp 2005, 69.

335 Huebner 2017, 3–9.

Egyptian property rights and inheritance structures that mean we must be careful with this material.³³⁶ These indicate that villagers were more likely to live in extended households than urban-dwellers, but even in the villages, almost half the population lived in nuclear households.³³⁷ Although the Egyptian household needs to be approached carefully, comparison of these data with ethnographically documented populations nevertheless shows that this pattern applies even in societies where extended households are the ideal because high mortality rates either prevent the formation of extended households or convert them to nuclear households with the death of grandparents.³³⁸

Within the household, labor was divided along the lines of age, gender, and status.³³⁹ Many households, especially wealthier ones, contained slaves, and these performed a wide range of duties, ranging from menial labor to the management of significant assets. Children and the elderly could do light work including managing shops, and children in particular could herd animals effectively. Given the high mortality rate of the ancient Mediterranean, women would have had to give birth to between six and nine children on average.³⁴⁰ In a nuclear household, the burden of caring for these children would have fallen primarily on their mother, but in extended households, grandmothers and other relatives would have helped. Other forms of labor that were typically gendered female included grinding grain, weaving cloth, and especially spinning yarn. In some cultures, particularly in Classical Greece, women's labor was ideally secluded and private, but this is not necessarily true everywhere. Indeed, Rabbinic sources describe a man whose wife sells goods because he is ashamed to.³⁴¹ Columella, echoing Xenophon, the most influential writer on household economics in the fourth century BCE, provides a philosophical justification for the gendered division of labor in which men acquire the means of subsistence outside while women manage it inside. Interestingly, he cites differential endurance as the reason for this division, not mental capacity: "But seeing that, after they had acquired substance, memory and attention were equally necessary to both sexes, god granted no smaller a share of these qualities to women than to men."³⁴² Men and women both were expected to manage household resources. Finally, elite households could include hundreds or even thousands of slaves,³⁴³ which made them the institution nexus for large networks of production and distri-

336 Bagnall and Frier 1994; Huebner 2013. Attempts to reconstruct family structure based on the relationships that appear in tombstones have been influential, but Huebner (2011) has shown this evidence to be unreliable by comparing it with the evidence of census returns.

337 Bagnall and Frier 1994, 67 tab. 3.2.

338 Huebner 2011, 78–80.

339 Saller 2007.

340 Scheidel 2007, 41.

341 Sivertsev 2010, 236.

342 Columella *De re rustica* 12. Pr. 6. Trans. Forster and Heffner.

343 Scheidel 2012, 91.

bution, but for the most part, this was highly segmented, with multiple, medium-sized concerns operating simultaneously.

The institution of slavery was fundamental to ancient Mediterranean and Near Eastern households, but its prevalence and intensity varied.³⁴⁴ For example, judging from the Egyptian evidence, chattel slavery expanded in Ptolemaic Egypt with the arrival of Greek settlers, but – and in contrast to other Hellenistic contexts – there is no evidence for the use of slaves in large-scale workshop contexts with dozens of slaves. Instead, in a set of records reflecting salt-tax payment, slaves appear in the context of smaller households – with female slaves more common than male, suggesting a mostly domestic role.³⁴⁵ The role of slavery in the Roman economy is somewhat contentious. Scheidel characterizes the Roman economy as a “slave economy” because dominant social groups primarily in the imperial core relied on slave labor to maintain their economic and social dominance.³⁴⁶ However, in recent decades, scholarship on the Roman economy has tended to de-emphasize slavery, arguing instead that free labor was quantitatively much more prevalent, even in agriculture and mineral extraction long thought to have been dominated by slaves.³⁴⁷ Rather than focusing on numbers of slaves or the kind of labor they performed, we ask here what role the institution of slavery itself had in the organization of labor.

Two aspects are fundamental: first, chattel slavery allowed a master complete control over the labor of the slave over a long span of time, at least theoretically; second, slaves, although human, were not juridical persons, and in the Roman context, were treated as an extension of their master. The first aspect, that of control, allowed slave owners to deploy labor strategically. The massive influx of enslaved captives into Rome from the wars of conquest during the late third and second centuries BCE allowed Italian elites to establish highly productive, market-oriented farms in west-central Italy. Because they had a long time horizon, landowners could invest in and even experiment with vines and olives, which would not produce an immediate harvest. And because the owners felt no commitment to the slaves, they could ruthlessly reduce their endeavors’ reproductive costs to a minimum.³⁴⁸

The second aspect of slavery, their nonpersonhood, made them uniquely qualified under Roman law to act as agents on behalf of their masters.³⁴⁹ An underlying

344 Bradley and Cartledge 2011 provides fairly comprehensive overviews of slavery in a variety of ancient Mediterranean contexts, though Greek and Roman slavery are the focus of most contributions. Bradley 2015 for a brief overview of slavery within Graeco-Roman society.

345 Thompson 2011b, 208–211. See also Clarysse and Thompson 2006, 262–267.

346 Scheidel 2012, 89.

347 Verboven and Laes 2017, 7–9.

348 Cato advises his readers to “sell worn-out oxen, blemished cattle, blemished sheep, wool, hides, an old wagon, old tools, an old slave, a sickly slave, and whatever else is superfluous” (*De Agricultura* 2. 4).

349 Non-slave agents also operated in the Roman Empire (see Weaverdyck and Fabian, ch. 8.A, V.3.3, this volume), but Schumacher 2010 argues that the legal status of slaves made them uniquely

principle of Roman legal thought is the independence of free, male citizens, in accordance with which, a person could not bind another in a contract without their explicit consent, nor could they acquire property on behalf of another. Slaves, as extensions of their master, could acquire property and, with their consent, enter into binding contracts on their behalf. Nor did masters have to consent to every contract, but could express consent by giving a slave control over a pool of capital (a *peculium*) to manage or by giving a slave access to unlimited capital for defined uses, such as running a particular business. In both cases, the liability of the master was limited.³⁵⁰ The slaves themselves often benefited personally from their labor, since they had *de facto* control of much of the profits from these endeavors.

The household, finally, provided the primary context in which human capital was developed, despite some attested apprenticeships.³⁵¹ Aside from the children of elite households, education was most characteristic of slaves.³⁵² Slaves were often trained in numeracy and literacy for administrative purposes, but also a variety of other specialized tasks. As a result, slaves and former slaves probably made up a large portion of those conducting business in Mediterranean cities. Most education must have been simply that acquired through watching one's parents, limiting the employment options of children.

IX Networking Agents and Traders

Finally, we come to the individuals and collectives who facilitated the movement of goods and capital across that network: traders who distributed products like the textiles just discussed, and financiers, who lubricated the system by supplying and directing capital. The nature of the cargos that merchants were carrying, and of the credit systems that were financing their activities (among other things), will be treated in more detail in chapter 8.A.³⁵³ Our interest here lies in the ways in which these actors became a connective force that amplified the density of networks. Beyond these individuals themselves, we also consider the phenomenon of voluntary associations, institutions that created trust-based networks that strengthened and expanded these networks.

qualified. The literature on slave agency in Roman law and business is vast. Classics in English include Aubert 1994; Kirschenbaum 1987. For more recent overviews and analysis, see Abatino and Dari-Mattiacci 2020; Schiavone 2020; Gamauf 2016.

350 In the first case to the amount of the *peculium*, in the second case to claims arising from the conduct of the delimited activities.

351 Saller 2007, 109. There is evidence for apprenticeships that were also arranged in the context of the household, see van Minnen 1998.

352 Verboven 2012b.

353 Weaverdyck and Fabian, ch. 8.A, III.1.1, this volume; Weaverdyck, ch. 12.C, V, this volume.

IX.1 Financiers

Varieties of credit in the Hellenistic and Roman world range from retail credit extended by shopkeepers, to loans exchanged within family or social networks, which undoubtedly account for the bulk of transactions, to productive commercial loans aimed at financing things like maritime commerce.³⁵⁴ Two broad categories of financiers have generally been discussed in conjunction with the extension of credit, who can be coarsely divided into elite ('nonprofessional') lenders and the so-called professional moneylenders.³⁵⁵

In the first category of elite moneylenders, we find men like Atticus, an equestrian and childhood friend of Cicero who gifted him the whopping sum of 250,000 sesterces in an hour of need.³⁵⁶ These nonprofessional lenders were often portfolio investors – “aristocratic financiers” to use Andreau’s term – who used their surplus wealth from land in pursuit of both returns on capital and social and political power.³⁵⁷ They and their socially embedded lending networks have already been mentioned above, in conjunction with intra-elite social negotiations. This system was lubricated by personal connections within the context of elite social networks, but it is a mistake to think of it as informal – it was in fact the venue in which large-scale, long-term movement of capital was conducted.

In the second category of ‘professional lenders,’ we have the *trapezitai* of the Greek world and the *argentarii* of the Roman, who presided over deposit banks that offered money-handling and payment functions to their customers, but who also in some instances used the deposits they held to extend loans.³⁵⁸ Although deposit banking is attested in the Greek world beginning in the fifth century BCE, and in the Roman by the third century BCE, there were both temporal and geographical differences in its execution and reach. Kay has recently hypothesized for example that widespread social and economic pressures in the early first-century BCE account for the limited Roman evidence for deposit banking in the Late Republic.³⁵⁹ There were also regional differences in the role and behavior of deposit bankers. Most starkly, in Ptolemaic Egypt, they were in fact royal bankers, running banks that served as the state treasuries and facilitated state financial transactions. But, as vividly demonstrated in accounts from Zenon’s archive detailing interactions

354 For overviews of credit markets, see Verboven 2020 with further literature. Debates about the scale in breadth of these credit systems, and their impact on economic development are treated in chapter 8.A.

355 See Bogaert 1968; Andreau 1999 for Greek and Roman contexts, respectively. Kay 2018, 133–135 for an overview.

356 Rauh 1986.

357 Andreau 1999, 13–15.

358 The scale of this lending activity is impossible to identify, but see Verboven 2020, 407–409 for a discussion of the Roman credit market capacity and reach.

359 Kay 2014, 235–265.

with the banker Ammonios, they mixed this ‘official’ state financing with private banking activities, although the lines between these spheres can be difficult to draw.³⁶⁰ The smaller-scale loans that were advanced by the professional money-lenders were important not simply for their pure economic impact: they also created new, and often dense, networks of interaction. This stands in contrast to elite moneylending, which explicitly relied on preexisting social networks.

As Verboven has recently pointed out, it is a mistake to draw unduly narrow boundaries around the idea of financiers.³⁶¹ Those wishing to participate in the credit system as lenders could avail themselves of a flexible set of institutional and legal frameworks, and structure their relationships with other financiers as well as borrowers in a number of ways. As an example of one of these configurations in practice, the third-century CE jurist Ulpian reports a legal distinction between ‘simple’ bank clients who deposited money in a bank interest-free, and those who deposited sums intended for interest-bearing moneylending.³⁶² In the latter configuration, a wealthy individual would entrust a (presumably large) sum of money with a deposit banker in the expectation that the banker would be able to mobilize his investment for profit. Beyond depositing money with bankers, such an individual would have several other options. He could form a co-credit arrangement directly with a banker. Or he could work through intermediaries, like the *negotiores* of the Roman world. Finally, he could loan his own money directly or through dependent agents, such as the specialized Roman freedmen known as *faenatores*, trained in moneylending.

Although the loans extended by deposit bankers were generally fairly small, the bankers were nevertheless valuable systemic agents. Their success rested on detailed local information about the financial status of clients depositing money, as well as a network of contacts within a given community about where money could be safely and productively invested. Since there were no financial concerns in either the Hellenistic or Roman world that operated across wide geographical regions, these locally embedded individuals, whose livelihood depended on their reputation, became important informational hubs.³⁶³

One exceptional record of the intersection between finance and trade from the Roman world comes from the Italian site of Puteoli, where wax tablets record business transactions conducted by three generations of the Sulpicii family, financial service providers, either deposit bankers or *faenatores*, who were active in financing trading activity in the Bay of Naples. The tablets, many of which concern legal matters of the family, are an invaluable source of the actual functioning of Roman

360 Von Reden 2007, 280–290.

361 Verboven 2020.

362 In the case of bankruptcy, the former clients were made whole before the latter, Verboven 2020, 390–391.

363 Verboven 2020, 391–392.

law in the first century CE. Following recent analyses of Terpstra and Broekaert, the tablets demonstrate the role that tight, local community networks played in contract enforcement and conflict resolution.³⁶⁴ Formal Roman law could be brought to bear in cases of disagreements detailed in the archives – and sometimes was. However, the Sulpicii family preferred to turn to nonofficial strategies like private arbitration. These community-based solutions shifted the incentives for compliance with settlements from the weak (or nonexistent) official enforcement mechanisms to enforcement through reputational mechanisms, which drew their power from social pressure and community ties.

IX.2 Merchants, Merchant Communities, and Associations

In contrast to deposit bankers and other financial intermediaries who often operated at a local level, the intrinsic characteristic of merchants was that they functioned across vast spaces. In a climate with low state enforcement of contracts, exchange at distance came with high risks of being treated unfairly by trading partners. One strategy for limiting risk was engaging in trade with members of your own community, where, as in the case of the Sulpicii, social capital could act as an enforcement mechanism. There was also a mechanism for opening up these trust networks to individuals not born into the same families or communities: the phenomenon of voluntary associations.³⁶⁵ These associations brought together members bound by a shared religious practice, profession, place of residence or ethnicity – or another axis of identity that existed outside of other civic organizations. These groups acted fundamentally in an economic sense as “institutionalized trust networks” that structured relationships between individuals.³⁶⁶

The voluntary associations had roots in the world of the Classical *polis*.³⁶⁷ However, they expanded and developed new functions, particularly in Hellenistic and then Roman urban centers, where they became an important force mediatory and network force.³⁶⁸ In the Hellenistic and Roman world, one finds associations operating in the name of various gods, i.e., the *Sarapiastai*, the *Dionysiastai*, and the *synodos* of Herakles; but also associations with ethnic affiliations, i.e., the *Bakhcheion* of the *Asianoi*, and also explicitly professional character, i.e., the *synetheia* of the donkey drivers, or the *synetheia* of the purple-dyers.³⁶⁹

³⁶⁴ Terpstra 2013; Broekaert 2013. See Verboven 2020, 405–407 for a somewhat dissenting option.

³⁶⁵ On the critical role of both financiers and associations in trade, Terpstra 2013.

³⁶⁶ For this term, and a recent overview of associations in the Roman world, Liu 2017, 203.

³⁶⁷ See for example the discussion of the role of private associations in extending credit in Classical Athens, Thomsen 2015.

³⁶⁸ Although the voluntary associations were predominantly an urban phenomenon, this was not exclusively so. There was, for example, an association of donkey drivers in the Arsinoite *nome* (*BGU I 15*).

³⁶⁹ E.g., *IRhamnous II 59*; *IG² 1326*; *SEG 36:228*; *IPerinthos 56*; *Iberioia 372*; *IG X/2.1 291*.

Part of their power in the Hellenistic context came from their broad social reach. Whereas participation in civic ('public') associations of *poleis* was open only to citizens,³⁷⁰ membership in many of the voluntary associations was open to a range of noncitizens, including women, foreigners, and sometimes slaves. Drawing their structural vocabulary from the civic structures of the *polis*, these groups were governed by their own constitutions (*nomoi*), with their administrative bureaucracy filled out by officials also mirroring those found in public spheres.³⁷¹ Although membership in these groups remained out of reach for the urban poor, they were important means for incorporating a wider sector of the *plebs media*, the lower and middleclass urbanites, into formal institutional structures, and expanding the access and influence of these individuals into the world of the *poleis* that surrounded them.³⁷² Furthermore, as Gabrielsen has demonstrated in his analysis of associations on the important trade hub of Rhodes, the benefit did not only accrue for the membership of associations, but also for the civic elite who financed and supported many of them.³⁷³

Nevertheless, despite their prevalence, there is no single term in either Greek or Latin that corresponds directly to the modern "voluntary associations." Instead, these associations were known by a range of terms, among the most common of which were the Greek *thiasos* and *eranistos* and Latin *collegium* – a fact that highlights the diversity of the organizational type. Much of our evidence for voluntary associations comes from funerary inscriptions. The commemoration of the dead was both an expensive proposition, and one laden with symbolic meaning, and the associations seem to have provided craftsmen and other sub-elite groups with both the financial means to support appropriate burials, and with a social order within which the deceased could receive appropriate honors. Beyond their involvement in funerary rites, we also find voluntary associations as dedicants in honorific contexts in temples or elsewhere, demonstrating their participation in systems of civic *euergetism* and expressing their relationships to local elite who acted as their patrons.³⁷⁴ Additional evidence for the associations comes from papyrological sources, which include tax rolls generated by the state which mention the associations, as well as associations' administrative documents, including petitions from members to association leadership. The relative dearth of references in transmitted texts to associations deserves note, as it reflects the elite bias of the transmitted corpus.

Although these voluntary associations were once commonly called "guilds," more recent scholarship has emphasized the fact that their fundamental purpose

370 The central associations in this sense were connected to membership in specific *deme* and *phyle* groups.

371 Gabrielsen 2007, 186.

372 For the *plebs media* as the core constituents of associations, see van Nijf 1997.

373 Gabrielsen 2001.

374 Van Nijf 1997, 73–130.

was social rather than economic.³⁷⁵ At the same time, there are two important counterpoints to consider here. Firstly, although thin, there is explicit evidence of economic protectionism of at least some voluntary associations in some periods, for instance, the salt-dealers in the Egyptian city of Tebtunis, whose price-setting behavior makes it clear that the group was “attempting to act as a cartel.”³⁷⁶ And secondly, as noted above, these associations could act as networks of trust, which gave their members the ability to benefit from nonstate enforcement structures.

We see the tendency to organize along these lines in the case of shippers and shipowners in the Roman world, who from the first century CE, began to form associations called *collegia* and then *corpora navicularum*, associated with cities or areas of operation. Recently, Rohde has traced a process of deepening involvement of the state in the *corpora* over the course of the second century.³⁷⁷ At some point in the second century, these and other *collegia* involved in useful trades were granted immunity from civic liturgies, leaving them in a privileged position economically. These organizations would have provided a convenient avenue through which people operating as government officials could arrange public contracts, and in the interest of maintaining a regular food supply. The government granted them a form of legal personhood distinct from that of its members, which was unusual in Roman law, and in the third century, membership itself became a liturgy.³⁷⁸ Nevertheless, they remained nongovernmental associations.³⁷⁹ Legal evidence from the fourth century shows that even then, they were willing to drive a hard bargain when negotiating public contracts with the state.³⁸⁰ While they were public contractors, it is not at all obvious that this was their only business. Indeed, if it were, one would expect them to be described as *societates publicanorum*. Rather, the *navicularii* were merchants who took public contracts in addition to their private operations.

Finally, we also find explicit examples of trade diasporas, where members stemming from a single place or sharing an ethnic identity operate within ingroup networks that span long distances. Their shared identity “ensures a large measure of conformity with common values and principles,” in the words of Cohen, whose study of trade established the idea.³⁸¹ The solidarity that comes from this shared identity enables the diasporic community to broker relationships among members more effectively than weak public institutions. Such diasporic communities are well

375 See especially MacMullen 1974, 19.

376 Van Nijf 1997, 14.

377 Rohde 2018, 152–153.

378 Broekaert 2008; Rohde 2018; Sirks 1991.

379 Sirks argues for particularly deep state involvement in these otherwise private associations, but most see the relationship as slightly more distant (1991, 81–107). Broekaert (2008) argues *contra* Sirks that the *corpora* were not established by the emperor, and Arnaud (2016, 139–142) argues that the *curatores navium* were not government officials.

380 Arnaud 2016, 149.

381 Cohen 1971, 267.

attested in the ancient Mediterranean and Southwest Asia. In his study of diasporic communities in the Near East, for example, Seland has identified networks structured around both ethnic and religious identity.³⁸² Despite the inherently private nature of the binding identities, Terpstra has highlighted the interplay between private and public rule-setting in diaspora settings. He points to evidence from the island trade emporion of Delos, where Phoenician traders in the late Hellenistic period curried favor with the rising Roman power in their private association house, through which they asserted their loyalty to the Romans, thus reenforcing their own position amid rapidly changing political context.³⁸³ The language that the Phoenicians on Delos used to express their community identity included the term *synodos*, which furthermore connects this diasporic community to the phenomenon of the so-called 'private' or 'voluntary associations.'

There were, then, a number of different ways that merchants could organize, drawing on claims of shared heritage, and eventually on shared community membership. The line between 'private' and 'public' in these communities and their dealings with political authority was flexible. Similar to the situation with respect to financiers, part of the innovation that occurred over the course of the Hellenistic and Roman periods involved the evolution of multiple, interlocking networks that created mutually reinforcing enforcement and knowledge systems, reducing transaction costs at scale and across great distances. These networks bridged the gaps between the regional economies that continued to live on, even in the face of growing political hegemony, allowing for the more ready movement of goods and capital through the system.

X Conclusion

This chapter has provided a survey of actor-types who played an outsized role in determining the course of economic processes in the ancient Mediterranean and Southwest Asia. The discussion began with the most concrete – urban systems – and moved through a series of institutions and individuals that varied in scale and type. One through line in the organization of the chapter concerned the relationship of these actors to state power, which was fragmented and disbursed among a range of individuals and institutions. In principle, we moved from actor categories whose source of power was most entwined with the state, to those whose authority stemmed from other types of social order. And yet, even at the end of the chapter in our discussion of associations, we found that some aspect of state authority, in the form of aristocratic financiers, nevertheless coursed under the surface.

³⁸² Seland 2013.

³⁸³ Terpstra 2019, 67–71.

Cities act as the meta-organizers of economic behavior, providing a foundation of both concrete institutional and social frameworks that long predate the Hellenistic and Roman periods, although the details of their functioning changed dramatically over time, and varied considerably across space. Cities, and particularly the trend toward increasing urbanism, drove surplus agricultural production. But cities also served as aggregators, physical hubs with similar institutional and social frameworks that were dense with opportunities for innovation and connectivity, which eased communication across the wider network of urban sites, and reduced the transaction costs for individuals operating within the system.

The Hellenistic period saw expansion of the power of the next actor category, sovereign rulers and their inner circles. Kingship was, of course, nothing new in either the Near East or Mediterranean, but the scale of the Hellenistic sovereigns and the breadth of their kingdoms, and eventually empires, made them uniquely powerful. Their economic power came at once from their raw holdings in land and property and their own immense consumption, but also more abstractly from their ability to coordinate behavior across their territories. Armies were, on the one hand, the enforcement mechanism for these sovereigns. Beyond this, they were also a critical consumptive force, while also becoming an important site for redistributive systems, as demonstrated for example in discussions of the role of armies in the spread of monetization.

The final major institutional actor, temples, serve many of the same roles as cities, although with a considerably more varied range of organizational structures. Temples also often represented an older stratum of social and political organization, and therefore controlled networks that were quite different from those of the expansionist Hellenistic and Roman sovereigns. Figuring out how to either coexist with or coopt these networks was therefore important for political authorities.

In the second half of the chapter, we treated a series of actors and institutions who were less intrinsically wrapped up with state or political power, but who were by no means divorced from these systems. This close relationship is best exemplified by the case of local elites, an amorphous and difficult-to-define category whose fundamental economic role was as landowners and secondarily as taste-setters for general consumption patterns, but who also inhabited their own social networks, which were critical in (among other things) the movement of large amounts of capital in the form of elite lending – an alternative to commercial banking that facilitated other types of commercial activity.

The behavior of both local elites, and of the producers and traders treated at the end of the chapter, were all structured within the fundamental organization of the household. Our discussion highlights the household as the most basic unit of both consumption, and the organization and coordination of labor. Interacting with the state through issues like property rights and inheritance rules, it was these household systems that most often structured the deployment of human capital in fundamental agricultural and secondary production contexts.

The chapter ends with a discussion of a category of actors whom we call ‘networking agents,’ which includes financiers, voluntary associations, and merchant communities. Crosscutting other actor categories, these actors are analyzed primarily for their ability to create durable links that facilitated long-distance and occasionally large-scale economic behavior.

Throughout the chapter, we treated the economic behavior of these actors on two levels. We considered first their role in productive, consumptive, and distributive processes, highlighting the ways that they supported the fundamental economic behavior of the ancient world. To cite one example: we traced the central importance of landholding as the source of productive power that supported state superstructures, but also tracked the mechanisms that transformed land into social and political power, through mechanisms like land grants and the involvement of temple infrastructures in landholding. We also followed the conversation about land down the social ladder, considering the arrangements by which land was actually worked, and considering how these systems interacted with the most basic economic unit of the ancient world: the household. We also considered instances where the fundamental economic activity could be considered in some cases destructive, rather than productive, as in the case of the military.

Alongside the discussion of productive, consumptive, and distributive processes, we also tracked the ways in which each of these actor categories facilitated coordination and integration, whether through the top-down rule-setting power of sovereigns, or the bottom-up network creation of voluntary associations. We view these integrative behaviors as the preconditions for the pronounced increase in connectivity witnessed over the course of the Hellenistic and Roman periods. And, although this process often occurred within the context of violent imperial expansion, we emphasize that integration cannot be looked at as merely a function of that expansion, but rather as the product of interlocking patterns of community interaction that undergirded the system.

References

- Abatino, B. and G. Dari-Mattiacci. 2020. “Agency problems and organizational costs in slave-run businesses.” In G. Dari-Mattiacci and D. Kehoe (eds.), *Roman law and economics*, vol. 1, 273–306. Oxford: Oxford University Press.
- Al-Fuqaha, M. M. H. 2018. “The Nabataean settlement in central and northern Jordan.” PhD diss., Ruhr-Universität Bochum.
- Aliquot, J. 2008. “Sanctuaries and villages on Mt Hermon during the Roman period.” In T. Kaizer (ed.), *The variety of local religious life in the Near East in the Hellenistic and Roman periods*, 73–96. Leiden: Brill.
- Alon, G. 1980. *The Jews in their land in the Talmudic age, 70–640 CE*. G. Levi (trans.). Jerusalem: Magnes Press.
- Alston, R. 1995. *Soldier and society in Roman Egypt: A social history*. London: Routledge.
- Ando, C. 2000. *Imperial ideology and provincial loyalty in the Roman Empire*. Berkeley, CA: University of California Press.

- Andreau, J. 1999. *Banking and business in the Roman world*. J. Lloyd (trans.). Cambridge: Cambridge University Press.
- Aperghis, G. G. 2004. *The Seleukid royal economy: The finances and financial administration of the Seleukid empire*. Cambridge: Cambridge University Press.
- Arnaud, P. 2016. "Cities and maritime trade under the Roman Empire." In C. Schäfer (ed.), *Connecting the ancient world: Mediterranean shipping, maritime networks and their impact*, 115–172. Rahden: Marie Leidorf.
- Aubert, J.-J. 1994. *Business managers in ancient Rome: A social and economic study of institores, 200 BC–AD 250*. Leiden: Brill.
- Audring, G. and K. Brodersen. 2008. *Oikonomika: Quellen zur Wirtschaftstheorie der griechischen Antike*. Darmstadt: Wissenschaftliche Buchgesellschaft.
- Austin, M. M. 1986. "Hellenistic kings, war, and the economy." *Classical Quarterly* 36.2, 450–466.
- Badian, E. 1972. *Publicans and sinners: Private enterprise in the service of the Roman Republic*. Ithaca, NY: Cornell University Press.
- Bagnall, R. S. and B. W. Frier. 1994. *The demography of Roman Egypt*. Cambridge: Cambridge University Press.
- Baker, P. 2000. "Coût des garnisons et fortifications dans les cités à l'époque hellénistique." In J. Andreau, P. Briant, and R. Descat (eds.), *La guerre dans les économies antiques*, 177–196. Saint-Bertrand-de-Comminges: Musée archéologique départemental.
- Bang, P. F. 2011. "Court and state in the Roman Empire – Domestication and tradition in comparative perspective." In J. Duindam, T. Artan, and M. Kunt (eds.), *Royal courts in dynastic states and empires: A global perspective*, 103–128. Leiden: Brill.
- Bar-Kochva, B. 1976. *The Seleucid army: Organization and tactics in the great campaigns*. Cambridge: Cambridge University Press.
- Barnard, H. 2005. "Sire, il n'y a pas de blemmyes: A re-evaluation of historical and archaeological data." In J. C. M. Starkey (ed.), *People of the Red Sea: Proceedings of the Red Sea Project II, held in the British Museum, October 2004*, 23–40. Oxford: Archaeopress.
- Barresi, P. 2015. "Calculating the cost of columns: The case of the Temple of Apollo at Didyma." In E. Gasparini and P. Pensabene (eds.), *Interdisciplinary studies on ancient stone: ASMOSIA X: Proceedings of the tenth international conference of ASMOSIA, Rome, 21–26 May 2012*, 933–939. Rome: L'Erma di Bretschneider.
- Beard, M., J. North and S. Price. 1998. *Religions of Rome*. Vol. 1, *A history*. Cambridge: Cambridge University Press.
- Bedford, P. R. 2005. "The economy of the Near East in the first millennium BC." In J. G. Manning and I. Morris (eds.), *The ancient economy: Evidence and models*, 58–83. Stanford: Stanford University Press.
- Bernard, S. 2016. "Food distributions and immigration in imperial Rome." In L. de Ligt and L. E. Tacoma (eds.), *Migration and mobility in the Early Roman Empire*, 50–71. Leiden: Brill.
- Berrey, M. 2017. *Hellenistic science at court*. Berlin: De Gruyter.
- Bingen, J. 2007. *Hellenistic Egypt: Monarchy, society, economy, culture*. R. S. Bagnall (ed.). Berkeley: University of California Press.
- Boatwright, M. T. 2000. *Hadrian and the cities of the Roman Empire*. Princeton, NJ: Princeton University Press.
- Bogaert, R. 1968. *Banques et banquiers dans les cités grecques*. Leiden: Sijthoff.
- Boiy, T. 2004. *Late Achaemenid and Hellenistic Babylon*. Leuven: Peeters.
- Bradley, K. 2015. "The bitter chain of slavery." *Dialogues d'histoire ancienne* 41.1, 149–176.
- Bradley, K. and P. Cartledge, eds. 2011. *The Cambridge world history of slavery*. Vol. 1, *The ancient Mediterranean world*. Cambridge: Cambridge University Press.
- Braund, D. 1984. *Rome and the friendly king: The character of the client kingship*. London: Croom Helm.

- . 1991. “Hadrian and Pharasmanes.” *Klio* 73, 208–219.
- Bresson, A. 2000. *La cité marchande*. Bordeaux: De Boccard.
- . 2005. “Coinage and money supply in the Hellenistic age.” In Z. H. Archibald, J. K. Davies, and V. Gabrielsen (eds.), *Making, moving, managing: The new world of ancient economies (323–31 BCE)*, 44–72. Oxford: Oxbow.
- . 2016. *The making of the ancient Greek economy: Institutions, markets, and growth in the city-states*. S. Rendall (trans.). Princeton: Princeton University Press.
- Broekaert, W. 2008. “Creatio ex nihilo? The origin of the *corpora naviculariorum* reconsidered.” *Latomus* 67.3, 692–706.
- . 2013. “Financial experts in a spider web. A social network analysis of the archives of Caecilius Iucundus and the Sulpicii.” *Klio* 95.2, 471–510.
- Broschi, M. 1987. “The role of the temple in the Herodian economy.” *Journal of Jewish Studies* 38.1, 31–37.
- Brunt, P. A. 1974. “The Romanization of the local ruling classes in the Roman Empire.” In D. M. Pippidi (ed.), *Assimilation et résistance à la culture greco-romaine dans le monde ancien*, 161–173. Paris: Les Belles Lettres.
- . 1990. *Roman imperial themes*. Oxford: Oxford University Press.
- Cahill, N. 2002. *Household and city organization at Olynthus*. New Haven, CT: Yale University Press.
- Cameron, H. 2019. *Making Mesopotamia: Geography and empire in a Romano-Iranian borderland*. Leiden: Brill.
- Capdetrey, L. 2007. *Le pouvoir séleucide: Territoire, administration, finances d’un royaume hellénistique (312–129 avant J.-C.)*. Rennes: Presses Universitaires de Rennes.
- Carrer, F. 2015. “Herding strategies, dairy economy and seasonal sites in the southern Alps: Ethnoarchaeological inferences and archaeological implications.” *Journal of Mediterranean Archaeology* 28.1, 3–22.
- Chandezon, C. 1999. “L’économie rurale et la guerre.” In F. Prost (ed.), *Armées et sociétés de la Grèce classique. Aspects sociaux et politiques de la guerre aux Ve et IVe s. ac. J.-C., Paris*, 195–208. Paris: Éditions Errance.
- Chaniotis, A. 1999. “Milking the mountains: Economic activities on the Cretan uplands in the Classical and Hellenistic period.” In A. Chaniotis (ed.), *From Minoan farmers to Roman traders: Sidelights on the economy of ancient Crete*, 181–220. Stuttgart: Franz Steiner.
- . 2002. “Foreign soldiers – native girls? Constructing and crossing boundaries in Hellenistic cities with foreign garrisons.” In A. Chaniotis and P. Ducrey (eds.), *Army and power in the ancient world*, 99–113. Stuttgart: Franz Steiner.
- . 2008. *War in the Hellenistic world: A social and cultural history*. Hoboken, NJ: John Wiley & Sons.
- . 2011. “The impact of war on the economy of Hellenistic *poleis*: Demand creation, short-term influences, long-term impacts.” In Z. H. Archibald, J. K. Davies, and V. Gabrielsen (eds.), *The economies of Hellenistic societies, third to first centuries BC*, 122–141. Oxford: Oxford University Press.
- . 2013. “Public subscriptions and loans as social capital in the Hellenistic city: Reciprocity, performance, commemoration.” In P. Martzavou and N. Papazarkadas (eds.), *Epigraphical approaches to the post-Classical polis: Fourth century BC to second century AD*, 89–106. Oxford: Oxford University Press.
- . 2018. *Age of conquests: The Greek world from Alexander to Hadrian (336 BC–AD 138)*. Cambridge, MA: Harvard University Press.
- Chrubasik B. and D. King, 2017. *Hellenism and the local communities of the Eastern Mediterranean: 400 BCE–205 CE*, 53–82. Oxford: Oxford University Press.
- Christaller, W. 1966. *Central places in southern Germany*. C. W. Baskin (trans.). Englewood Cliffs, NJ: Prentice-Hall.

- Clancier, P. 2007. "La Babylonie hellénistique. Aperçu d'histoire politique et culturelle." *Topoi. Orient-Occident* 15.1, 21–74.
- Clancier, P. and G. Gorre. 2021. "The integration of indigenous elites and the development of poleis in the Ptolemaic and Seleucid Empires." In C. Fischer-Bovet and S. von Reden (eds.), *Comparing the Ptolemaic and Seleucid Empires*, 86–105. Cambridge: Cambridge University Press.
- Clarysse, W. and D. J. Thompson. 2006. *Counting the people in Hellenistic Egypt. Vol. 2, Historical studies*. Cambridge: Cambridge University Press.
- Cobb, M. A. 2018. *Rome and the Indian Ocean trade from Augustus to the early third century CE*. Leiden: Brill.
- Cohen, A. 1971. "Cultural strategies in the organization of trading diasporas." In C. Meillassoux (ed.), *The development of indigenous trade and markets in West Africa*, 266–281. London: Oxford University Press.
- Dalla Rosa, A. 2016. "From exploitation to integration. Imperial quarries, estates and freedmen, and the integration of rural Phrygia." *Studi Ellenistici* 30, 305–330.
- Davenport, C. 2019. *A history of the Roman equestrian order*. Cambridge: Cambridge University Press.
- Davies, J. K. 2001. "Hellenistic economies in the post-Finley era." In Z. H. Archibald, J. K. Davies, V. Gabrielsen, and G. J. Oliver (eds.), *Hellenistic economies*, 11–62. London: Routledge.
- de Callataÿ, F. 2000. "Guerres et monnayages à l'époque hellénistique. Essai de mise en perspective suivi d'une annexe sur le monnayage de Mithridate VI Eupator." In J. Andreau, P. Briant, and R. Descat (eds.), *Économie antique. La guerre dans les économies antiques*, 337–364. Saint-Bertrand-de-Comminges: Musée archéologique départemental.
- De Giorgi, A. U. 2007. "The formation of a Roman landscape: The case of Antioch." *Journal of Roman Archaeology* 20, 283–298.
- de Ligt, L. 1990. "Demand, supply, distribution. The Roman peasantry between town and countryside. Rural monetization and peasant demand." *Münstersche Beiträge zur antiken Handelsgeschichte* 9.2, 24–56.
- . 2012. *Peasants, citizens and soldiers: Studies in the demographic history of Roman Italy 225 BC–AD 100*. Cambridge: Cambridge University Press.
- de Ligt, L. and P. W. de Neeve. 1988. "Ancient periodic markets: Festivals and fairs." *Athenaeum* 66, 391–416.
- De Souza, P. 1999. *Piracy in the Graeco-Roman world*. Cambridge: Cambridge University Press.
- . 2007. "Naval battles and sieges." In P. Sabin, H. van Wees, and M. Whitby (eds.), *The Cambridge history of Greek and Roman warfare. Vol. 1*, 434–460. Cambridge: Cambridge University Press.
- Derow, P. and R. S. Bagnall. 2004. *The Hellenistic period: Historical sources in translation*. 2nd ed. Malden, MA: Blackwell.
- Descat, R. 2011. "Labour in the Hellenistic economy: Slavery as a test case." In Z. H. Archibald, J. K. Davies, and V. Gabrielsen (eds.), *The economies of Hellenistic societies, third to first centuries BC*, 207–215. Oxford: Oxford University Press.
- Diederich, S. 2007. *Römische Agrarhandbücher zwischen Fachwissenschaft, Literatur und Ideologie*. Berlin: De Gruyter.
- Dignas, B. 2002. *Economy of the sacred in Hellenistic and Roman Asia Minor*. Oxford: Oxford University Press.
- Domingo Gygax, M. 2016. *Benefaction and rewards in the ancient Greek city: The origins of euergetism*. Cambridge: Cambridge University Press.
- Donev, D. 2020. "Urbanisation and population density: The case of the 'small *municipia*' in the Balkan and Danube provinces." In L. de Ligt and J. L. Bintliff (eds.), *Regional urban systems in the Roman world, 150 BCE–250 CE*, 375–404. Leiden: Brill.

- Droß-Krüpe, K. 2011. *Wolle – Weber – Wirtschaft: Die Textilproduktion der römischen Kaiserzeit im Spiegel der papyrologischen Überlieferung*. Wiesbaden: Harrassowitz.
- . 2020. “How (not) to organise Roman textile production. Some considerations on merchant-entrepreneurs in Roman Egypt and the ἰσιωνάρχης.” In M. Mossakowska-Gaubert (ed.), *Egyptian textiles and their production: “Word” and “object” (Hellenistic, Roman and Byzantine periods)*, 128–138. Lincoln, NE: Zea Books.
- Duindam, J. 2011. “Royal courts in dynastic states and empires.” In J. Duindam, T. Artan, and M. Kunt (eds.), *Royal courts in dynastic states and empires. A global perspective*, 1–23. Leiden: Brill.
- Duncan-Jones, R. 1982. *The economy of the Roman Empire: Quantitative studies*. 2nd ed. Cambridge: Cambridge University Press.
- . 1994. *Money and government in the Roman Empire*. Cambridge: Cambridge University Press.
- . 2016. *Power and privilege in Roman society*. Cambridge: Cambridge University Press.
- Eberle, L. P. 2016. “Law, empire, and the making of Roman estates in the provinces during the Late Republic.” In “The New Ancient Legal History.” Special issue, *Critical Analysis of Law* 3, 50–69.
- Eckstein, A. M. 2006. *Mediterranean anarchy, interstate war, and the rise of Rome*. Berkeley, CA: University of California Press.
- Edmondson, J. 2015. “The Roman emperor and the local communities of the Roman Empire.” In J.-L. Ferrary and J. Scheid (eds.), *Il princeps romano. Autocrate o magistrato? Fattori giuridici e fattori sociali del potere imperiale da Augusto a Commodo, 701–729*. Pavia: IUSS Press.
- Elias, N. 1969. *Die höfische Gesellschaft. Untersuchungen zur Soziologie des Königtums und der höfischen Aristokratie*. Berlin: Luchterhand.
- Erdkamp, P. 2001. “Beyond the limits of the ‘Consumer City’. A model of the urban and rural economy in the Roman world.” *Historia* 50.3, 332–356.
- . 2002. “‘A starving mob has no respect’: Urban markets and food riots in the Roman world, 100 BC–400 AD.” In L. de Blois and J. Rich (eds.), *The transformation of economic life under the Roman Empire: Proceedings of the second workshop of the international network Impact of Empire (Roman Empire, c. 200 BC–AD 476), Nottingham, July 4–7, 2001*, 93–115. Leiden: Brill.
- . 2005. *The grain market in the Roman Empire: A social, political and economic study*. Cambridge: Cambridge University Press.
- . 2015. “Agriculture, division of labour, and the paths to economic growth.” In Erdkamp, Verboven, and Zuiderhoek (2015), 18–39.
- Erdkamp, P., K. S. Verboven, and A. Zuiderhoek, eds. 2015. *Ownership and exploitation of land and natural resources in the Roman world*. Oxford: Oxford University Press.
- Facella, M. 2012. “Languages, cultural identities and elites in the land of Mara bar Sarapion.” In A. Merz and T. Tieleman (eds.), *The Letter of Mara bar Sarapion in context: Proceedings of the symposium held at Utrecht University, 10–12 December 2009*, 67–94. Leiden: Brill.
- Fentress, E. 2007. “Where were North African *nundinae* held?” In C. Gosden, H. Hamerow, P. de Jersey, and G. Lock (eds.), *Communities and connections: Essays in honour of Barry Cunliffe*, 125–141. Oxford: Oxford University Press.
- Fink, R. O. 1971. *Roman military records on papyrus*. Cleveland, OH: Press of Case Western Reserve University.
- Finley, M. I. 1977. “The ancient city: From Fustel de Coulanges to Max Weber and beyond.” *Comparative Studies in Society and History* 19.3, 305–327.
- . 1999. *The ancient economy: Updated with a new foreword by Ian Morris*. Berkeley, CA: University of California Press.
- Fischer-Bovet, C. 2014. *Army and society in Ptolemaic Egypt*. Cambridge: Cambridge University Press.

- Fitz, J. 1972. *Les Syriens à Intercisa*. Brussels: Latomus.
- Flaig, E. 1992. *Den Kaiser herausfordern: Die Usurpation im Römischen Reich*. Frankfurt: Campus Verlag.
- . 2015. "A coherent model to understand the Roman Principate: 'Acceptance' instead of 'legitimacy' and the problem of usurpation." In J.-L. Ferrary and J. Scheid (eds.), *Il princeps romano. Autocrate o magistrato? Fattori giuridici e fattori sociali del potere imperiale da Augusto a Commodo*, 81–100. Pavia: IUSS Press.
- Foxhall, L. 1993. "Farming and fighting in ancient Greece." In J. Rich and G. Shipley (eds.), *War and society in the Greek world*, 134–145. London: Routledge.
- Frachetti, M. D., C. E. Smith, C. M. Traub, and T. Williams. 2017. "Nomadic ecology shaped the highland geography of Asia's Silk Roads." *Nature* 543, 193–198.
- Frankel, R., N. Getzov, M. Aviam, and A. Degani. 2001. *Settlement dynamics and regional diversity in ancient Upper Galilee: Archaeological survey of Upper Galilee*. Jerusalem: Israel Antiquities Authority.
- Gabrielsen, V. 2001. "The Rhodian association and economic activity." In Z. H. Archibald, J. K. Davies, V. Gabrielsen, and G. J. Oliver (eds.), *Hellenistic economies*, 163–184. London: Routledge.
- . 2007. "Brotherhoods of faith and provident planning: The non-public associations of the Greek world." *Mediterranean Historical Review* 22.2, 183–210.
- Galsterer, H. 2000. "Local and provincial institutions and government." In A. K. Bowman, P. Garnsey, and D. Rathbone (eds.), *The Cambridge ancient history*, 2nd ed. Vol. 11, 344–360. Cambridge: Cambridge University Press.
- Gamauf, R. 2016. "Slavery: Social position and legal capacity." In P. J. du Plessis, C. Ando, and K. Tuori (eds.), *The Oxford handbook of Roman law and society*, 386–401. Oxford: Oxford University Press.
- Garlan, Y. 1974. *Recherches de poliorcétique grecque*. Paris and Bucharest: École française d'Athènes.
- Garnsey, P. 1979. "Where did Italian peasants live?" *Proceedings of the Cambridge Philological Society* 25, 1–25.
- . 1998. *Cities, peasants, and food in classical antiquity: Essays in social and economic history*. W. Scheidel (ed.). Cambridge: Cambridge University Press.
- Garnsey, P. and R. Saller. 2015. *The Roman Empire: Economy, society and culture*. 2nd ed. Berkeley, CA: University of California Press.
- Gawlikowski, M. 1994. "Palmyra as a trading centre." *Iraq* 56, 27–33.
- Graf, D. F. 1989. "Rome and the Saracens: Reassessing the nomadic menace." In T. Fahd (ed.), *L'Arabie préislamique et son environnement historique et culturel. Actes du Colloque de Strasbourg, 24–27 juin 1987*, 341–400. Leiden: Brill.
- Grainger, J. D. 2018. *Syrian influences in the Roman Empire to AD 300*. London: Routledge.
- Green, P. 1986. "The new urban culture: Alexandria, Antioch, Pergamon." *Grand Street* 5.2, 140–152.
- Haensch, R. 2006. "Von den *Augusti liberti* zu den *Caesariani*." In A. Kolb (ed.), *Herrschaftsstrukturen und Herrschaftspraxis: Konzepte, Prinzipien und Strategien der Administration im römischen Kaiserreich, Akten der Tagung an der Universität Zürich 18.–20. 10. 2004*, 153–164. Berlin: Akademie Verlag.
- Hammer, E. L. and B. S. Arbuckle. 2017. "10,000 years of pastoralism in Anatolia: A review of evidence for variability in pastoral lifeways." *Nomadic Peoples* 21.2, 214–267.
- Hansen, M. H. 2000. "The Hellenic polis." In M. H. Hansen (ed.), *A comparative study of thirty city-state cultures: An investigation conducted by the Copenhagen Polis Center*, 141–187. Copenhagen: The Royal Danish Academy of Sciences and Letters.

- Harris, W. V. 2018. "The indispensable commodity: Notes on the economy of wood in the Roman Mediterranean." In A. Wilson and A. K. Bowman (eds.), *Trade, commerce, and the state in the Roman world*, 211–236. Oxford: Oxford University Press.
- Haynes, I. 2013. *Blood of the provinces: The Roman auxilia and the making of provincial society from Augustus to the Severans*. Oxford: Oxford University Press.
- Heller, A. and O. M. van Nijf, eds. 2017. *The politics of honour in the Greek cities of the Roman Empire*. Leiden: Brill.
- Hirt, A. M. 2010. *Imperial mines and quarries in the Roman world: Organizational aspects 27 BC–AD 235*. Oxford: Oxford University Press.
- . 2015. "Centurions, quarries, and the emperor." In Erdkamp, Verboven, and Zuiderhoek (2015), 289–314.
- Hirth, K. 2020. *The organization of ancient economies: A global perspective*. Cambridge: Cambridge University Press.
- Hollander, D. B. 2019. *Farmers and agriculture in the Roman economy*. London: Routledge.
- Horden, P. and N. Purcell. 2000. *The corrupting sea: A study of Mediterranean history*. Malden, MA: Blackwell.
- Hoyer, D. 2013. "Public feasting, elite competition, and the market economy of Roman North Africa." *The Journal of North African Studies* 18.4, 574–591.
- Huebner, S. R. 2011. "Household composition in the ancient Mediterranean – what do we really know?" In B. Rawson (ed.), *A companion to families in the Greek and Roman worlds*, 73–91. Malden, MA: Wiley-Blackwell.
- . 2013. *The family in Roman Egypt: A comparative approach to intergenerational solidarity and conflict*. Cambridge: Cambridge University Press.
- . 2017. "A Mediterranean family? A comparative approach to the ancient world." In S. R. Huebner and G. S. Nathan (eds.), *Mediterranean families in antiquity: Households, extended families, and domestic space*, 3–26. Malden, MA: Wiley Blackwell.
- Isaac, B. H. 1990. *The limits of empire: The Roman army in the East*. 2nd ed. Oxford: Clarendon Press.
- Kay, P. 2014. *Rome's economic revolution*. Oxford: Oxford University Press.
- . 2018. "Financial institutions and structures in the last century of the Roman Republic." In A. Wilson and A. K. Bowman (eds.), *Trade, commerce, and the state in the Roman world*, 133–174. Oxford: Oxford University Press.
- Keenan, J. G. 1989. "Pastoralism in Roman Egypt." *The Bulletin of the American Society of Papyrologists* 26.3/4, 175–200.
- Kehoe, D. 1992. *Management and investment on estates in Roman Egypt during the early empire*. Bonn: Habelt.
- . 2007. "The Early Roman Empire: Production." In W. Scheidel, I. Morris, and R. P. Saller (eds.), *The Cambridge economic history of the Greco-Roman world*, 541–569. Cambridge: Cambridge University Press.
- . 2013. "The state and production in the Roman agrarian economy." In A. K. Bowman and A. Wilson (eds.), *The Roman agricultural economy: Organization, investment, and production*, 33–53. Oxford: Oxford University Press.
- . 2015. "Property rights over land and economic growth in the Roman Empire." In Erdkamp, Verboven, and Zuiderhoek (2015), 88–106.
- Kennedy, D. 1989. "The military contribution of Syria to the Roman imperial army." In D. French and C. Lightfoot (eds.), *The Eastern frontier of the Roman Empire: Proceedings of a colloquium held at Ankara in September 1988*, 235–246. Oxford: B.A.R.
- Kent, J. H. 1948. "The temple estates of Delos, Rheneia, and Mykonos." *Hesperia* 17.4, 243–338.
- Kessler, D. and P. Temin. 2007. "The organization of the grain trade in the Early Roman Empire." *Economic History Review* 60.2, 313–332.

- Kirschenbaum, A. 1987. *Sons, slaves, and freedmen in Roman commerce*. Jerusalem: Magnes Press.
- Kłodziński, K. 2019. “An equestrian procurator’s ‘unequal colleague’? Reinterpreting the career of the imperial freedman Ulpius Paeon.” *Journal of Juristic Papyrology* 49, 125–141.
- Kosmin, P. 2014. “Seeing double in Seleucid Babylonia: Rereading the Borsippa cylinder of Antiochus I.” In A. Moreno and R. Thomas (eds.), *Patterns of the past: Epitēdeumata in the Greek tradition, 173–198*. Oxford: Oxford University Press.
- Kozuh, M. 2010. “Lamb, mutton, and goat in the Babylonian temple economy.” *Journal of the Economic and Social History of the Orient* 53.4, 531–578.
- Kron, G. 2000. “Roman ley-farming.” *Journal of Roman Archaeology* 13, 277–287.
- . 2008a. “Animal husbandry, hunting, fishing, and fish production.” In J. P. Oleson (ed.), *The Oxford handbook of engineering and technology in the classical world, 175–222*. Oxford: Oxford University Press.
- . 2008b. “The much maligned peasant. Comparative perspectives on the productivity of the small farmer in classical antiquity.” In L. de Ligt and S. Northwood (eds.), *People, land, and politics. Demographic developments and the transformation of Roman Italy, 71–119*. Leiden: Brill.
- . 2012. “Food production.” In W. Scheidel (ed.), *The Cambridge companion to the Roman economy, 156–174*. Cambridge: Cambridge University Press.
- Kuttner, A. 2014. “Hellenistic court collecting from Alexandros to the Attalids.” In M. Wellington Gahtan and D. Pegazzano (eds.), *Museum archetypes and collecting in the Ancient World, 45–53*. Leiden: Brill.
- Launaro, A. 2011. *Peasants and slaves: The rural population of Roman Italy (200 BC to AD 100)*. Cambridge: Cambridge University Press.
- . 2015. “The nature of the villa economy.” In Erdkamp, Verboven, and Zuiderhoek (2015), 173–186.
- Lavan, M., R. E. Payne, and J. Weisweiler. 2016. “Cosmopolitan politics: The assimilation and subordination of elite cultures.” In M. Lavan, R. E. Payne, and J. Weisweiler (eds.), *Cosmopolitanism and empire: Universal rulers, local elites, and cultural integration in the ancient Near East and Mediterranean, 1–29*. Oxford: Oxford University Press.
- Lawall, M. L. 2014. “Transport amphoras and loomweights: Integrating elements of ancient Greek economies.” In M. Harlow and M-L. Nosch (eds.), *Greek and Roman textiles and dress: An interdisciplinary anthology, 150–189*. Oxford: Oxbow.
- London, J. 1997. *Empire of honour: The art of government in the Roman world*. Oxford: Clarendon Press.
- . 2011. “Roman honor.” In M. Peachin (ed.), *The Oxford handbook of social relations in the Roman world, 377–403*. Oxford: Oxford University Press.
- Lewis, N. 1959. “A veteran in quest of a home.” *Transactions and Proceedings of the American Philological Association* 90, 139–146.
- Liebeschuetz, W. 2007. “The impact of the imposition of Roman rule on northern Syria.” In L. de Blois and E. Lo Cascio (eds.), *The impact of the Roman Army (200 BC–AD 476): Economic, social, political, religious and cultural aspects, 421–438*. Leiden: Brill.
- Linders, T. 1994. “Sacred menus on Delos.” In R. Hägg (ed.), *Ancient Greek cult practice from the epigraphical evidence: Proceedings of the second international seminar on ancient Greek cult, organized by the Swedish Institute at Athens, 22–24 November 1991, 71–79*. Stockholm: Paul Aströms Förlag.
- Liu, J. 2017. “Group membership, trust networks, and social capital: A critical analysis.” In K. S. Verboven and C. Laes (eds.), *Work, labour, and professions in the Roman world, 203–226*. Leiden: Brill.

- Lo Cascio, E. 2009. "Urbanization as a proxy of demographic and economic growth." In A. K. Bowman and A. Wilson (eds.), *Quantifying the Roman economy: Methods and problems*. Oxford: Oxford University Press.
- . 2015. "The imperial property and its development." In Erdkamp, Verboven, and Zuiderhoek (2015), 62–70.
- Lorber, C. C. 2012. "The Coinage of the Ptolemies." In W. E. Metcalf (ed.), *The Oxford handbook of Greek and Roman coinage*. Oxford: Oxford University Press.
- Lowry, S. T. 1987. *The archaeology of economic ideas: The Classical Greek tradition*. Durham, NC: Duke University Press.
- Ma, J. 2003. "Peer polity interaction in the Hellenistic Age." *Past & Present* 180, 9–39.
- . 2013. "Hellenistic Empires." In P. F. Bang and W. Scheidel (eds.), *The Oxford handbook of the state in the ancient near East and Mediterranean*, 324–360. Oxford: Oxford University Press.
- MacMullen, R. 1974. *Roman social relations, 50 BC to AD 284*. New Haven, CT: Yale University Press.
- Maiuro, M. 2012. *Res Caesaris. Ricerche sulla proprietà imperiale nel principato*. Bari: Edipuglia.
- Malkin, I. 2011. *A small Greek world: Networks in the ancient Mediterranean*. Oxford: Oxford University Press.
- Manning, J. G. 1999. "The land tenure regime in Ptolemaic Upper Egypt." In A. K. Bowman and E. Rogan (eds.), *Agriculture in Egypt: From pharaonic to modern times*, 83–106. Oxford: Oxford University Press.
- . 2003. *Land and power in Ptolemaic Egypt: The structure of land tenure*. Cambridge: Cambridge University Press.
- . 2010. *The last pharaohs: Egypt under the Ptolemies, 305–30 BC*. Princeton, NJ: Princeton University Press.
- . 2019. "The Ptolemaic governmental branches and the role of temples and elite groups." In K. Vandorpe (ed.), *A companion to Greco-Roman and Late Antique Egypt*, 101–117. Malden, MA: Wiley Blackwell.
- Marcone, A. 2006. "Le innovazione nell'agricoltura romana." In E. Lo Cascio (ed.), *Innovazione tecnica e progresso economico nel mondo romano: Atti degli Incontri capresi di storia dell'economia antica (Capri, 13–16 Aprile 2003)*. Bari: Edipuglia.
- Marzano, A. 2013a. "Capital investment and agriculture: Multi-press facilities from Gaul, the Iberian peninsula, and the Black Sea region." In A. K. Bowman and A. Wilson (eds.), *The Roman agricultural economy: Organization, investment, and production*, 107–141. Oxford: Oxford University Press.
- . 2013b. *Harvesting the sea: The exploitation of marine resources in the Roman Mediterranean*. Oxford: Oxford University Press.
- Mattingly, D. J. and J. Salmon. 2002. *Economies beyond agriculture in the classical world*. London: Routledge.
- Mayer, E. E. 2012. *The ancient middle classes: Urban life and aesthetics in the Roman Empire, 100 BCE–250 CE*. Cambridge, MA: Harvard University Press.
- Michel, A.-C. 2015. *La cour sous l'empereur Claude: Les enjeux d'un lieu de pouvoir*. Rennes: Presses Universitaires de Rennes.
- Michel, C. 2014. "The Assyrian textile trade in Anatolia (19th century BCE): From traded goods to prestigious gifts." In K. Droß-Krüpe (ed.), *Textile trade and distribution in antiquity / Textilhandel und -distribution in der Antike*, 111–122. Wiesbaden: Harrassowitz.
- Mileta, C. 2008. *Der König und sein Land: Untersuchungen zur Herrschaft der hellenistischen Monarchen über das königliche Gebiet Kleinasien und seine Bevölkerung*. Berlin: Akademie Verlag.
- Millar, F. 1977. *The emperor in the Roman world: 31 BC–AD 337*. London: Duckworth.

- . 1998. "Caravan cities: the Roman Near East and long distance trade by land." In M. Austin, J. Harries, and C. Smith (eds.), *Modus operandi: Essays in honour of Geoffrey Rickman*, 275–299. London: Institute of Classical Studies.
- Millett, M. 1992. *The Romanization of Britain: An essay in archaeological interpretation*. Cambridge: Cambridge University Press.
- Monson, A. 2015. "Hellenistic Empires." In A. Monson and W. Scheidel (eds.), *Fiscal regimes and the political economy of premodern states*, 169–207. Cambridge: Cambridge University Press.
- Morley, N. 1996. *Metropolis and hinterland: The city of Rome and the Italian economy, 200 BC–AD 200*. Cambridge: Cambridge University Press.
- . 2013. "Cities and economic development in the Roman Empire." In A. Bowman and A. Wilson (eds.), *Settlement, urbanization, and population*, 143–160. Oxford: Oxford University Press.
- Mouritsen, H. 2011. *The freedman in the Roman world*. Cambridge: Cambridge University Press.
- . 2012. Review of *The ancient middle classes: Urban life and aesthetics in the Roman Empire, 100 BCE–250 CE*, by E. E. Mayer. *Bryn Mawr Classical Review*.
- Moyer, I. S. 2011a. "Court, *chora*, and culture in late Ptolemaic Egypt." *American Journal of Philology* 132.1, 15–44.
- . 2011b. *Egypt and the limits of Hellenism*. Cambridge: Cambridge University Press.
- Nabel, J. T. 2017. "The Arsacids of Rome: Royal hostages and Roman-Parthian relations in the first century CE." PhD diss., Cornell University.
- Natali, C. 1995. "Oikonomia in Hellenistic political thought." In A. Laks and M. Schofield (eds.), *Justice and generosity: Studies in Hellenistic social and political philosophy*, 95–128. Cambridge: Cambridge University Press.
- Nielsen, I. 1995. *Hellenistic palaces: Tradition and renewal*. Aarhus: Aarhus University Press.
- Noreña, C. F. 2011. *Imperial ideals in the Roman West: Representation, circulation, power*. Cambridge: Cambridge University Press.
- Ocak, S. 2016. "Transhumance in central Anatolia: A resilient interdependence between biological and cultural diversity." *Journal of Agricultural and Environmental Ethics* 29.3, 439–453.
- Oelsner, J. 1986. "Materialien zur babylonischen Gesellschaft und Kultur in hellenistischer Zeit." PhD diss., Eötvös University.
- Olshanetsky, H. 2019. Review of *Syrian influences in the Roman Empire to AD 300*, by J. D. Grainger. *Scripta Classica Israelica* 38, 173–176.
- Osborne, R. 2009. *Greece in the making 1200–479 BC*. 2nd ed. London: Routledge.
- Oteros-Rozas, E., J. A. González, B. Martín-López, C. A. López-Santiago, and C. Montes. 2012. "Ecosystem services and social-ecological resilience in transhumance cultural landscapes: Learning from the past, looking for a future." In T. Plieninger and C. Bieling (eds.), *Resilience and the cultural landscape: Understanding and managing change in human-shaped environments*, 242–260. Cambridge: Cambridge University Press.
- Padilla Peralta, D. 2020. "Gods of trust: Ancient Delos and the modern economics of religion." In A. Collar and T. Myrup Kristensen (eds.), *Pilgrimage and economy in the ancient Mediterranean*, 329–356. Leiden: Brill.
- Palmisano, A., J. Woodbridge, C. N. Roberts, A. Bevan, R. Fyfe, S. Shennan, R. Cheddadi, R. Greenberg, D. Kaniewski, D. Langgut, S. A. G. Leroy, T. Litt, and A. Miebach. 2019. "Holocene landscape dynamics and long-term population trends in the Levant." *The Holocene* 29.5, 708–727.
- Pani, M. 2003. *La corte dei Cesari fra Augusto e Nerone*. Rome: Laterza.
- Papadopoulou, M. 2016. "Wool and the city: Wool and linen textile trade in Hellenistic Egypt." In M.-L. Nosch and K. Droß-Krüpe (eds.), *Textiles, trade and theories*, 193–209. Munich: Ugarit-Verlag.
- Parker, S. T. 1987. "Peasants, pastoralists, and "Pax Romana": A different view." *Bulletin of the American Schools of Oriental Research*, no. 265, 35–51.

- Paturel, S. 2019. *Baalbek-Heliopolis, the Bekaa, and Berytus from 100 BCE to 400 CE: A landscape transformed*. Leiden: Brill.
- Pirngruber, R. 2017. *The economy of late Achaemenid and Seleucid Babylonia*. Cambridge: Cambridge University Press.
- Pollard, N. 2000. *Soldiers, cities, and civilians in Roman Syria*. Ann Arbor, MI: University of Michigan Press.
- Rathbone, D. 1991. *Economic rationalism and rural society in third-century AD: Egypt the Heroninos archive and the Appianus estate*. Cambridge: Cambridge University Press.
- . 1996. “The imperial finances.” In A. K. Bowman, E. Champlin, and A. Lintott (eds.), *The Cambridge ancient history*, 2nd ed. Vol. 10, 309–323. Cambridge: Cambridge University Press.
- . 2008. “Poor peasants and silent sherds.” In L. de Ligt and S. Northwood (eds.), *People, land, and politics: Demographic developments and the transformation of Roman Italy*, 305–332. Leiden: Brill.
- . 2009. “Earnings and costs: Living standards and the Roman economy (first to third centuries AD).” In A. K. Bowman and A. Wilson (eds.), *Quantifying the Roman economy: Methods and problems*. Oxford: Oxford University Press.
- Rauh, N. K. 1986. “Cicero’s business friendships: Economics and politics in the late Roman Republic.” *Aevum* 60.1, 3–30.
- Reger, G. 1992. “Private property and private loans on independent Delos (314–167 BC).” *Phoenix* 46.4, 322–341.
- Richter, D. S. 2005. “Lives and afterlives of Lucian of Samosata.” *Arion: A Journal of Humanities and the Classics* 13.1, 75–100.
- . 2017. “Lucian of Samosata.” In D. S. Richter and W. A. Johnson (eds.), *The Oxford handbook to the Second Sophistic*, 327–344. Oxford: Oxford University Press.
- Riggsby, A. M. 2010. *Roman law and the legal world of the Romans*. Cambridge: Cambridge University Press.
- Rohde, D. 2018. “Die Getreideversorgung Roms und die *navicularii*.” In K. Wojciech and P. Eich (eds.), *Die Verwaltung der Stadt Rom in der Hohen Kaiserzeit: Formen der Kommunikation, Interaktion und Vernetzung*. Vol. 2, 145–165. Paderborn: Ferdinand Schöningh.
- Rosenfeld, B. Z. and H. Perlmutter. 2020. *Social stratification of the Jewish population of Roman Palestine in the period of the Mishnah, 70–250 CE*. Leiden: Brill.
- Rostovtzeff, M. I. 1932. “Les inscriptions caravanières de Palmyre.” In G. Glotz (ed.), *Mélanges Gustave Glotz*. Vol. 2, 793–811. Paris: Les presses universitaires de France.
- . 1941. *The social and economic history of the Hellenistic world*. 3 vols. Oxford: Clarendon Press.
- Roth, J. 2002. “The army and the economy in Judaea and Palestine.” In P. Erdkamp (ed.), *The Roman army and the economy*, 375–397. Amsterdam: Gieben.
- Rotroff, S. I. 2019. “Drinking under the new Hellenistic order at Sardis and Athens.” In A. M. Berlin and P. J. Kosmin (eds.), *Spear-won land: Sardis from the King’s Peace to the Peace of Apamea*, 205–219. Madison, WI: The University of Wisconsin Press.
- Russell, B. 2013. *The economics of the Roman stone trade*. Oxford: Oxford University Press.
- . 2018. “Stone use and the economy: Demand, distribution, and the state.” In A. Wilson and A. K. Bowman (eds.), *Trade, commerce, and the state in the Roman world*, 237–263. Oxford: Oxford University Press.
- Safrai, Z. 1994. *The economy of Roman Palestine*. London: Routledge.
- . 2003. “The agrarian structure in Palestine in the time of the Second Temple, Mishnah and Talmud.” In A. M. Maeir, S. Dar, and Z. Safrai (eds.), *The rural landscape of ancient Israel*, 105–126. Oxford: Archaeopress.
- Sage, M. 1996. *Warfare in ancient Greece: A sourcebook*. London: Routledge.
- Sallares, R. 2007. “Ecology.” In W. Scheidel, I. Morris, and R. P. Saller (eds.), *The Cambridge economic history of the Greco-Roman world*, 15–37. Cambridge: Cambridge University Press.

- Saller, R. P. 1994. *Patriarchy, property and death in the Roman family*. Cambridge: Cambridge University Press.
- . 2007. “Household and gender.” In W. Scheidel, I. Morris, and R. P. Saller (eds.), *The Cambridge economic history of the Greco-Roman world*, 87–112. Cambridge: Cambridge University Press.
- Sartre, M. 2005. *The Middle East under Rome*. Cambridge, MA: Harvard University Press.
- Scheidel, W. 2007. “Demography.” In W. Scheidel, I. Morris, and R. P. Saller (eds.), *The Cambridge economic history of the Greco-Roman world*, 38–86. Cambridge: Cambridge University Press.
- . 2012. “Slavery.” In W. Scheidel (ed.), *The Cambridge companion to the Roman economy*, 89–113. Cambridge: Cambridge University Press.
- Scheidel, W. and S. J. Friesen. 2009. “The size of the economy and the distribution of income in the Roman Empire.” *The Journal of Roman Studies* 99, 61–91.
- Schiavone, A. 2020. “Law, slaves, and markets in the Roman imperial system.” In G. Dari-Mattiacci and D. Kehoe (eds.), *Roman law and economics*. Vol. 2, 11–33. Oxford: Oxford University Press.
- Schumacher, L. 2010. “On the status of private *actores*, *dispensatores*, and *vilici*.” In U. Roth (ed.), “By the sweat of your brow: Roman slavery in its socio-economic settings.” Supplement, *Bulletin of the Institute of Classical Studies* 109, 31–47.
- Seland, E. H. 2013. “Networks and social cohesion in ancient Indian Ocean trade: Geography, ethnicity, religion.” *Journal of Global History* 8.3, 373–390.
- . 2014. “Caravans, smugglers and trading fairs: Organizing textile trade on the Syrian frontier.” In K. Droß-Krüpe (ed.), *Textile trading and distribution in antiquity | Textilhandel und -distribution in der Antike*, 83–90. Wiesbaden: Harrassowitz.
- Shaw, B. D. 1981. “Rural markets in North Africa and the political economy of the Roman Empire.” *Antiquités africaines* 17.1, 37–83.
- . 1982–1983. “Eaters of flesh, drinkers of milk: The ancient Mediterranean ideology of the pastoral nomad.” *Ancient Society* 13/14, 5–31.
- Sherwin-White, S. M. 1982. “A Greek ostrakon from Babylon of the early third century BC” *Zeitschrift für Papyrologie und Epigraphik* 47, 51–70.
- Siani-Davies, M. 1997. “Ptolemy XII Auletes and the Romans.” *Historia: Zeitschrift für Alte Geschichte* 46.3, 306–340.
- Sirks, A. J. B. 1991. *Food for Rome: The legal structure of the transportation and processing of supplies for the imperial distributions in Rome and Constantinople*. Amsterdam: J. C. Gieben.
- Sivertsev, A. 2010. “The household economy.” In C. Hezser (ed.), *The Oxford handbook of Jewish daily life in Roman Palestine*, 229–245. Oxford: Oxford University Press.
- Slootjes, D. 2006. *The governor and his subjects in the later Roman Empire*. Leiden: Brill.
- Spawforth, A. J. S. 2007. “The court of Alexander the Great between Europe and Asia.” In A. J. S. Spawforth (ed.), *The court and court society in ancient monarchies*, 82–120. Cambridge: Cambridge University Press.
- Speidel, M. A. 2009. *Heer und Herrschaft im römischen Reich der hohen Kaiserzeit*. Stuttgart: Franz Steiner.
- Spurr, M. S. 1986. *Arable cultivation in Roman Italy, c. 200 BC–c. AD 100*. London: Society for the Promotion of Roman Studies.
- Stoll, O. 2015. *Ehrenwerte Männer: Veteranen im römischen Nahen Osten der Kaiserzeit: eine Studie zur Wirtschafts-, Sozial- und Kulturgeschichte der nahöstlichen Provinzen anhand papyrologischer und epigraphischer Zeugnisse*. Berlin: Frank & Timme.
- Strootman, R. 2013. “Dynastic courts of the Hellenistic Empires.” In H. Beck (ed.), *A companion to ancient Greek government*, 38–53. Malden, MA: Wiley Blackwell.
- . 2014. *Courts and elites in the Hellenistic Empires: The Near East after the Achaemenids, c. 330 to 30 BCE*. Edinburgh: Edinburgh University Press.
- . 2019. “The Ptolemaic sea empire.” In R. Strootman, F. van den Eijnde, and R. van Wijk (eds.), *Empires of the sea: Maritime power networks in world history*, 113–152. Leiden: Brill.

- Tan, J. 2017. *Power and public finance at Rome, 264–49 BCE*. Oxford: Oxford University Press.
- Tchernia, A. 2016. *The Romans and trade*. J. Grieve and E. Minchin (trans.). Oxford: Oxford University Press.
- Terpstra, T. 2013. *Trading communities in the Roman world: A micro-economic and institutional perspective*. Leiden: Brill.
- . 2019. *Trade in the ancient Mediterranean: Private order and public institutions*. Princeton, NJ: Princeton University Press.
- Thompson, D. J. 2011a. “Animal husbandry in Ptolemaic Egypt.” In Z. H. Archibald, J. K. Davies, and V. Gabrielsen (eds.), *The economies of Hellenistic societies, third to first centuries BC*, 390–401. Oxford: Oxford University Press.
- . 2011b. “Slavery in the Hellenistic world.” In Bradley and Cartledge (2011), 194–213.
- Thomsen, C. A. 2015. “The *eranistai* of classical Athens.” *Greek, Roman, and Byzantine Studies* 55.1, 154–175.
- Thonemann, P. J. 2015. *The Hellenistic world. Using coins as sources*. Cambridge: Cambridge University Press.
- Vaccaro, E., M. Ghisleni, A. Arnoldus-Huyzendveld, C. Grey, K. Bowes, M. MacKinnon, A. M. Mercuri, A. Pecci, M. À. Cau Ontiveros, E. Rattigheri, and R. Rinaldi. 2013. “Excavating the Roman peasant II: Excavations at Case Nuove, Cinigiano (GR).” *Papers of the British School at Rome* 81, 129–179.
- Vanacker, W. 2014. “Differentiated integration trajectories of the nomadic population in Roman North Africa (1st–3rd cent. AD).” In G. de Kleijn and S. Benoist (eds.), *Integration in Rome and in the Roman world*, 197–216. Leiden: Brill.
- van den Eijnde, F., J. H. Blok, and R. Strootman, eds. 2018. *Feasting and polis institutions*. Leiden: Brill.
- van der Spek, R. J. 2004. “Palace, temple and market in Seleucid Babylonia.” In V. Chankowski and F. Duyrat (eds.), *Le roi et l'économie. Autonomies locales et structures royales dans l'économie de l'empire séleucide*, 303–332. Paris: De Boccard.
- van der Spek, R. J. and B. Leeuwen. 2014. “Quantifying the integration of the Babylonian economy in the Mediterranean world using a new corpus of price data, 400–50 BCE.” In F. de Callataÿ (ed.), *Quantifying the Greco-Roman economy and beyond*, 79–101. Bari: Edipuglia.
- van Minnen, P. 1986. “The volume of the Oxyrhynchite textile trade.” *Münstersche Beiträge zur Antiken Handelgeschichte* 5.2, 88–95.
- . 1987. “Urban craftsmen in Roman Egypt.” *Münstersche Beiträge zur Antiken Handelsgeschichte* 6.1, 31–88.
- . 1998. “Did ancient women learn a trade outside the home? A note on SB XVIII 13305.” *Zeitschrift für Papyrologie und Epigraphik* 123, 201–203.
- van Nijf, O. M. 1997. *The civic world of professional associations in the Roman East*. Leiden: Brill.
- Veal, R. 2017. “The politics and economics of ancient forests: Timber and fuel as levers of Greco-Roman control.” In P. Derron and S. von Reden (eds.), *Économie et inégalité: Ressources, échanges et pouvoir dans l'Antiquité classique: Huit exposés suivis de discussions: 22–26 août 2016*, 318–367. Geneva: Fondation Hardt.
- Verboven, K. S. 2002. *The economy of friends: Economic aspects of amicitia and patronage in the Late Republic*. Brussels: Editions Latomus.
- . 2007. “Good for business. The Roman army and the emergence of a ‘business class’ in the northwestern provinces of the Roman Empire (1st century BCE–3rd Century CE).” In L. de Blois, E. Lo Cascio, O. Hekster, and G. Kleijn (eds.), *Impact of the Roman army (200 BC–AD 476): Economic, social, political, religious, and cultural aspects: Proceedings of the sixth workshop of the international network Impact of Empire (Roman Empire, 200 BC–AD 476), Capri, March 29–April 2, 2005*. Leiden: Brill.
- . 2012a. “Cit   et r  ciprocit  : Le r  le des croyances culturelles dans l’  conomie romaine.” *Annales. Histoire, Sciences Sociales* 67.4, 913–942.

- . 2012b. “The freedman economy of Roman Italy.” In S. Bell and T. Ramsby (eds.), *Free at last! The impact of freed slaves on the Roman Empire*, 88–109. London: Bristol Classical Press.
- . 2020. “Capital markets and financial entrepreneurs in the Roman world.” In P. Erdkamp, K. S. Verboven, and A. Zuiderhoek (eds.), *Capital, investment, and innovation in the Roman world*, 381–416. Oxford: Oxford University Press.
- Verboven, K. S. and C. Laes. 2017. “Work, labour, professions. What’s in a name?” In K. S. Verboven and C. Laes (eds.), *Work, labour, and professions in the Roman world*, 1–19. Leiden: Brill.
- Veyne, P. 1976. *Le pain et le cirque: Sociologie historique d’un pluralisme politique*. Paris: Seuil.
- von Reden, S. 2007. *Money in Ptolemaic Egypt: From the Macedonian conquest to the end of the third century BC*. Cambridge: Cambridge University Press.
- . 2010. *Money in classical antiquity*. Cambridge: Cambridge University Press.
- Waliszewski, T. 2014. *Elaiou: Olive oil production in Roman and Byzantine Syria-Palestine*. Warsaw: Polish Center of Mediterranean Archaeology, University of Warsaw.
- Wallace-Hadrill, A. 1982. “*Civilis princeps*: Between citizen and king.” *The Journal of Roman Studies* 72, 32–48.
- . 1996. “The imperial court.” In A. K. Bowman, E. Champlin, and A. Lintott (eds.), *The Cambridge ancient history*, 2nd ed. Vol. 10, 283–308. Cambridge: Cambridge University Press.
- . 2008. *Rome’s cultural revolution*. Cambridge: Cambridge University Press.
- . 2011. “The Roman imperial court: Seen and unseen in the performance of power.” In J. Duindam, T. Artan, and M. Kunt (eds.), *Royal courts in dynastic states and empires: A global perspective*, 91–102. Leiden: Brill.
- Weber, G. 2009. “The court of Alexander the Great as social system.” In W. Heckel and L. A. Tritle (eds.), *Alexander the Great: A new history*, 83–98. Malden, MA: Blackwell.
- White, K. D. 1970. *Roman farming*. Ithaca, NY: Cornell University Press.
- Whittaker, C. R., ed. 1988. *Pastoral economies in classical antiquity*. Cambridge: Cambridge Philological Society.
- Wierschowski, L. 1984. *Heer und Wirtschaft: Das römische Heer der Prinzipatszeit als Wirtschaftsfaktor*. Bonn: Habelt.
- Wilkins, J. and R. Nadeau, eds. 2015. *A companion to food in the ancient world*. Malden, MA: Wiley Blackwell.
- Wilkinson, T. J. 2003. *Archaeological landscapes of the Near East*. Tucson, AZ: University of Arizona Press.
- Will, E. 1957. “Marchands et chefs de caravanes à Palmyre.” *Syria* 34.3/4, 262–277.
- Wilson, A. 2000. “The water-mills on the Janiculum.” *Memoirs of the American Academy in Rome* 45, 219–246.
- . 2002. “Timgad and textile production.” In D. J. Mattingly and J. Salmon (eds.), *Economies beyond agriculture in the classical world*, 283–308. London: Routledge.
- . 2004. “Archaeological evidence for textile production and dyeing in Roman North Africa.” In C. Alfaro, J. P. Wild, and B. Costa (eds.), *Purpureae Vestes. Textiles y tintes del Mediterráneo en época romana*, 155–164. Valencia: Universitat de València.
- Wilson, A. and M. Flohr. 2016. *Urban craftsmen and traders in the Roman world*. Oxford: Oxford University Press.
- Winterling, A. 1999. *Aula Caesaris: Studien zur Institutionalisierung des römischen Kaiserhofes in der Zeit von Augustus bis Commodus (31 v. Chr.–192 n. Chr.)*. Berlin: Oldenbourg Wissenschaftsverlag.
- Woolf, G. 2020. *The life and death of ancient cities: A natural history*. Oxford: Oxford University Press.
- Yon, J.-B. 2002. *Les notables de Palmyre*. Beirut: Institut français d’archéologie du Proche-Orient.

- . 2007. “Les commerçants du Proche-Orient. Désignation et vocabulaire.” In J. Andreau and V. Chankowski (eds.), *Vocabulaire et expression de l'économie dans le monde antique*, 51–87. Bordeaux: De Boccard.
- Zerbini, A. 2013. “Society and economy in marginal zones: A study of the Levantine agricultural economy (1st–8th c. AD).” PhD diss., Royal Holloway University of London.
- Zuiderhoek, A. 2009. *The politics of munificence in the Roman Empire: Citizens, elites, and benefactors in Asia Minor*. Cambridge: Cambridge University Press.
- . 2017. *The ancient city*. Cambridge: Cambridge University Press.

Razieh Taasob

3.B Economic Actors in the Arsakid Empire

I Introduction

This chapter follows from the previous and concentrates on a particular range of economic actors that were involved in the financial administration of the Arsakid Empire. The Arsakid tributary system relied on a differentiated, hierarchical structure of central and regional officials cooperating with private entrepreneurs to collect, deposit, and manage tax revenue. Unfortunately, the scant and patchy evidence does not allow us to reconstruct a full picture across all regions under Arsakid influence.¹ Instead, we must piece together a mosaic of preexisting Achaemenid and Seleukid practices, which the Arsakids do not seem to have changed radically, supplemented by evidence for the financial administration of cities and Babylonian temple administration.² We will begin with a brief survey of the practices known from the Achaemenid and Seleukid periods, followed by a discussion of the evidence from Arsakid Dura-Europos, a Seleukid foundation on the western bank of the Middle Euphrates, and the financial organization of the Babylonian temples under the Arsakids.

1.1 From Achaemenid to Arsakid Officials

The Persepolis Fortification Texts (PFT), dated to 509–457 BCE, provide important insights into Achaemenid administration, including the role of the high officials responsible for collecting community surplus, handling storehouses, and managing work groups.³ In the Achaemenid period, the *satraps* of a region oversaw the financial administration. In the PFT, we meet Parnaka, son of Aršāma, the chief administrator of Persepolis and close relative of the king. Parnaka had a travel authorization and was influential in handling the storehouses where in-kind taxes were collected. He was also entitled to grant travel authorization to his deputies and the managing *satraps*. Several higher officials were just below him, each in charge of one productive area from which revenue was collected. Parnaka communicated with them regularly about the delivery of specific products. Other officials oversaw the laborers

1 Lukonin 1983, 681–683.

2 Continuity and change in the Arsakid period are a complex matter, but the Arsakids do not seem to have introduced radical changes to the administration of the regions. See, e.g., Aperghis 2004, 289; van der Spek 2014; Monerie 2018, for Babylonia.

3 Briant (1996) 2002, 425–429 for the following.

Note: I would like to thank R. J. van der Spek, Lara Fabian and Sitta von Reden for comments and suggestions on earlier drafts of this chapter.

in the fields, shops, and construction sites. It seems plausible that Parnaka was in charge of the entire financial administration of the Achaemenid Empire.⁴

Alexander, though benefiting from the existing administrative system, seems to have effected some changes to the Achaemenid administrative apparatus.⁵ In most *satrapies*, including Egypt, he appointed several executives who were under his control and (in principle) had to report directly to him. He introduced or adapted a tripartite system of local government that included financial administrators (*oikonomoi*), a garrison commander (*phrourachos*) and a civil governor (*satrap*), who also had some military functions. He granted greater fiscal autonomy to the Greek cities of Asia Minor but maintained his right to collect tribute from the royal land outside their territory.⁶ The Seleukids adopted this system and made themselves authorities over the finances in their part of Alexander's empire. Nevertheless, the Asian *satrapies* (now also called *eparchies* or *strategies*) were not part of an integrated financial and administrative system but instead formed a loose network.⁷ Now two officials seem to have headed each *satrapy*, a *satrap* and a *strategos*. Both officials combined military and civil tasks, which, together with there being two officials in the same position, might be explained by the fact that in the Hellenistic Empires long-established Achaemenid and new Hellenistic officials acted alongside each other.⁸ Possibly, their coexistence also reflects different regional practices according to different degrees of royal administrative interference.⁹ Tax inspection and tax collection remained at the level of the *satrapy*, likewise operated by two kinds of local financial officials, *oikonomoi* and *dioiketai*. So-called *epistatai* ('overseers') were usually local elites appointed by the king who, along with the office of (urban) *strategos*, presided over *poleis*. A separate group of officials presided over temple revenue: a *prostates* in individual temples and an *archieus* in larger regions.¹⁰ There is evidence, furthermore, that additional financial officers and military accounts offices (*logisteria*) controlled expenditure locally.¹¹ At the top of the administrative structure was *the epi ton prosodon* ('the person in charge of the revenues'), who oversaw the imperial finances of the Seleukids as a whole. Local financial officers seem to have been subordinate to him and not to their local *satraps*.¹²

⁴ Aperghis 2004, 263–266.

⁵ Aperghis 2004, 266. There is some evidence that the eastern *satrapies* retained a greater degree of autonomy, but the motivation behind this differentiated administrative strategy is controversial; Aperghis 2004 for discussion.

⁶ Aperghis 2004, 87–88; Mileta 2008, 93; Monson 2015, 189.

⁷ Capdetray 2007, 227–239.

⁸ Von Reden, vol. 1, ch. 1, 33–35.

⁹ Capdetray 2007, 284–293 for discussion of this aspect.

¹⁰ Capdetray 2007, 321–329; Lukonin 1983, 714; temple *prostates* in Jerusalem: 2 Maccabees 3. 4.

¹¹ Aperghis 2004, 289, with Landau 1961.

¹² Aperghis 2004, 273; Capdetrey 2007, 321; see also von Reden, vol. 1, 32–35 for these and other offices in the Hellenistic Empires generally.

Under the Arsakids, the multipolarity of the political system increased, which also contributed to greater administrative decentralization.¹³ Self-governing cities and sub-kingdoms with myriad variations ruled across the empire.¹⁴ The *satrapy* became a much smaller administrative unit, probably similar in size to the former Seleukid eparchy.¹⁵ In Dura-Europos, a *strategos* (combined with the office of *epistates*) continues to dominate the evidence of the public life of the city and appears to have been responsible for supervising the tax collection and finances of the larger administrative unit of Mesopotamia.¹⁶ He might have been a royal appointee chosen from the local elite based in Dura-Europos. In the Nisa ostraca, *hštrp* ('*satrap*'), *mrzwpn* ('regional administrator') and *dyszpty* ('commander of a fortress') are mentioned alongside *gzbry* ('treasurer'), *dprypty* ('scribe'), and *'hmrkr* ('accountant').¹⁷ The editors of the documents have suggested that the *marzbān* was in charge of several *satrapies*, with Mithradatkert (Nisa) being the administrative center.¹⁸ Despite the differentiated set of local personnel involved in the fiscal administration, there is no evidence of any overarching tax collection office in any of the Arsakid royal centers, so taxes and other dues appear to have been collected from cities, temples, and regions under their own local or regional authority. The most striking indication of this fact is that the function of the *epi ton prosodon* is attested to have become part of the office of the *strategos*, thus collapsing central and local authority, as well as financial and other administrative tasks that had been distinct under the Seleukids.¹⁹

II Economic Actors in the Urban Administration: The Case of Phraates in Dura-Europos

The cities in Arsakid Mesopotamia were basically self-governing, but their official and private dealings were guaranteed and authenticated by the Arsakid royal system. Taxes were collected by municipal officials, while empire-wide structures included private tax farming companies, titles of authority, and the treasury into which (at least some) taxes were paid. A portion of local taxes, along with penalty payments for breach of contracts, were paid to the treasury of the King of Kings.²⁰

¹³ Lukonin 1983, 701.

¹⁴ Shayegan 2011, 291–296, 77–120; Weber 2010a, 100–104.

¹⁵ Lukonin 1983, 724.

¹⁶ Baird 2018, 65 and below, with *P. Dura* 20.

¹⁷ Weber in Hackl, Jacobs, and Weber 2010, 2:502–520 for a selection of texts and translations; see also the ostraca from Shahr-i Oumis, for which Bivar 1981

¹⁸ Lukonin 1983, 725–726; Jacobs in Hackl, Jacobs, and Weber 2010, 1: 94–96.

¹⁹ Capdetray 2007, 321.

²⁰ Thus again Capdetray 2007, 321.

However, we do not know the relative proportions of taxes filling the central and local treasuries nor whether taxes that remained in the region were assigned entirely to local purposes or also to royal affairs like provisioning armies and garrisons.²¹

Thanks to the excavation of a large body of papyri and parchments, the city of Dura-Europos provides particular insights into the practice of urban administration and its social underpinning under Arsakid rule.²² Dura (formerly Nikanoris) was a Seleukid foundation on the Middle Euphrates on the important junction between southern and northern Mesopotamia.²³ It was taken by the Arsakids in ca. 116 BCE and remained under Arsakid control until 165 CE when it was conquered by the Romans. Under Arsakid domination, but in particular during the first and second centuries CE, Dura-Europos developed into a prosperous city that seems to have profited both from its location within the region and from being on the border between the Arsakid and Roman spheres of influence.²⁴ Throughout the centuries, the city's institutions remained Hellenistic in nature, despite the fact that the city's population was of very mixed origin and descent.²⁵ Like many other cities in the former Seleukid Empire, Dura-Europos was organized as a Greek-style *polis* with an exclusive citizen body of *Europaioi*. The public language was Greek, and dating formulae and calendar remained Seleukid, although from the Arsakid era onward, Arsakid year counts were added.²⁶ Moreover, the main tax officials bore Greek titles and Seleukid status designations. Yet the latter now related to the Arsakid court. In the contracts *P. Dura* 18 (87 CE) and 19 (88/89 CE), we encounter a tax collector (*praktor*) and two royal judges (*basilikoi dikastai*) bearing the court titles of 'body-guard' and 'first and most honored friend' associated with the Arsakid court.²⁷

P. Dura 20 (121 CE) records a contract written in the Greek form of a double document and kept in the public record office in the city of Dura-Europos. The contract is an agreement of Phraates, eunuch and agent/subordinate of (*ho para tou*) Manesos. Though belonging to the retinue of Manesos, Phraates was still of high rank, as the title eunuch indicates.²⁸ Manesos in turn is described as "*paraleptos*

21 Briant (1996) 2002, 408, with Herodotos 3. 90 (on Kilikia), according to whom about one third of the 500 talents of tax income was kept locally to provision the local cavalry, and two thirds were shipped to the king's treasury.

22 Cotton; Cockle and Millar 1995; Gregoratti 2016, 16; Baird 2018, 63–84, for further literature.

23 Gregoratti 2016, 19 for its nomenclature. Europos was its Greek name, while Dür was the Semitic name of the original site of the city.

24 Compare with Palmyra which profited from a similar location, but played an even greater role in trans-local exchange; see von Reden, ch. 2, this volume.

25 Gregoratti 2016, 20–21 for the mixed population and the role of Greek in the town.

26 Baird 2018, 64–69; von Reden, vol. 1, ch. 1, 17–18; Wiesehöfer vol. 1, ch. 11, 480–482.

27 Von Reden, vol. 1, 29 for court titles in the Seleukid and Ptolemaic period. These titles, however, became institutionalized by the second century BCE, and may have been attached as a matter of formality to particular local positions; for their wider Durene context Baird 2018, 65; Lukonin 1983, 701–703 for possible equivalents in the Arsakid/Sasanian court titulature.

28 Lukonin 1983, 713.

and *strategos* of Mesopotamia and Parapotamia and *arabarchos*.”²⁹ Judging from the tax administration of Roman Egypt, a *paraleptos* was a high tax official or the head of a tax farming company.³⁰ Yet unlike in Egypt where a *paraleptos* was appointed by the *arabarchos*, who was his superior, Manesos combined both functions. Parapotamia was an administrative unit in northern Mesopotamia along the western bank of the Euphrates throughout the Seleukid, Arsakid, and Roman periods.³¹ It was governed from Europos, as the Dura papyrus suggests. Strabo describes it as a land of Arab chieftains and a part of Mesopotamia that was unsettled.³² The distinction between *strategos* and *arabarchos* thus pointed to the conceptual distinction of the administration of settled and unsettled people both being subject to Arsakid taxation in some way. Phraates, moreover, is titled *arkapetēs* (‘chief collector of taxes’), a transliterated Iranian term for the office of *argapet* (*hrkpty*), which is also attested in Palmyra.³³ We may assume that he was the head of tax collection at the level of the city or district that Manesos oversaw as *strategos* for the region of Mesopotamia and Parapotamia as a whole.

Most interesting to note, however, is the combination of private economic interests and administrative authority that an actor like Phraates was able to combine.³⁴ Certain families seem to have inherited administrative offices, indicated by lines of descent conspicuously displayed in public inscriptions and contracts.³⁵ Some status asymmetries were built into the system. Phraates, the eunuch, is designated by his being an agent or man of Manesos, while Manesos is called by his patronym.

P. Dura 20 contains an antichretic loan agreement, a well-known type of contract in which personal service, the usufruct of goods or land were offered *in lieu* of the interest of the loan. The contract was written down in the village of Peliga belonging to the district of Iardas and, like the previous contracts, kept in the record office of Europos. In the contract, Phraates agrees to allow a certain Baarlas to pay the interest on his loan through his servile labor (*chreia doulika*). If he missed a day’s work, he would pay a penalty of one *drachm* to Phraates. If the loan was not repaid or not renewed at the record office of Europos after the initial year, Baarlas had to pay a penalty of 400 *drachms* to Phraates and the same amount into the royal treasury (*basilikon*).³⁶ This was a merciless arrangement, and was likely never

²⁹ *P. Dura* 20 1.5

³⁰ De Romanis 2020, 7, and *passim*.

³¹ Cameron 2019, 135–137, 212–213 for this and the following.

³² Strabo 16. 2. 11.

³³ Thommen in Hackl, Jacobs, and Weber 2010, 2: 450, 452 as well as Wiesehöfer, vol. 1, ch. 11, 485 with further references; see also Welles, Fink, and Gilliam 1959; Lukonin 1983, 745.

³⁴ See von Reden, ch. 2, this volume, for their role in imperial economies.

³⁵ Baird 2018, 66, 121–123 for elite family dynasties displaying their financial patronage of cults and religious buildings in public inscriptions; Gregoratti 2016, 25 argues that by the middle of the first century CE, the two offices of *strategos* and *epistates* were in the hands of just one family.

³⁶ Lukonin 1983, 722 suggests that such penalty charges paid into the *basilikon* were an Arsakid innovation.

meant to be affordable for a servile worker like Baarlas. There are other asymmetrical monetary loan agreements attested in the corpus of Dura parchments that effectively reduce the recipients to debt bondage to the social elite and administration.³⁷ Phraates's social and administrative power, which he owed partly to his status as an agent of a person high up in the tax administration and partly to his own position in this administration, allowed him to contract an agreement that seems to have been based on practices of labor control developed in the social system of Hellenistic Dura.

Economic actors in the Arsakid Empire relied on imperial administrative and legal infrastructures that were recognizable and meaningful in local contexts. At the same time, the normative and social framework within which economic actors operated was local. The loan agreement that has survived from Dura-Europos required legal procedures that are unlikely to have prevailed outside urban environments in the Arsakid Empire. Imperial institutions allowed actors to fulfil both their local administrative tasks properly and to give legitimacy and validity to their own private economic affairs.

III Economic Actors in the Babylonian Temple Economy

Another significant body of evidence for Arsakid financial actors comes from temples in Babylonia. A large body of cuneiform texts dating from the sixth to the first centuries BCE documents the nature of temple revenue management well.³⁸ Babylonia formed the largest part of the very fertile region of central and southern Mesopotamia and had become an administrative unit under the Seleukids. Temples, together with royal domains, palaces, and large landowners, had driven the economy of the region since the Bronze Age.³⁹ The city of Babylon itself, once the center of the large empire of Hammurabi, had been under changing imperial influences in subsequent centuries.⁴⁰ It was reduced to a religious center by the Seleukids, who made Seleukeia-Tigris the nearby political center. Recurring periods of heavy warfare, combined with local unrest and rebellion, harmed the economy of the region in the Arsakid period, which is reflected in the volatility of prices for agricultural products that have survived in the records of the *Astronomical Diaries*.⁴¹ Notwith-

³⁷ Baird 2018, 68–69, with P. Dura 17C; also van der Spek 2014, 208–209.

³⁸ Wiesehöfer vol. 1, 485–486; Monerie 2018, 7–9 for a list of extant dossiers and archives.

³⁹ Van der Spek 2007, 412.

⁴⁰ Van der Spek 1998, 205.

⁴¹ Lukonin 1983, 719–721 for local unrest and civil strife in Seleukeia and other Mesopotamian cities; van der Spek 2007, 419 for the volatility of prices as affected by unrest; Huijs, Pirngruber,

standing the conflicts in the region and the neighborhood of Seleukeia, the economic organization of the Babylonian temples seems to have remained intact well into the Arsakid period. Yet the vitality of the temples weakened when their representative role as preserves of Mesopotamian tradition in Babylon declined until they disappear from the records in the first century CE.⁴²

The policy of both the Seleukid and Arsakid courts toward the temples was guided by munificence and generosity, not least since the kings relied on the economic and political cooperation of the temple elites. The kings presented themselves as servants of the gods, building and restoring temples and presenting offerings.⁴³ High officials performed offerings to the temples when they visited the city, and the king intervened in the appointment of high temple officials.⁴⁴ At the same time, they were able to draw income from temple property, sometimes in extortionate quantities or illegitimately.⁴⁵ Although specific cases are known from the Seleukid period only, it is not inconceivable that such practices continued under the Arsakids.

The extant documents reveal the financial system, money, and property management of institutions below the level of the imperial court. To judge from the cuneiform tablets, temples in Babylonia acted largely separately from the royal administrative system. The temples generated and collected income that was spent within the temple organization, and maintained an organizational infrastructure for supervising and controlling the expenses.⁴⁶ Unlike the example of urban administration, where royal agents and entrepreneurs bearing Greek names oversaw taxes and other public income, this does not seem to have been the case in Babylonia. The Raḥim-Esu archive, relating to two years under Mithradates II (121–91 BCE), and other Babylonian documents provide us with lists of officials, all bearing non-Greek titles and names, along with their functions and duties.⁴⁷ Nevertheless, Greek-speaking administrative influence is visible in some rare Greek loan words in the Arsakid temple records, for example, *purusutattesu* for Greek *prostates* ('overseer'), or *pulite* for Greek *politai* ('citizens').⁴⁸

Temple revenue was derived from the exploitation of land and herds, as well as from taxes, donations, and service charges.⁴⁹ Expenditure fell into three categories:

and van Leeuwen (2015, 142–143) develop a different scenario in which climatic change coupled with local rebellion and unrest caused production to decrease and prices to rise.

⁴² Monerie 2018, 440.

⁴³ Van der Spek 2007, 412.

⁴⁴ Van der Spek 2014, 215.

⁴⁵ Van der Spek 2007, 412.

⁴⁶ Monerie 2018, 308.

⁴⁷ Van der Spek 1998 for a full list of texts and translations of the Raḥim-Esu archive.

⁴⁸ McEwan 1981, 131; van der Spek 1998, 206.

⁴⁹ Monerie 2018, 307.

materials for sacrifices, repair of temples, and wages paid to laborers.⁵⁰ Although the regular revenue and expenditure of the temples are well recorded, there is no single account reflecting their overall financial situation. It is well established, however, that the economy of Babylonian temples was more or less fully monetized, and the use of coinage, reckoned in terms of *shekels* nominally equivalent to half a Greek *stater* (two *drachms*), had become regular from the beginning of the Seleukid period.⁵¹ None of the payments made in the temple records of the Arsakid period are made in kind, although the payment of rations, rents, and tithes in kind continued within Babylonia. Gold is a new arrival in the Arsakid temple records. It appears in small quantities as a gift given to either a king or a god.⁵²

The fiscal system of the Babylonian temples does not seem to have changed significantly under Seleukid and Arsakid domination, and these periods are usually treated together by modern scholars.⁵³ Land management and land leases remained widespread in Babylonia throughout both periods.⁵⁴ Thus, the *sūtu*, a fee or tax imposed on tenants of temple lands, was one of the most significant sources of temple income under the Seleukids and likely remained so under the Arsakids. Private entrepreneurs were responsible for collecting and managing its collection.⁵⁵ This can be seen in one of the Babylonian documents, *CT* 49 115, in which the name of an entrepreneur Muranu is mentioned as an official who managed the Esagila land.⁵⁶

Finances were supervised by a board of officials known as *šatammus* who acted together with the members of the *kiništu* ('assembly') of the temple of Esagila. The *šatammu* was something like a 'chief temple administrator,'⁵⁷ who, together with the *kiništu*, was in charge of the entire temple organization of Babylonia throughout the Seleukid and Arsakid periods.⁵⁸ The *šatammus* and *kiništu* also decided about religious matters and were the addressees of royal orders concerning the city of Babylon.

Private entrepreneurs were in charge of collecting, storing, and managing taxes and other income of the temples.⁵⁹ Since the sixth century BCE, Babylonian records

⁵⁰ McEwan 1981, 131.

⁵¹ Jursa 2006; Monerie 2018; van der Spek 2014, 205–206, also for a brief survey of the increasing debasement of Seleukid and Arsakid coins, which made the equivalence nominal. Cf. also van der Spek 2017.

⁵² McEwan 1981, 132, 137, with *AB* 245 = van der Spek 1998, 239, no. 26.

⁵³ McEwan 1981; van der Spek 2000; Monerie 2018.

⁵⁴ Monerie 2018, 309.

⁵⁵ Jursa 2006, 146 n. 27, 161–162. Stolper believes that there was a mechanism of standing order guiding the temple staff in how to manage temple assets in which the crown had an interest, Stolper 1993, 61; van der Spek 2014, 208.

⁵⁶ Joannès 1982, 126–172.

⁵⁷ Van der Spek 1984, 545.

⁵⁸ Van der Spek 2000, 438, also for the following.

⁵⁹ Van der Spek 2014, 208 with Jursa 2006, 146 n. 27, 161–162.

show the practice of leasing rights to income against the payment of a fixed sum, a custom well known from other fiscal and agrarian contexts in antiquity, including Hellenistic Egypt.⁶⁰ Michael Jursa was able to demonstrate that these revenues were collected within wider portfolios of economic activity. Entrepreneurial individuals, such as the family members of the Murānu active in Babylonia (early Hellenistic period), managed monetary and agrarian assets of both temples and estate holders.⁶¹ The practice continued in the times of the Raḥīm-Esu records. Raḥīm-Esu himself may have been an entrepreneur or high-ranking administrator in Babylonia, with whom the income from several Babylonian temples was deposited. There were other officials who held other titles such as ‘watchman of the counsel house’ as well as another named official, Marduk-šuma-iddin.⁶² The latter was in charge for the cashboxes of Esabad, whereas Raḥīm-Esu had acquired the right to control the ‘basket’ (*ḥallatu*) of the Esagila temple, where the income from the cashboxes of other Babylonian temples was also deposited. It has long been assumed, however, that Raḥīm-Esu controlled the basket by virtue of being a high official in the administrative hierarchy.⁶³ His status is not clearly documented in the archive, but he was not a *šatammu*.

CT 49, no. 160 is a contract in which the rights to collect and manage the income of the cashbox from the Day-One/All-Day temple in Babylon are leased to a priest called Bēl-aba-ušur, son of Bēll-iddina.⁶⁴ The lessor, Bēl-tabtani-bulliṭ, acted as the representative of the *šatammu* Bēl-bullissu in this and in another document. The *šatammu* apparently acted through local representatives who contracted out the rights to collect the revenue of particular temples. The fact that the lessee was a priest himself is probably irrelevant, as professionals of all kinds are attested as lessees of the rights to temple assets.

The business of financial entrepreneurs like Bel-aba-ušur and Raḥīm-Esu overlapped with that of people who managed money and in-kind property deposited in temples by other individuals. Most of these depositors were involved in the administration of revenues, either as rent farmers or tax collectors,⁶⁵ another practice that spanned many periods. A number of depository notes from the Hellenistic period are extant and have been carefully studied by Stolper and Jursa.⁶⁶ Most notes describe the deposit, name of the depositor, the depositary, and the stipulation that the deposit is to be paid back on demand. Others go further, establishing that the

⁶⁰ Bingen 1978.

⁶¹ Jursa 2006; van der Spek 2014; see also von Reden, ch. 2, this volume.

⁶² Van der Spek 1984, 547.

⁶³ Van der Spek 1998, 246 discusses both possibilities, while van der Spek 2014, 208 and Jursa 2006, 171–172 opt for the former.

⁶⁴ Van der Spek 1998, 237 no. 24 (93 BCE) with commentary *ad loc*; for the É DU.1.KAM (Day-One/All-Day-temple), see most recently Hackl 2020.

⁶⁵ Jursa 2006, 172.

⁶⁶ Stolper 1993; taken further by Jursa 2006, 162–180; van der Spek 2014, 205–209.

deposit may be paid to anyone who produces the depository document, and that it must be paid out wherever the depositor wishes. This made depository notes equivalent to promissory notes deployable as negotiable monetary instruments.⁶⁷ In yet other notes, the deposit is said to be turned into a loan bearing interest once it is not returned on demand or at the stipulated place. The interest payable to the creditor (depositor) was double the amount of the normal 20 percent of the principal per year. This makes it unlikely that the conversion of the deposit into a loan was in the interest of the deposit holder, or that such deposits were in fact intended to be loans to him. Yet as depository notes were used as negotiable instruments equivalent to a check, and the conversion into an interest-bearing loan appears to have been fixed in writing shortly before the repayment was due, Jursa concludes that deposits were used as capital by the depository for some time, and only upon recall incurred the obligation to pay interest/penalty in case of nonrepayment on time. This made deposit holders *de facto* bankers, and in their capacity for using the deposits of others as capital, they were distinct from professionals like Raḥīm-Esu who were responsible for the income and expenditure of temple revenue alone.

The financial operations of administrators and entrepreneurs within the temple economy benefited from the legal and institutional framework of the imperial administration. The extant evidence belongs to the Seleukid period, but the relative scarcity of records from the Arsakid period, coupled with one extant record that mentions a royal edict (*dātā*; *dātu*) likely promulgated in the Achaemenid period, suggests that the regulatory framework was not affected substantially by the changing imperial systems.⁶⁸ For example, a record of deposit from the Mūrānu archive contains the clause, “anyone who holds the [depository] document may collect that twelve shekels of silver, that is, that deposit, according to the royal decree.”⁶⁹ Another contract from the early third century BCE stipulates that if a debtor (of barley) does not pay it back at the appointed time, he will pay double; and if he does not pay double, he will pay according to the edict (*dātu*; *dātā*).⁷⁰ Just as in the case of the evidence from Dura-Europos, though relating to a very different sociopolitical context, an administrative system of collecting and managing taxes operated locally, but within an imperial institutional frame from which it benefited. Moreover, financial entrepreneurs, closely attached to temples, increased their economic opportunities and power from their status in the tax administration. In combination with the institutional frame of the empire, which provided greater security to their transactions and introduced a dynamic entrepreneurial factor into the local econo-

⁶⁷ Jursa 2006, 159.

⁶⁸ *Cuneiform Texts from Babylonian Tablets in the British Museum (CT)* 49, no. 102 (= Stolper 1993, 51–53) with van der Spek 2014, 207, see also below.

⁶⁹ Van der Spek 2014, with *CT* 49, no. 173: 9–11 (= Stolper 1993, 25–27 no. 8); Jursa 2006, 200.

⁷⁰ Van der Spek 2014, with *CT* 49, no. 102 (= Stolper 1993, 51–53).

my of Babylon, they may have contributed to the expansion of long-distance trade that connected Mesopotamia to the Indian Ocean and Mediterranean world.⁷¹

References

- Aperghis, G. G. 2004. *The Seleukid royal economy: The finances and financial administration of the Seleukid empire*. Cambridge: Cambridge University Press.
- Baird, J. 2018. *Dura-Europos*. London: Bloomsbury Academic.
- Bingen, J. 1978. "The third-century land-leases from Tholthis." *Illinois Classical Studies* 3, 74–80.
- Bivar, A. D. H. 1981. "The second Parthian ostrakon from Qūmis (Qūmis commentaries no. 3)." *Iran* 19.1, 81–84.
- Briant, P. (1996) 2002. *From Cyrus to Alexander: A history of the Persian empire*. Winona Lake, IN: Eisenbrauns. Originally published as *Histoire de l'Empire perse: De Cyrus à Alexandre*.
- Cameron, H. 2019. *Making Mesopotamia: Geography and empire in a Roman-Iranian borderland*. Leiden: Brill.
- Capdetrey, L. 2007. *Le pouvoir séleucide: Territoire, administration, finances d'un royaume hellénistique, 312–129 avant J.-C.* Rennes: Presses universitaires de Rennes.
- Cotton, H. M., W. E. H. Cockle, and F. G. B. Millar. 1995. "The papyrology of the Roman Near East: A survey." *Journal of Roman Studies* 85, 214–235.
- De Romanis, F. 2020. *The Indo-Roman trade and the Muziris Papyrus*. Oxford: Oxford University Press.
- Gregoratti, L. 2016. "Dura-Europos: A Greek town of the Parthian empire." In T. Kaizer (ed.), *Religion, society and culture at Dura-Europos*, 16–28. Cambridge: Cambridge University Press.
- Hackl, J. 2020. "Nochmals zum é ud.1.kam und seiner vermeintlichen Rolle im babylonischen Neujahrsfest – ein Beitrag zur Kulttopographie Babylons in hellenistischer Zeit", *Zeitschrift für Assyriologie*, online edition. <https://doi.org/10.1515/za-2020-0019>.
- Hackl, U., B. Jacobs, and D. Weber, eds. 2010. *Quellen zur Geschichte des Partherreiches*. 3 vols. Göttingen: Vandenhoeck & Rupprecht.
- Huijs, J., R. Pirngruber, and B. van Leeuwen. 2015. "Climate, war and economic development: The case of second-century BC Babylon." In R. J. van der Spek, B. van Leeuwen, and J. L. van Zanden (eds.), *A history of market performance: From ancient Babylonia to the modern world*, 128–148. Routledge: London.
- Joannès, F. 1982. *Textes économiques de la Babylonie récente*. Paris: Editions Recherche sur les civilisations.
- Jursa, M. 2006. "Agricultural management, tax farming and banking: Aspects of entrepreneurial activity in Babylonia in the Late Achaemenid and Hellenistic periods." In P. Briant and F. Joannès (eds.), *La transition entre l'empire achéménide et les royaumes hellénistiques (vers 350–300 av. J.-C.)*, 137–222. Paris: De Boccard.
- Landau, Y. H. 1961. "A Greek inscription from Acre." *Israel Exploration Journal* 11, 118–126.
- Lukonin, V. G. 1983. "Political, social and administrative institutions: Taxes and trades." In E. Yarshater (ed.), *The Cambridge history of Iran*. Vol. 3.2, 681–746. Cambridge: Cambridge University Press.
- McEwan, G. J. P. 1981. "Arsacid temple records." *Iraq* 43.2, 131–143.

⁷¹ Monerie 2018, 426–435.

- Mileta, C. 2008. *Der König und sein Land: Untersuchungen zur Herrschaft der hellenistischen Monarchen über das königliche Gebiet Kleinasiens und seine Bevölkerung*. Berlin: Akademie Verlag.
- Millar, F. 1998. "Dura-Europos under Parthian rule." In J. Wiesehöfer (ed.), *Das Partherreich und seine Zeugnisse / The Arsacid Empire: Sources and documentation*, 473–492. Stuttgart: Franz Steiner.
- Monerie, J. 2018. *L'économie de la Babylonie à l'époque hellénistique*. Berlin: De Gruyter.
- Monson, A. 2015. "Hellenistic Empires." In A. Monson and W. Scheidel (eds.), *Fiscal regimes and the political economy of premodern states*, 169–207. Cambridge: Cambridge University Press.
- Shayegan, M. R. 2011. *Arsacids and Sasanians: Political ideology in post-Hellenistic and Late Antique Persia*. Cambridge: Cambridge University Press.
- Stolper, M. W. 1993. *Late Achaemenid, early Macedonian and early Seleucid records of deposit and related texts*. *Annali dell'Istituto Orientale di Napoli*, Suppl. 77. Naples: Istituto Universitario.
- van der Spek, R. J. 1985. "The Babylonian temple during the Macedonian and Parthian domination." *Bibliotheca Orientalis* 42, 541–562
- . 1998. "Cuneiform documents on Parthian history: The Rahimesu archive materials for the study of the standard of living." In J. Wiesehöfer (ed.), *Das Partherreich und seine Zeugnisse / The Arsacid Empire: Sources and documentation*, 205–258. Stuttgart: Franz Steiner.
- . 2000. "The šatammus of Esagila in the Seleucid and Arsacid periods." In J. Marzahn, H. Neumann, and A. Fuchs (eds.), *Assyriologica et Semitica: Festschrift für Joachim Oelsner anlässlich seines 65. Geburtstages am 18. Februar 1997*, 437–446, Münster: Ugarit-Verlag.
- . 2007. "The Hellenistic Near East." In W. Scheidel, I. Morris, and R. Saller (eds.), *The Cambridge economic history of the Greco-Roman world*, 409–433, Cambridge: Cambridge University Press.
- . 2014. "Factor markets in Hellenistic and Parthian Babylonia (331 BCE–224 CE)." *Journal of the Economic and Social History of the Orient* 57.2, 203–230.
- . 2017. "Manûtu ša Bābili: The Babylonian subdivision of the mina." *Nouvelles assyriologiques brèves et utilitaires* no. 1, 33–37 (no. 20).
- Welles, C. B., R. O. Fink, and J. F. Gilliam. 1959. *The excavations at Dura-Europos. Final report. Vol. 5.1, The parchments and papyri*. New Haven CT: Yale University Press.

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4 Economic Actors under the Greek Kingdoms of Central Asia to the Kushan Empire

I Introduction

This chapter outlines the range of economic actors operating under and between the Greek Kingdoms of Central Asia (i.e., collectively the Graeco-Bactrian and Indo-Greek Kingdoms, ca. 250 BCE–10 CE) and the Kushan Empire (ca. 50–350 CE), with a focus on those active in the core regions of Bactria and Gandhāra. Both regions are understood in a broad sense throughout my chapters in this volume, with Bactria including the space between the Hissar range and the Hindu Kush, and Gandhāra that from modern Jalalabad to Taxila,¹ with side views into the adjacent highland valleys and basins of Kapisa, Swat, and Kashmir. Although meaningfully defining the extent and impact of the Greek Kingdoms and the Kushan Empire deeper into Gangetic (northern) India faces unresolved methodological difficulties, I also occasionally discuss Mathura with respect to certain conditions under Kushan rule, as well as other adjacent spaces (such as Sogdiana and Arachosia) which were varyingly autonomous or under imperial rule in this period. For convenience, I sometimes refer to the significant periods between far-reaching imperial rule in Bactria (ca. 145 BCE–50 CE) and Gandhāra (ca. 65 BCE–60 CE) as ‘transitional’ periods, in place of other common terminology (e.g., Yuezhi-Saka and Saka-Parthian or Indo-Scythian/Indo-Parthian). Although many important developments fermented in these transitional periods, my frame of analysis is structured around empires that developed from core regions in Bactria, as ‘Central Asian empires.’²

In the following, I describe the economic activities of a range of actors operating in this period. As imperial rulers and their inner circles played particularly impor-

¹ There are problems and ambiguities in defining the boundaries of both regions, and the definitions used here are informed by cultural and political considerations as well as a desire for simplicity. Primarily in reference to the late Achaemenid and Hellenistic periods, Greek and Latin sources note that Bactria’s frontier with Sogdiana was constituted by the Oxus River, but it is nonetheless common practice to refer to the region between the right bank of the Oxus and the Hissar Range as part of Bactria. Additionally, at least part of Bactria was known as Tokharistan already from around the second quarter of the second century CE, and probably rather earlier than that. For convenience, I refer to the region as Bactria for the entire period under study. See the discussion on geography in Morris, vol. 1, ch. 2, I.2.

² See Morris, vol. 1, ch. 2.

Note: I am grateful to Henry Albery and Sören Stark for their helpful feedback on parts of earlier versions of this chapter.

tant roles – as prolific and influential consumers with specific tastes, extractors of resources in cash and in kind, distributors of wealth and resources through building programs and gifts, and coordinators of broader economic activity and far-reaching networks – I have subdivided my discussion according to these categories of activity. I then examine the role of armies as consumers as well as coordinators (including behavior around coin usage), before turning to consider religious organizations. As I show, temples in Bactria and Buddhist monasteries were not just the consumers of surplus resources, sites for elite display, and providers of religious services, but also could accumulate massive wealth as well as coordinating a range of other productive and redistributive activities. Then, I look at the roles of local elites – from aristocrats, dynasts, and kings, to elites in urban environments, and elites with mobile lifestyles – as possessors and coordinators of major power and resources on the ground, who made imperial extractive regimes possible in reality, and could amass considerable wealth of their own. Households are then discussed as the major unit structuring economic activity in this period, looking particularly at what the practice of fraternal polyandry in Bactria might tell us about economic strategies of these organizations. Next examined are the producers at the core of this story – those engaged in agriculture, pastoralism, and secondary production – assessing the structure of their activities, how labor was coordinated, how they fit into imperial regimes, and when cases for specialization and trans-regional demand for local products can be identified. Finally, I turn to the merchants who pulled this story together, probably by forming their own organizations and developing far-reaching networks.

Before progressing, I should note that I have elected to not discuss urban systems as actors, as we are missing far too much information about urbanism in the period under study to attempt to provide meaningful insights on this topic. One problem is the question of whether any genuine *poleis* (i.e. city-states) existed in the Hellenistic period. The best candidate for such, the city of Ai Khanum, had features of a polis, but it was also a royal capital under the Graeco-Bactrians, and its affairs were probably not seen as independent of the kingdom.³ Additionally, even though some cities in Central Asia were described as a *polis Hellenis* in Graeco-Roman sources,⁴ this was likely not meant in the modern technical sense of referring to the existence of a *polis* organization in that city, but simply referring to a resident population including Hellenophones or Hellenophiles.⁵ My general impression is that we can only broadly envisage towns and cities in Bactria and Gandhāra in this period as the administrative,

³ Martinez-Sève 2014, 279.

⁴ See e.g., Alexandria of the Caucasus (Begram) in Plutarch, *De fortuna Alexandri* 328F; Alexandria on the Tanais (i.e., probably Alexander Eschate) in Marmor Parium, *Fragmente der griechischen Historiker* 239 B7, Alexandria in Arachosia in Isidoros of Charax *Stathmoi Parthikoi* (Isid. Char. *Stath. Parth.*) 19, all noted in Cohen 2013, 365.

⁵ Cohen 2013, 376–377.

political, cultural, and economic cores of their catchment areas, and – when under imperial control – they probably hosted the seats of governors and/or dynasts, whether recruited from patrimonial local elites or more direct imperial representatives. Nonetheless, the catalysts for urbanization processes in this period and the impacts thereof will be discussed in more depth elsewhere in this volume.⁶

II Imperial Rulers and Their Inner Circles

In this section I focus on the uppermost elites of the Greek Kingdoms of Central Asia and the Kushan Empire. Before detailing the range of activities undertaken by this group of actors, it is important to clarify both their roles in their respective political units, as well as why I have chosen to analyze these political units together from a historical perspective.

The Greek Kingdoms and the Kushan Empire – both tributary empires driven by kings and their inner circles – grew out from differing cultural and political contexts, and manifested through somewhat different royal ideologies and imperial structures.⁷ On the one hand, the Graeco-Bactrian Kingdom emerged as a break-away polity from the Upper *Satrapies* of the Seleukid Empire in the mid-third century BCE, had a ruling elite comprised of a Graeco-Macedonian settler class, and is productively considered as primarily Hellenistic in a political and ideological sense. In terms of broader structure, the Greek Kingdoms give the impression of both external and internal enormous political conflict and fragmentation in certain periods – perhaps 45 kings in total dispersed across southern Central Asia and Gandhāra are known from coins – as well as somewhat locally involved extractive and administrative systems, with evidence for the implementation of administrative offices.

On the other hand, the Kushan Empire emerged in the mid-first century CE – at least, according to the narrative extracted from Chinese official sources⁸ – from one of five clans of a formerly nomadic group called the Yuezhi who had putatively migrated to Bactria in the second century BCE. Whatever the ethnocultural origins of the dynasty, and whether or not any ‘nomadic’ element can be detected in their approach to rule, they predominantly presented themselves with the vocabularies of Iranian kingship, and perhaps also considered themselves as deified. Evidence for the administrative apparatus they implemented is scarce but appears to refer largely to an upper level of officials. Ultimately, the Kushan Empire tends to conjure an image of a multiethnic elite, uncomplicated succession, political stability, and prosperity – which is probably partially an artifact of our sources.

⁶ Morris, ch. 13, III, this volume.

⁷ For the below and further references see Morris, vol. 1, ch. 2, 70–71, 83–85.

⁸ The reality is probably more complex vis-à-vis ethnocultural identity, the presumed process of sedentarization, and polity formation.

And yet, despite these obvious differences, the Greek Kingdoms and the Kushan Empire share very significant ideological and structural similarities, which manifested in similar economic activities and wider impacts. These can be traced – and even seen to accelerate – through the period under study. Rule in the Greek Kingdoms and the Kushan Empire was predicated on the institution of dynastic kingship, and theoretically the king probably held absolute power. Symbolically, both polities were underpinned by a sense of the king’s supreme military prowess, and military conquest served as the engine for imperial expansion and maintenance (the army as an economic actor, besides this function, is treated below). Most crucially, both empires emerged in the core region of Bactria, and their most vigorously expansionary kings – Eukratides I, Menander I, Kujula Kadphises, Kanishka I – drove them repeatedly toward India and its resources. Here, both Greek and Kushan kings refigured and presented themselves to be compatible with Indic ideas of kingship. More generally, the kings of both empires minted prodigious amounts of coinage, attained immense wealth, and controlled vast resources, which is clear to us through royally sponsored building programs. This wealth was extracted to some degree by administrative systems with a shared genealogy at least partly developed from Achaemenid-period structures,⁹ and – besides the broader sociospatial networks of power which constitute states¹⁰ – almost certainly relied profoundly on the cooperation of the institution of an inner circle of elites surrounding the king. Members of these inner circles were probably tasked with a variety of important tasks in expanding and maintaining the empire: military and/or civic governance, leadership of garrisons, or other upper administrative roles.

Although we lack direct knowledge of such inner circles in the Greek Kingdoms, by virtue of other continuities with the ideology and structure of Seleukid and other Hellenistic kingdoms, it is reasonable to suggest that the court attached to the king and royal household probably included a class similar to the *philoi*, with such functions listed above.¹¹ As the apparent frequency of warfare under the Greek Kingdoms probably indicates that kings spent a substantial amount of time on campaign, we might also presume that the court followed the king (i.e., was ‘peripatetic’), as was also the case under the Seleukids.¹² Men of the *philoi* may have been related to the Graeco-Macedonian settler class, but the realities and nuances of the court’s composition over time and its member’s ethnic identities remain impossible to know, and could very well have incorporated local elites.

A similar inner circle appears to have revolved around the Kushan kings, although the precise origins of this institution are unclear, whether Iranian, Hellenis-

⁹ For more on these administrative systems, see Morris, ch. 9, II, this volume.

¹⁰ Mann 1986, 1.

¹¹ For the *philoi* and their organization see von Reden, vol. 1, ch. 1, V, and for their economic activities within the Hellenistic world, see Fabian and Weaverdyck, ch. 3.A, III, this volume.

¹² Strootman 2011, 71.

tic, or ‘nomadic.’¹³ A contemporary impression of this institution is provided on a silver dish inscribed by order of a certain Nukunzuk. This narrates the events which led him to offer the dish to the god Oesho, including a short account of his career at court:

(At) the court(?) of the king of kings, [in] the year [one, Nana] gave the lordship to the king of kings, Kanishka the Kushan. I, Nukunzik, his father’s servant, was then *amboukao*. Then the son of the gods, on account of his own good[ness] and on account of my service—he established me (as) equal(?) with (his) father’s and with (his) grandfather’s servants, with the foremost (people).¹⁴

The account is neat and formulaic, and interpreting it too literally without more contextual information is hazardous. Nonetheless, it appears that the king was surrounded by a group of people understood as ‘servants’ (*marēgano*, cf. the *bandakā* of the Achaemenid king Darius I), a hierarchy existed between members, and mobility within the ranks was possible, contingent upon service and the king’s approval. Presumably, the potential to be raised to great heights provided an incentive which shaped behavior in this circle. We can only speculate how familial, political, or even ethnic affiliations may have shaped the potential for membership in this group. Most names mentioned in the relevant Bactrian inscriptions are Bactrian in origin, suggesting that local elites were co-opted into this institution, but this is not the case for Nukunzuk, the origin of whose name is not clear.¹⁵ With respect to receptions of so-called ‘seasonal capitals’ of the Kushan kings – i.e., supposed movement between Kapisa in the summer, Gandhāra for the autumn and spring, and India in the summer – it is very plausible that the Kushan court was peripatetic too.¹⁶

Nonetheless, generally, the ‘servants’ included people with the titles known from Kushan-period Bactrian language inscriptions (in increasing order of importance), the *amboukao*, (probably) *hasht-walg*, and *karalrang*, even if we do not know exactly what their main jobs were.¹⁷ For example, it is plausible that *karalrangs* had provincial governing roles incorporating both military and civic responsibilities (cf. the *strategos* in Hellenistic empires),¹⁸ but we only see *karalrangs* in the Kushan period helping to found royal temples and refresh (ritual?) infrastructure at Rabatak and Surkh Kotal in Bactria;¹⁹ the biased perspective of our surviving sources rears its head again.

¹³ Parallels can be found among the *philoī*, the *bandakā* of the Achaemenid king Darius I, and the *comitatus* among nomadic rulers. See Morris, vol. 1, ch. 2, 84–85.

¹⁴ Lines 1–2, trans. Sims-Williams 2015, 257.

¹⁵ Sims-Williams 2010, 96, §289.

¹⁶ Connections between any supposedly seasonal mobility of the court and ‘nomadic’ customs must be drawn with caution. See further discussion in Morris 2021, §3.5.1.

¹⁷ For the above, see Morris, vol. 1, ch. 2, 86–87.

¹⁸ See Morris, ch. 9, II.1, this volume.

¹⁹ Respectively Rabatak, lines 14–17, trans. Sims-Williams 2004 [2008]; Surkh Kotal 4 M, trans. Sims-Williams 2012b, 79.

Having clarified the broader roles of the imperial rulers of the Greek Kingdoms and the Kushan Empire and the inner circles at their disposal, as well as the similarities of these empires more broadly, I will now outline the range of economic activity undertaken by these imperial elite actors below.

II.1 Consumption

These imperial rulers and their inner circles must have commanded enormous consumptive capacity, although our appreciation of this remains partial because of the evidence available to us. A better conception of this capacity is rather captured through the proxy of large-scale resource distribution (such as building programs, see below) which implies mass accumulation of wealth. In principle, though, members of the upper imperial elite were able to obtain unusually valuable – often imported – goods. Certain goods from India and the Mediterranean were probably subject to particular demand throughout this period. Some of these were presumably used in ceremonial and feasting contexts, and there were probably elements of competition involved in their acquisition, display, and (perhaps) redistribution.

We have an image of more ‘pure’ consumption in palatial and court contexts under the Greek Kingdoms through the palace excavated at Ai Khanum, which was certainly the seat of the king and court of east Bactria under the Graeco-Bactrians when the inner circle was not on campaign. This was a monumental complex of over 7 ha in the core of the lower city, incorporating reception halls, an administrative section, a residential section, and a treasury. The architecture and incorporation of these functions not only reveals a strong debt to the Achaemenid palatial tradition,²⁰ but the entanglement of royal, private, administrative, and fiscal functions here probably also reiterates a conception of the kingdom as the monarch’s house (*oikos*) in the Hellenistic world.²¹ Presuming that certain items discovered in Ai Khanum’s treasury (which had survived the city’s looting post-abandonment) were intended for use in the palace, we can assume that consumption in this space included the accumulation and use of everything from imported prestige furniture (such as a throne inlaid with agate and rock crystal), art objects, incense, apparently precious foodstuffs like olive oil (presumably not a native product of Bactria) and cinnamon, to intellectual materials like philosophical and dramatic texts.²² The latter group recalls the capacity of royal courts to attract intellectual activity. Generally, the reality of the collection of rare and (for Bactria) exotic items for use in a court context has wider implications for how we conceive of the role of the king and court in influencing elite consumption behavior elsewhere, and both coordinating amplifying long-distance exchange (including booty) and trade (see below sec. II.4).

²⁰ See comments in Martinez-Sève, 2014, 279–281.

²¹ See Fabian and Weaverdyck, ch. 3.A, III.2, this volume.

²² Rapin 1992, 94–263.

Frustratingly, we lack comparable consumption contexts that can be definitively linked with the Kushan king and court. Here, we can somewhat generously interpret two significant if problematic examples for insights into taste and consumptive capacity among the royal court. First, if we take the standalone ‘royal pavilion’ at Khalchaian not as a ‘palace’ proper but a monument of the early Kushan Empire to host receptions and ceremonies (such as feasts) or conduct ancestor worship,²³ finds of fragments of (presumably) Chinese silk and Roman glass in one of the edifice’s storerooms²⁴ most likely reflect the expanding transregional reach and scope of courtly consumption. As above, however, even better proxy evidence for consumptive capacity here is found in the program of clay figural sculpture and rich mural decorations adorning this interior of this edifice.²⁵

Similarly, even though the function of the structure that the Begram hoard was deposited in remains ambiguous, it is not impossible that items similar to the luxury imported foreign goods within this assemblage – such as the almost 200 glass vessels produced in the Roman Mediterranean, Chinese lacquerwares, or several ivory chairs and footstools produced in India – may have once been used by the itinerant court within the framework of receptions or feasts during seasonal stays in Kapisa. If there was ever a palace proper at the citadel (where one might expect it, although this would likely be the seat of the local governor), such a building has not been detected.²⁶ For a putatively mobile imperial court, one cannot *a priori* rule out the use of impermanent structures like tents.²⁷ Both Khalchaian and Begram may, however, reflect rather the tastes and consumptive capacity of local elites in this period. Nonetheless, I have argued elsewhere that the prevalence of objects produced in the Roman Mediterranean at Begram demonstrate a strong, local, and historically and culturally contingent pattern of demand, rather than aimless distribution or availability of imported ‘exotica.’ This demand was most likely informed by connections drawn by local beholders between this material with prestigious conceptions of Hellenistic visual and material culture, the latter determined by the social memory of Greek rule in this space.²⁸

23 The debate is summarized in Lo Muzio 2017, 127–130.

24 Pugachenkova 1966, 53–54.

25 See Pugachenkova 1971.

26 See Morris 2021, §3.5.1, §5.3.

27 At the risk of drawing too many lines between incompletely understood bodies of evidence, one can note that the backdrop of one of the wall hangings found more recently in a Xiongnu tomb at Noyon-uul (Tomb no. 31, Polos'mak 2015, figs. 26–27), which were most likely made in Bactria in the first century CE, shows a ceremony taking place in an idyllic exterior setting. For further on these hangings, see below sec. VII.2.

28 Morris 2020. See further discussion on new patterns of demand in this period in Morris, ch. 13, V.2.1, this volume.

II.2 Extraction

Even if we lack comprehensive insight into the forms and capacity of resource extraction performed by these upper imperial elites, we can presume it was substantial. As noted with respect to consumption above, this capacity is best seen through the proxy of resource distribution. Nonetheless, taxes, tribute, and rents extracted principally (but not exclusively) from surplus agricultural production probably constituted the most important forms of regular revenue extraction in Bactria and Gandhāra that sustained the king and his court. This was probably supplemented with substantial (if irregular) extraction of booty through military campaigns, and perhaps also tribute. The evidence we have for the fiscal regimes utilized by these empires is outlined in more detail elsewhere in this volume,²⁹ and below I further consider the specific roles of the king, his inner circle, and imperial officials in resource extraction.

Generally, imperial extractive power throughout this period was probably predicated on three key factors. First, drawing on conceptions of sovereignty and land ownership in comparative environments,³⁰ it is plausible that land in general (whether royally or privately held) was broadly understood to belong to the king by virtue of military conquest, and this provided the ideological basis for his claim on tax and tribute extraction. Second, these extractive processes were facilitated by the threat of violence (or at least some penalty) in the case of noncompliance. Finally, the collection of taxes and rents in practice required the collaboration of a range of middlemen from imperial officials to local elites, the latter being particularly important in marginal environments.³¹

The realities of land ownership and property rights (especially vis-à-vis extraction) on the ground are simply unclear. Among the upper imperial elites, rulers under the Greek Kingdoms and the Kushan Empire probably directly owned some land (i.e., *basilike chora* in the Hellenistic period), as well as members of the king's inner circle, like *satraps* in the Hellenistic period, and *karalrangs* in the Kushan period.³² Presumably such estates could be more directly managed and worked by hired laborers, or leased to tenants, from which the owners extracted rent in coin or in kind.

²⁹ Morris, ch. 9, II, this volume.

³⁰ On land ownership and property rights in the Hellenistic and Roman worlds, see comments throughout Fabian and Weaverdyck, ch. 3.A, and Weaverdyck and Fabian, ch. 8.A, V.3.1, this volume. On early historic India, see the discussion on Megasthenes's account in Daffinà 2017, 563, and on the private ownership of land, Dwivedi, ch. 14, II.1.1, this volume.

³¹ See King 2020 and below, sec. V.

³² One can suppose the latter from a fifth century CE Bactrian Document in which *kanarangs* are provided with grain “[assess]ed (to be given) ... from the far[ming] of (their) own (land)” (Document G, trans. Sims-Williams 2012a, 42), although the context of this and another document seem to imply a process of imperial tax extraction coordinated by members of the local ruling house (King 2020, 250) rather than rent extraction.

In general, the available evidence gives the impression that a more comprehensive administrative apparatus was developed under the Greek Kingdoms than the Kushan Empire. It is likely that the collaboration of local elites and incorporation of preexisting structures (especially in India) played an important role in facilitating extraction in both empires, but perhaps these became even more important strategies in the Kushan period.³³ One can imagine that upper imperial officials in extractive roles were able to both licitly and illicitly profit through their positions,³⁴ but we have no insight into this.

The contribution of booty and/or tribute extraction through military campaigns into Gangetic India to the royal finances of both empires was probably significant, if irregular. Although I discuss this in more detail later,³⁵ this impression is generally underpinned by textual sources recounting narratives or memories of grand campaigns into this region, particularly beyond Mathura, driven by renowned rulers of the Greek Kingdoms and the Kushans.³⁶ These accounts have provided interpretative difficulties for scholars attempting to square this information with the paucity of corroborating material evidence of an official imperial presence and thus assessing the maximum extent of both empires on the ground.³⁷ Although these questions should be the subject of future research, in my view the impetus for these campaigns can be explained not from the perspective of imperial integration through the establishment of a regular extractive administrative apparatus, but irregular revenue extraction in the form of booty or tribute. Indeed, there is some corroborating evidence for this relating to the Kushan period.³⁸ The picture remains characteristically hazy, but also taking into account Graeco-Roman conceptions of India's wealth and the luxury of its kings – such as those presented in the context of military expansion in Alexander's campaigns³⁹ – it is most probable that the possibility of irregular wealth extraction in India beyond Mathura was what drove expansionary

33 For the below, see Morris, ch. 9, II, this volume.

34 Compare Fabian and Weaverdyck, ch. 3.A, III.3, this volume.

35 See Morris, ch. 9, II.2, this volume.

36 For example, Strabo's summary account of the Greek Kingdoms mentions the extensive subjugations of peoples under Menander "at least if he actually crossed the Hypanis towards the east and advanced as far as the Imäus" and a certain Demetrius (Strabo 11. 1. 1, trans. Jones). Likewise, the Rabatak inscription provides an account of Kanishka's conquests of cities across Gangetic India, "whatever (cities) he and the other *generals *reached (he) submitted (them) to (his) will, and he submitted all India to (his) will" (Rabatak, lines 6–7, trans. Sims-Williams 2004 [2008], 56). Later Indic literary tradition appears to preserve a memory of a Yavana (here, Indo-Greek) campaign into Gangetic India, specifically Sāketa and Pāṭāliputra (*Yugapurāṇa*, 47–48, 56–57), and there is a wider tradition of narratives of foreign invasions (including those of Śakas) into India's northern plains. See further details and references in Morris, vol. 1, ch. 2, 68, n. 88.

37 Two recent examples include Bordeaux 2018, 40–42 and Bracey 2020, 133–134.

38 For this, see Morris, ch. 9, II.2, this volume.

39 See, e.g., Curtius Rufus (Curt.) 8. 5. 3–4; 8. 9. 18–19; 8. 9. 23–30; and further *topoi* in von Reden, vol. 1, ch. 10B.

military campaigns from Bactria there. Naturally, the success of these campaigns was predicated on the king's ability to mount and command an effective army.

Finally, we do not know whether the king was conceived to own certain resources like mines or commanded monopolies. The foundation of Ai Khanum near important mineral resources in Badakhshan, as well as alluvial gold, and the recovery of a mass deposit of unworked lapis lazuli in the palace treasury indicates that this is a possibility,⁴⁰ but the reality of the ideologies and forms of extraction at play can only elude us.

II.3 Distribution

As hinted above, imperial rulers and their inner circles played significant roles in redistributing the wealth they extracted in a number of ways. Some of these activities are more visible to us than others. Due to the prevalence of military activity in this period, we can have no doubt that spending on the army was considerable, although we lack most of the details about this picture, which will nevertheless be discussed further below (sec. III). Otherwise, gift-giving among the upper imperial elite – which played a significant role in Hellenistic courts⁴¹ – very likely occurred. Indeed, some coinage may have been minted in part to serve as a medium for the king's distribution of largesse, for example, in the wake of a successful military campaign. This function may have helped to drive the production of occasional gold issues of the Graeco-Bactrian kings – including the famous 20-stater gold coin of Eukratides I, the largest minted in antiquity – and the emergence of regular gold *dinar* production under Vima Kadphises.⁴² Kings and their courts also used the wealth they extracted to sponsor the production and acquisition of art and prestige goods, reflected in the finds from Ai Khanum, Khalchaian, and Begram, discussed above (sec. II.1). The finds of raw materials feasibly to be used for the production of prestige objects have been found stored in the remains of Ai Khanum's palace treasury, if without tools, meaning that this space likely did not serve as a craftsman's workshop itself.⁴³

More broadly, throughout the period under study, imperial elites are linked with the establishment of civic and religious building programs, as well as the construction of fortifications in Bactria and Gandhāra, ultimately developing both urban and sacred sites. We can view the motivations for expenditure in this form along related axes: benefaction (including *euergetism*) to improve political and ideological sup-

⁴⁰ Mairs 2014, 51 observes that the treasury appears to have served to manage limited valuable commodities, including those perhaps subject to official monopoly or other forms of state control. For the deposit of lapis, see Rapin 1992, 50.

⁴¹ See Fabian and Weaverdyck, ch. 3.A, III.4, this volume.

⁴² See discussion in Morris, ch. 9, II.3, this volume.

⁴³ See, in particular, room 104 in Rapin 1992, 48–50.

port, and spending to consolidate military power and economic resources. That being said, the role of *euergetism* proper (i.e., gift-giving to cities) in Hellenistic Bactria is less clear. Ai Khanum appears to be somewhat unusual in possibly representing a genuine *polis*, but even in this city, Bernard has noted the extreme paucity of inscribed public documents recording acts of *euergetism*, and suggested that the practice was not commonplace in Bactria, perhaps due to the small number of Greek colonists living in the region.⁴⁴

Nonetheless, although we tend to lack explicit (i.e., textual) evidence documenting royal sponsorship of building activity in the Hellenistic period, multiple examples for what can most likely be interpreted as such can be cited. For example, the monumentality of official and public buildings at Ai Khanum – including the main sanctuary of the temple with indented niches, the palace, and the theater and *gymnasion* – imply royal initiative and expenditure in their construction.⁴⁵ In particular, a significant building program appears to have been initiated by Eukratides.⁴⁶ Likewise, the Oxus Temple appears to have been a construction of royal Seleukid or Graeco-Bactrian initiative, as judged by the discovery of diademed portrait sculptures.⁴⁷ Additionally, royal involvement can plausibly be read into fortification construction even around smaller urban settlements like Barikot in the resource-rich Swat Valley, where a massive stone masonry city wall was built under Indo-Greek rule. This can be interpreted as part of a wider program of power consolidation in Gandhāra.⁴⁸

On the flipside, the involvement of Kushan kings and their upper imperial elites with the foundation and maintenance of *bagolangos* dedicated to the gods of the Kushan pantheon in Bactria is made clear from the inscriptions found at the temples of Rabatak and Surkh Kotal describing their activities, as well as the statues of kings (and perhaps members of their inner circles?) installed there.⁴⁹ Similar roles, including the installation of statues of kings, are evident with respect to the *devakula* at Māt near Mathura, if the nature of the cult at this site are unclear, but probably pointing to a Brahmanical context.⁵⁰ Some amount of upper imperial patronage also appears to have been directed at Buddhist monasteries in Mathura and Gandhāra, but the personal role of the king in these may not have been very active.⁵¹ Indeed,

⁴⁴ Bernard 2002, 92–93.

⁴⁵ See Martínez-Sève, 2014, 276.

⁴⁶ Martínez-Sève 2015, 38–39.

⁴⁷ Bernard 1987, 107–108; Martínez-Sève, 2010, 10–11.

⁴⁸ See most recently Olivieri 2020, 397–400, and further discussion in Morris, ch. 13, III.3, this volume.

⁴⁹ See generally Sims-Williams 2004 [2008]; 2012b; Schlumberger, Le Berre, and Fussman 1983, fig. 23.63.

⁵⁰ On the excavations at Māt, Rosenfield 1967, 140–142, and on the nature of the cult, Verardi 1983, 233–234.

⁵¹ This debate is entangled with larger problems of interpreting later Buddhist legends representing Kushan kings as significant patrons. The two most important contemporary examples of possi-

despite the longstanding reception of the Kushans as great supporters of Buddhism, it seems that the volume of resources redirected to Buddhist monasteries through royal benefaction – and especially the direct patronage of the king, if any – was not as significant as that provided by local elites in Mathura and Gandhāra (see further below, sec. IV.2). Instead, the limited upper imperial patronage of Buddhist monasteries under the Kushans is best interpreted as one component of a diverse religious policy enacted to distribute resources and diversify favor among the various powerful religious organizations found within the empire.

Resources could be redistributed in a number of other ways on the ground. Although (naturally) we know very little about the realities of settlement foundation under the Greek Kingdoms and the Kushans, judging from passing textual references to a Demetrias in Arachosia, a Eukratideia (Ai Khanum?), and a Kanishkapura (Puruṣapura/Peshawar),⁵² the rulers of the Greek Kingdoms and the Kushans also practiced settlement foundations. Comparably, under Alexander and the Seleukids in Central Asia this process involved either the establishment of a new settlement with a small community of (Greek) colonists, or refounding (i.e., renaming) a pre-existing settlement and installing colonists,⁵³ so perhaps the royal foundation of settlements under the Greek Kingdoms and the Kushans involved similar processes. Admittedly, however, the cases of Eukratideia and Kanishkapura rather suggest instances of symbolic name changes and perhaps the patronage of new building programs. Moreover, royal land (such as that attained by conquest) could perhaps have been redistributed through grants to temples, imperial elites, and soldiers (i.e., *kleroi* in the Hellenistic period).

II.4 Coordination

More broadly, we can look at imperial rulers and their inner circles as grand coordinators, with their activities having wider reaching impacts in respect to spreading court and consumption behavior, driving the wider use of coinage, and carving out elite networks of more intense connectivity across increasingly wide spaces.⁵⁴

ble royal patronage are the monasteries named in inscriptions after Kanishka at Shah-ji-ki-Dheri in Peshawar, and after Huvishka in Jamalpur, Mathura. However, the donors of the so-called ‘Kanishka casket’ (a reused incense container) deposited in the *stūpa* of the first monastery were two officials employed there (see *Catalog of Kharoṣṭhi Inscriptions* 145 in Baums and Glass 2002 [CKI] and translation in Baums 2012, 246, no. 45). Basu’s study of the Huvishka monastery (Basu 2006) likewise indicates that the key supporters of this monastery were monks, local administrators, and members of professional groups. Furthermore, the recent publication of a presumably illicitly excavated ledger document from a monastic context in Gandhāra reads the name Vima Kadphises, and alleges that this constitutes evidence for direct royal patronage (Allon 2019), but the role of the king’s name in this context remains unclear.

52 Respectively Isid. Char. *Stath. Parth* 19; Strabo 11. 11. 2; Ptolemy *Geographia* 6. 2. 8; CKI 145.

53 On city foundation and colonization under Hellenistic empires, see von Reden, vol 1, 33–39.

54 For further on intensifying connectivity in this period, Morris, ch. 13, V.1, this volume.

For one, the prestige associated with markers of Hellenism in court society appears to have impacted court behavior in Gandhāra in the transitional period, with imagery associated with the resulting aristocratic environment filtering into Gandhāran Buddhist art.⁵⁵ Likewise, the same status attached to objects broadly associated with Greekness is refracted in the continuing popularity of styles and motifs of Hellenistic origin in elite locally produced crafts and jewelry in the transitional period (see sec. V below).

In terms of coordinating economic behavior in everyday life, the most wide-reaching impact of these rulers was their prolific production of royal coinage bearing their names and titles.⁵⁶ Although the Seleukids are responsible for the introduction of a large-scale comprehensive coinage system in Bactria, the production of coinage continued to varying extents under the rulers of the Greek Kingdoms and the Kushan Empire, as well in the transitional period. Presumably, by demanding at least some taxes and tribute to be paid in coinage, these rulers put pressure on the taxpaying population to participate in market exchange to sell their primary and secondary products and thus convert them into coin. Although troughs and peaks in coin production and usage in the period under study can be detected, the general trend is a clear upwards trajectory culminating in the Kushan period. The expanding wider utility of these coinages within the context of intensifying transregional trade is also reflected in the circulation beyond imperial frontiers of both precious metal coinages, and (somewhat surprisingly) base metal coinages too.⁵⁷

Moreover under the Greek Kingdoms, elite political and economic networks were retained and cultivated with not only the wider Hellenistic world – illustrated, for example, by the finds of Alexander types, Attalid, and Seleukid issues among the coin hoards of Ai Khanum⁵⁸ – but also with India.⁵⁹ We see both deepening spheres of connection not only through the finds at the treasury of Ai Khanum, but moreover through diplomatic activity, attested by the remarkable Heliodoros pillar. Here, an ambassador called Heliodoros of Taxila – most likely a member of the court of the Indo-Greek king Antialkidas – erected a pillar in Vidisha (Madhya Pradesh) with two Prakrit inscriptions referencing his mission to a person who was either a local ruler or member of the Śunga dynasty.⁶⁰

Royal cultivation of even wider-reaching elite economic and political networks was seen in the Kushan period. By not only commanding rare prestige goods from across Eurasia, but also drawing on languages of power used by steppe elites, the Arsakids, Roman emperors, and Indian kings in the iconography of their coins, their

⁵⁵ Galli 2011.

⁵⁶ See further in Morris, ch. 9, II.3, this volume.

⁵⁷ See Morris, ch. 9, II.3, ch. 13, V.2.3, this volume.

⁵⁸ See Petitot-Biehler and Bernard 1975; Holt 1981.

⁵⁹ See the well-known reference to Indo-Greek coins of Apollodotus and Menander on the market of Barygaza in *Periplus Maris Erythraei* 47.

⁶⁰ See discussion in Mairs 2014, 117–133.

royal paraphernalia, the style of their dress and portrait sculptures, and their titulature, the Kushan kings positioned themselves as universal rulers with wide-reaching networks.⁶¹ Although the actuality of direct diplomatic contact with Rome remains fuzzy,⁶² entanglements with neighboring Arsakid elites, the Kangju (a nomadic confederacy controlling Chach and much of Sogdiana), kings of the Tarim Basin oasis states, and Han China were a reality. For example, an Arsakid or Parthian noble is depicted among the sculpted figures at Khalchaian,⁶³ and Chinese standard histories include references to a marriage alliance between the Kushans and Kangju, diplomatic missions and gifting to Han agents and the king of Kucha, and a rejected Kushan request for a marriage alliance through a Han princess.⁶⁴

III The Army

The Greek Kingdoms and the Kushan Empire – although not the sole possessors of armed forces in this period – were built on expansion by conquest and sustained by the resources they extracted from the regions under their control. Thus, the command of an effective army was critical in expanding and sustaining their extractive regimes, the latter function facilitated by both the threat of violence and the production of security.

That being said, we lack details on the composition and payment of these forces. In the Hellenistic period, we can presume the use of professional soldiers, mercenaries (including hired warbands drawn from mobile pastoralists), and troops levied from local populations when needed. Infantry and cavalry units existed, including the use of cataphracts, with war elephants available in India.⁶⁵ Moreover, the structure of Hellenistic fortifications in Bactria and Gandhāra imply the prevalence of siege warfare in this period, while the traditional art of war in Bactria was shaped by the predominance of cavalry, and a reversion to defenses oriented against this (i.e., thinner walls with loopholes) occurs after the Hellenistic period.⁶⁶

The organization of the pre-imperial ‘Yuezhi’ and Kushan army is still blurrier. Besides the probable use of war elephants,⁶⁷ the army probably consisted of a small standing force and troops levied when needed by local administrators, among which the role of the cavalry appears to have been crucially important. Nikonorov

⁶¹ On the Indic component see Verardi 1983, on Arsakid influences Sinisi 2017, on the nomadic element Grenet 2012, and the role of Roman models, Stark and Morris forthcoming.

⁶² See Morris, vol. 1, ch. 9, 385.

⁶³ On the identification of this figure, Olbrycht 2015, 349.

⁶⁴ For the relevant passages, see Morris, vol. 1, ch. 2, 78–80, 82.

⁶⁵ For an overview, see Nikonorov 1997, 38–49; Morris, vol. 1, ch. 2, 72–73.

⁶⁶ Francfort 1979.

⁶⁷ See further Morris, vol. 1, ch. 2, 86.

has speculated on the basis of Parthian and Sasanian models that the core of the army developed a professional order of horsemen comprised of heavy-armed cataphracts drawn from petty nobles, and light-armored mounted archers.⁶⁸ The existence of a heavy-armored military elite with high social status in Kushan-era Bactria and Gandhāra is borne out by their depictions in art and physical finds of coat scales.⁶⁹ Chinese standard histories replicate information about the ‘Yuezhi’ through the Kushan period: that they possessed 100,000 persons bearing arms.⁷⁰ Although this number – undoubtedly stylized – gives the impression of levied rather than professional troops, the reality is probably somewhere in between: some component of the soldiers called up to war in Bactria probably practiced mobile pastoralist lifeways with horses among their livestock, and had become trained in archery through activities like hunting.⁷¹ The use of mercenaries, especially mobile pastoralists recruited from beyond the northern imperial frontier, is also plausible.

In general, besides facilitating military conquests, standing forces and mercenaries probably populated the garrisons of fortified towns and fortresses, providing security – also from potential raids on settlements and travelers – and helping to ensure the extraction of taxes and tribute by local administrators and to suppress revolts through the threat of violence. In the following I outline the some of the roles of the army in both consumption and distribution.

As noted above, state spending to feed, transport, and pay soldiers must have been considerable, but we have virtually no real insight into the scale of this expense or the processes involved. Nonetheless, it is highly probable that one force behind silver coinage production in this period was the necessity of paying professional soldiers and mercenaries.⁷² Indeed, textual evidence reiterates this function of coinage: an unprovenanced parchment drawn up in Amphipolis during the reign of Antimachos I is a contract between a member of a group of foreign mercenaries (*xenoi*)

68 However, he suggests that this order must have been composed of descendants of the Yuezhi; see Nikonorov 1997, 51. For more on the Arsakid army, see Fabian, vol. 1, ch. 6, III.2, and Fabian, ch. 12.B, II, this volume.

69 See for example a wall painting depicting a cataphract in the elite house DT-5 at Dal’verzintepė Pugachenkova and Rtveladze 1978, pl. IV, and Olivieri 2011 for finds of coat scales and depictions in Gandhāran art.

70 Respectively 100,000 or 200,000 archer warriors in the *Shiji* 123.3161, presented in the context of a report on the nomadic lifeways of the Yuezhi, see trans. Watson 1993, 267. Later sources add the information that the Yuezhi (here, Kushans) possessed 100,000 households, 400,000 individuals, and 100,000 able to bear arms in *Hanshu* 96.A3890, and *Hou Hanshu* 88.2920.

71 Here one can recall the discussion of Xiongnu lifeways in the *Shiji*, for which see e.g., Kradin 2011, 83–84. See also the engraved ivory belt plaques found at the Oxus Temple depicting a hunting scene with mounted archers in a Bactrian setting, perhaps dating between the first century BCE – first century CE, and discussed in Olbrycht 2015, 337–338.

72 See further discussion in Morris, ch. 9, II.3, this volume. On debates as to the link between coin production and military expenditure in the Hellenistic and Roman world see Weaverdyck and Fabian, ch. 8.A, III.2, this volume.

and the leader or representative group of forty “Scythians” (i.e., a mobile warband, perhaps based in Sogdiana or further afield) with respect to the payment of 100 *drachms* of coined silver.⁷³ We can only speculate whether granted allotments of land (i.e., *kleroi* in the Hellenistic period) may have formed some part of compensation for professional soldiers.

The army likely played an important role in distributing resources and spreading coin-using behaviors. In particular, Hellenistic military garrisons positioned in border regions of Bactria (like Uzundara fortress) and along important routes of movement and crossing points (such as Kampyrtepa on the Oxus), were staffed with soldiers who were not producers and apparently relied on exchange with local populations to obtain craft products and perhaps some proportion of their food. At Uzundara fortress – a Hellenistic-period site located in a system of fortifications along the Hissar range⁷⁴ dividing northern Bactria from most of Sogdiana (not a coin-using region in this period) – numerous bronze Graeco-Bactrian coins in very small denominations were found clustered around the fortress’s entrance to the east. Not only does this indicate the frequent use of money at this site, but the possibility that the fortress gate was the location of a trading or commercial area to which local producers could bring food and craft products to be exchanged with soldiers for coinage, which they could then use to pay taxes.⁷⁵ Thus, such fortresses probably did not simply serve surveillance purposes, but attracted periodic markets, and could have also functioned as parts of state administrative networks, facilitating the collection of tax and tribute and its onwards transport to royal treasuries.⁷⁶

The use of mercenaries in Bactria drawn from neighboring mobile pastoralist populations in Sogdiana also likely helped to forge deeper economic networks between the two regions. Observing the importation and imitation of certain artifacts and Graeco-Bactrian coins from Hellenistic Bactria to Sogdiana between the third and second centuries BCE, Stark has suggested the possibility that the appearance of these material phenomena may be connected with mobile mercenary warbands.⁷⁷ It is plausible that such relationships eventually contributed to the gradual monetization of pockets of Sogdiana, where (for example), the minting of local coinage in the neighboring Nakhshab oasis began in the first century CE.⁷⁸

IV Religious Organizations

In Bactria and Gandhāra during the Hellenistic and Kushan periods, a diversity of cults and religions were current, entailing the worship of a range of Bactrian-

⁷³ Clarysse and Thompson 2007, 275–277. See also Mairs 2014, 150.

⁷⁴ See further on this region in ch. 7, IV, this volume.

⁷⁵ See N. D. Dvurechenskaia 2018, 175.

⁷⁶ See further in Morris, ch. 13, III.3, V.2.2, this volume.

⁷⁷ Stark 2016, 139–143.

⁷⁸ Naymark 2016.

Iranian, Greek, and Indic deities. With these religions came two main forms of organization: the group of people attracted to the physical locus of the temple and attached sanctuaries, essentially constituting priests, temple staff, and worshippers, and the *saṃgha* (Skt.), a term which refers to the community of monastic and lay practitioners of Buddhism. The key physical locus of the Buddhist *saṃgha*'s activity were monasteries and their attached objects of worship – more specifically, these included monastic dwellings (*vihāra*) and monastic complexes (*saṃghārāma*).

To radically generalize, these different religious organizations undertook and facilitated a range of economic activity, not least by constituting important ideological loci for elite patronage and donations in exchange for religious services, spiritual merit and/or political prestige, but also as facilitators of agricultural production, redistributors of resources, and aggregators of immense wealth through various means.

Yet, despite the important roles temples must have played in Bactria in particular, evidence for the economic activities taking place around these organizations is very limited. Comparatively, the activities of the *saṃgha* in Buddhist monasteries in Gandhāra, Mathura, and Bactria too are far better represented through a range of textual and material sources. Although the resulting high visibility of these organizations to us means that there is a serious danger of overstating their impact in a number of realms – not least in imperial political contexts or in Bactrian society more broadly – Buddhist monasteries nonetheless became significant economic actors along a number of axes in this period, and will be considered separately below (sec. IV.2).

IV.1 Temples in Bactria

In Bactria during the period under study, the most important locus of the worship of Bactrian-Iranian and Greek gods were temples, some of which housed cult images.⁷⁹ Temples had irregular major expenses in the forms of construction work, more regular expenses in the purchase of goods toward the temple's operation and maintenance, and may have had staff to pay and feed. Their revenue was derived from offerings, provision of religious services, and perhaps rent extracted from land ownership. As it is not clear whether the divergent institutional norms of the cults of each of these temples incited similar kinds of economic activity, I consider some examples separately, case by case, below.

An example which speaks to some of these points can be drawn from one of the most intensely studied temples in this region – that dedicated to the god of

⁷⁹ Notably, Zoroastrian fire-temples proper (or installations of fire-chambers) are thus far attested only in the Achaemenid and later Kushano-Sasanian/Sasanian periods in Central Asia, see Grenet 2015b, 139–140.

the river Oxus (Oakhšo), at the site of Takht-i Sangin. This temple was particularly significant in the Hellenistic period and, as mentioned above, it was perhaps constructed on royal initiative and moreover intended to replace a hypothetical razed temple of the Achaemenid period nearby at Takht-i Kuwad where the famed Oxus treasure was reportedly found, replete with gold ex-votos of the Achaemenid period.⁸⁰ Worshippers – including many pilgrims – came to give offerings at the temple, were provided with religious services by the cult's personnel, and would have seen the portrait sculptures of the temple's royal patrons.

Continuing research indicates that the rituals performed at the Oxus derived from both Greek and local practices, including the dedication of coins, jewelry, furniture, instruments, devices, weapons and armor elements.⁸¹ Further evidence appears to testify to the ritual removal of old dedications in gold, silver, bronze, and lead to be recycled in order to create new offerings or cult instruments (complete with evidence for in situ bronze casting), supported by the transmission of knowledge of depositions between cult personnel over centuries.⁸²

Although we know nothing about the temple's other potential revenue streams and its financial management, the value of the votive offerings it accumulated may well have been enormous. This can be supposed on the basis of the similarity between the contents of the famous Oxus treasure (mentioned above) and the mysterious Mir Zakah I and II treasure found far to the south in Afghanistan's modern Paktia province, especially in terms of their gold votive plaques.⁸³ The latter deposit reportedly contained half a million silver, copper, and gold coins, and around 350 kg gold and silver objects, including statuettes, plate, jewelry, and votive plaques spanning from the Achaemenid to Kushan periods, before it was illicitly excavated and spirited away onto the antiquities market.⁸⁴ Whatever its true scale, clearly this deposit represented immense wealth. The interpretation of the nature of the deposits is more difficult; Mir Zakah I and II may have included the contents of one or more erstwhile temple treasuries removed from Bactria in anticipation of an invasion, but the circumstances of the deposition at the spring at Mir Zakah remains an open question.⁸⁵ Although, in principle, looting the treasuries of temples of conquered lands remained a perennial option for rulers,⁸⁶ whether such temples were voluntarily in the business of providing banking functions or their monetary resources as credit on interest – for example, to the state in times of crisis⁸⁷ – is unclear.

80 Martinez-Sève, 2010, 11.

81 Lindström 2016, 288–291.

82 Drujinina and Lindström 2013, 182–183; Lindström 2016, 305–306.

83 See discussion in Grenet 2008 [2012], 39.

84 See Boppearachchi and Flandrin 2005, 155. The Miho Museum acquired a portion of this hoard, where it was represented as having been discovered in Bactria, see Miho Museum 2002.

85 Morris forthcoming.

86 Compare, for example, the minting of the gold and silver kept in the temple of Aine (Anahita?) in Ecbatana under the Seleukid king Antiochos III discussed in Coloru forthcoming.

87 See further in Fabian and Weaverdyck, ch. 3.A, V.2., this volume.

The main urban sanctuary of Ai Khanum – the monumental temple with indented niches – reiterates the primacy of temples as a locus for royal benefactions and expressions of power in the Hellenistic period. The cult practiced there was apparently syncretic, including a cult statue of Zeus (patron of the Diodotids) and worship of non-Greek divinities, and likely accommodated royal cult too.⁸⁸ Moreover, staff of the temple apparently accumulated and processed grain on a large scale, judging from the finds of storage jars with a minimum capacity of 7000 kg (the largest such capacity found in the city) and nine Olynthus millstones.⁸⁹ This evidence could be interpreted in a number of ways – perhaps it was rent extracted in kind from temple-owned lands (e.g., in the city’s hinterland?) and processed as rations for its staff or sale on the city’s market – but it least it demonstrates that temples could be important loci for accumulation and distribution of agricultural produce. Another glimpse into the intersection between royal and temple finances is found in the Asangorna tax receipt, which cryptically reveals some kind of relationship between financial officials of the royal administration and the affairs of a sanctuary (perhaps relating to sacrificial animals),⁹⁰ seemingly implying that tax revenue could be redirected to temples.

The significance of temples as a locus for elite expenditure seems to only increase in the Kushan period with the establishment of monumental temples – for example at the sites of Surkh Kotal and Rabatak, mentioned above – apparently dedicated to cults of the gods of the Kushan pantheon, and fitted with portrait sculptures of the king and perhaps his inner circle. The gods worshipped at these temple were of Bactrian-Iranian and Zoroastrian origin, including Oanindo or Wesh at Surkh Kotal, and Nana and Umma at Rabatak.⁹¹ The Rabatak inscription explicitly mentions the foundation of the temple being facilitated by Kanishka’s inner circle (see above), as well as the king’s endowments to the temple three years after its foundation, including rites (tentatively translated) and attendants.⁹² Two inscribed silver dishes demonstrate also that silver was dedicated to such temples; one case is that of Nukunzuk reporting his dedication of some of Kanishka’s spoils from his invasion of cities of Gangetic India at the temple of Wesh,⁹³ and an example of the Kushano-Sasanian period (ca. 254–266 CE, likely indicative of earlier practice), where the son of a *satrap* (Friy-gul) dedicates a silver plate of 109 *stater*s and 12 *dāng* to the god Mana. Importantly, as this inscription also refers to other products entailing the income of the god (i.e., the temple), including the harvest/profit/taxes of a vineyard and a *gramano* [unclear in meaning],⁹⁴ it seems to imply the existence of temple-owned land and a role of temples in generating agricultural surplus.

⁸⁸ Martinez-Sève, 2010, 12–18.

⁸⁹ Discussed in Francfort 2013a, 177–178.

⁹⁰ Bernard and Rapin 1994, 270, 285–286; Rea, Senior, and Hollis 1994, 267.

⁹¹ See Grenet 2015a, 209–210, 226–229.

⁹² Rabatak lines 20–22, in Sims-Williams 2004 [2008].

⁹³ Sims-Williams 2015.

⁹⁴ Sims-Williams 2009 [2013], 193–195.

IV.2 Buddhist Monasteries

Buddhism spread from the middle Gangetic valley to Gandhāra by at least the mid second century BCE, where it was established as a major religion. From here, in around the first century CE, Buddhism began to be transmitted across the Hindu Kush into Bactria, as well as east through the Tarim Basin and into China. The spread of Buddhism into these new spaces necessitated the establishment of new monasteries.

Generally, Buddhist monasteries in this period were often located in the vicinities of settlements (particularly within walking distance) from which they drew part of their patronage base. Urban centers like Taxila (Gandhāra) and Old Termez (Bactria) attracted the establishment of a number of monasteries in their suburbs. Monasteries included the residences of monks and nuns⁹⁵ and were attached to sacred areas with objects of worship, primarily *stūpas* (hemispherical structures containing relics), shrines, and also – from around the mid second century CE – images of Buddhas and Bodhisattvas.⁹⁶

New monasteries were principally created through donations. Deposits of relics and accompanying ritual offerings in reliquaries formed the core of newly built *stūpas* and attached residences. Sacred areas were also often richly decorated with art – see, for example, the ubiquitous stone relief sculptures in Gandhāra, but also (depending on time and region) stucco sculpture and wall paintings⁹⁷ – which could depict episodes in the life of the Buddha and *jātaka* stories, various ritual scenes, gods attached to the realm of Buddhism, and sometimes important donors. Donations by lay worshippers and monastics helped to facilitate the carving and installation of these sculptures, and moreover maintain the daily needs of these institutions by providing food, clothing, shelter and medicine. Donations – particularly of relics – were often recorded in inscriptions which can inform us about when and where the donation was made, who the donor was, the rituals involved, and to whom the religious merit in this pious act should be given, such as members of the donor's family, all sentient beings, and the king.⁹⁸

Through donations, monasteries could acquire massive corporate property (*sāṃghika*) and wealth. Broadly speaking, the centrality of donations to monasteries and the growth of populations of monks – who were usually not producers in a traditional sense – through the accelerating establishment of new monasteries in this period implies substantial surplus production from Buddhist donor bases. More specifically, Fussman stresses that the key patrons in this process were not imperial

⁹⁵ Although, interestingly, nuns are virtually absent in the epigraphic record of Gandhāra. See Albery 2021, 415.

⁹⁶ Particularly with the emergence of Mahāyāna beliefs at that time.

⁹⁷ For further on 'Gandhāran art,' see Zwalf 1996, 11–19.

⁹⁸ For editions of donations made in the Gāndhārī language, consult the database in Baums and Glass 2002.

rulers like Kushan kings, but local elites who primarily drew their wealth from land ownership (discussed further below).⁹⁹

Yet, monasteries were not just consumers of surplus goods and ‘producers’ of religious services. Particularly in Mathura and Gandhāra in the period under study, Buddhist monasteries came to play other increasingly important roles in local and transregional economies. Despite the conception of Buddhism as a renouncer religion within which monks and nuns were not allowed to directly participate in economic activity, the reality was more complicated. At the turn of the Common Era, the *saṃgha* in Gandhāra and Mathura was already divided among several different sects (*nikāya*) which could diverge in respect to belief, practices, and their codified rules of discipline (*vinaya*). Importantly, despite school-level divergences in these institutional rules, there was a broader tendency to make many ‘legal’ allowances for a range of economic activities within these texts. The problem is that although many *vinaya* texts are extant today, they are compilations of information produced in different periods and are difficult to use as historical sources to determine the reality and dynamics of monastic activity throughout the time and space examined here.¹⁰⁰ One better case is that of the *Mūlasarvāstivāda-vinaya* in particular – i.e., the rules of discipline of the *Mūlasarvāstivāda* sect – which was perhaps written and redacted between the second and seventh centuries CE, and is thought to be connected with the northwest of the subcontinent, including Gandhāra, Mathura and Kashmir.¹⁰¹

Schopen’s work has drawn particularly on this *Mūlasarvāstivāda-vinaya* but also others to elucidate the range of economic activities that monks and monasteries were potentially allowed – and even ideologically encouraged – to undertake in this period. According to these normative texts, monks could own and inherit certain kinds of property, could accept money and precious materials, could pay for food, medicine and healing rituals, and they could borrow money from laymen as well as lend money on interest. They could also hire laborers, were expected to pay tolls and could transport goods subject to customs duties, and could use various financial instruments like permanent endowments and negotiable securities. Moreover, monasteries could own and acquire (also through donations) productive assets like agricultural land which could be leased out to tenants in sharecropping arrangements.¹⁰²

Although it is perhaps safest to see this list as a set of *potential* activities, continuing archaeological research and the discovery of documentary texts are fleshing

⁹⁹ Fussman 2015.

¹⁰⁰ Note the recent identification of two fragments of *vinaya* texts written in Gāndhārī on birch bark in the Buner manuscript collection, which strongly cohere with known extant texts of other schools, in Strauch 2008, 22–23 reiterating the contemporary physical circulation of such codes in this frontier region.

¹⁰¹ Schopen 1999, 294–298; 2004d, 2. See also the discussion of the Pali *Theravada-vinaya* as illuminating aspects of early Buddhism in India in von Hinüber 2006.

¹⁰² See generally Schopen 2004d, 14–15; 2004b; 2004c and other papers in Schopen 2004a as well as more recently Schopen 2019.

out some of their realities in Gandhāra and its vicinity from around the first century CE onwards. For example, archaeological data from the Swat Valley – and especially the spatial distribution of monasteries – indicates a key role played by monastic participation in agricultural production through water management and probable landownership.¹⁰³ Rescue excavations at Mes Aynak (Logar province, south of Kabul) – if predominantly revealing remains relating to the third century CE onwards – show the development of what appears to be a mining settlement associated with an enormous copper deposit perhaps already from the Achaemenid period.¹⁰⁴ This site came to be fortified and host numerous rich Buddhist monasteries that were linked in a hitherto unclear way with the exploitation of this source.¹⁰⁵ Additionally, a recently discovered Gāndhārī manuscript from a monastery in Bajaur represents a contract negotiating the repayment of a loan apparently made between two lay-people, but implying the provision of legal services by monastics.¹⁰⁶ This squares well with findings from a more distant but comparative corpus of third-fourth century CE documents found primarily at Niya (the ancient region of Caḍota) in the Tarim Basin. These documents were written in Prakrit in the Kharoṣṭhī script – a clear factor indicating some kind of link with peoples and practices in Gandhāra¹⁰⁷ – and show some cases in which monks provided scribal services for secular authorities.¹⁰⁸ Moreover, these documents demonstrate cases in which monks could own individual property, get married, make loans, buy and sell land, own and trade in slaves, or participate in secular legal courts and act as witnesses. Moreover, communities of monks could examine and settle legal disputes, or act as witnesses to land sales.¹⁰⁹

Buddhist monasteries and the *saṃgha* more generally also played important roles in carving out and intensifying networks of transregional mobility. Important objects of worship attracted pilgrims, and famous teachers and schools could draw students from wide areas. The establishment of monasteries in new areas like Bactria – although they were extremely limited in number in comparison to Gandhāra – also attracted monks from India and its northwestern frontiers. This point is made clear from the prevalence of the Gāndhārī language and Indic names in the epigraphic corpus of the monasteries Fayaz Tepe and Kara Tepe (founded ca. mid-first century CE) in the vicinity of the city at Old Termez.¹¹⁰

103 See Olivieri and Vidale 2006, 129–138; Olivieri forthcoming.

104 For evidence from the Achaemenid period, Noori, Olivieri, and Iori 2019, 107–109.

105 For further details, Marquis 2016; Eley, Marquis, and Noori 2016 [2019].

106 Discussed further with references in Morris, ch. 9, III.2, this volume.

107 See Morris, ch. 13, II, this volume.

108 Hansen 2004, 295.

109 On the role of Buddhist monks and the monastic community in this region, Atwood 1991, 173–175; Hansen 2004, 293–395.

110 The corpus is dominated by pots labelled as donations to the monastery or the personal property of certain monks, but also covers the lives of these establishments, spanning respectively ca.

It is also possible to consider Buddhist monasteries as playing a role in driving some forms of local production, as well as facilitating trade and communication outside of the monastic community proper. An apparently slightly later (Kushano-Sasanian period) kiln found near to the monastery Kara Tepe may have been built to supply the needs of the monastic community specifically and worked at by specialized itinerant potters.¹¹¹ Monasteries could perhaps also provide accommodation to traveling merchants, and there is some evidence that *stūpas* could act as a locus of temporary markets during religious festivals.¹¹² More nebulously, it is sometimes even posited that particular aspects of Buddhist ritual practice even drove long-distance trade, for example in facilitating the supply of *saptaratna* ('seven jewels') to Buddhist devotees for donative purposes.¹¹³

V Local Elites

During the period of study, a variety of elites existed in Bactria and Gandhāra, who possessed locally significant power that was not predicated on the existence of imperial suzerainty in the regions. As such, they tend to be particularly visible to us in the transitional periods, within which a number of important developments occurred with the help of their agency, not least including the explosion of Buddhism's popularity in Gandhāra. In some ways, their economic activities were similar to those discussed above under imperial rulers and their inner circles – simply writ small. However, the collaboration of local elites with the imperial elite (especially its upper administrative apparatus) was likely critical in the producing networks of extensive if indirect power which allowed the Greek Kingdoms and the Kushan Empire to function, especially in respect to revenue extraction. In the following, I describe some of these different groups of these local elites and their specific activities.

V.1 Aristocrats, Dynasts, and Kings

A core type of local elites were members of landowning aristocracies, with their patrimonial bases often structured along fertile river valleys. Such patrimonial elites could act as local rulers as well as collaborate with imperial powers for their own

the first to fourth centuries CE and ca. first to (perhaps) seventh centuries CE. For the inscriptions and dates, see Fussman, Annaev, and Fussman 2011.

¹¹¹ See Tsantini et al. 2016. The authors suggest the possibility that the kiln may have also supplied the nearby monastery Fayaz Tepe and the urban center of Old Termez itself.

¹¹² Pagel 2007.

¹¹³ Liu 1988, 114–115, 175.

benefit. Especially in reference to the lack of evidence for an expansive administrative apparatus in the Kushan period below upper imperial levels, such local aristocrats and dynasts probably played critical roles in extracting imperial taxes in cash and in kind from the territories under their purview (then passed along to imperial storehouses), and coordinated the levy of troops or manpower when needed. Precisely such functions for a succession of different empires are attested just slightly after the Kushan period among the Bactrian Documents (collectively contracts, receipts, letters, tally sticks), i.e., from the early fourth to the eighth century CE, where they were performed by the *khar* of Rōb – a local dynast ruling from a mountain valley in the northern Hindu Kush – and his relatives.¹¹⁴ As the Bactrian Documents show immense continuity in their contents over time, and seem to emerge out of nowhere as a developed documentary tradition featuring (for example) highly formulaic legal language replicated in a range of different contracts, the earlier part of this corpus of documents can almost certainly shed light on practices of the Kushan period (and are analyzed as such in this volume), and moreover imply that it is probably a matter of time before a similar Kushan-period archive is uncovered.¹¹⁵

Similar roles can probably be read into the two key lineages of local dynasts in the late first century BCE to the first century CE: the earlier house of Apraca, perhaps ruling in Bajaur district, and the slightly later house of Oḍi, which ruled in the Swat Valley. They emerged in the context of the transitional period (ca. 65 BCE–60 CE) which was a dynamic period of intense political competition in the region, among which foreign Indo-Scythian kings (i.e., the lines of Maues and Azes) and Indo-Parthian kings (the line of Gondophares) emerged as preeminent. Like the Indo-Scythians and Indo-Parthians, as well as many other minor rulers in this transitional period, the Apracas also minted coins;¹¹⁶ they and the Oḍi house are especially visible to us through their donative inscriptions as prodigious founders of Buddhist monasteries. As mentioned above (sec. IV.2), the donations of such local elites not only demonstrate that they commanded and expended substantial surplus resources, but were critical for the growth of Buddhism within and beyond Gandhāra in the period under study. Additionally, one such donative inscription of Seṇavarma of the Oḍi house refers to the authority of the Kushan king Kujula Kadphises,¹¹⁷ highlighting the position of such local dynasts as “‘all-weather’ *clientes* of the foreign kings (whether they are Greek, Saka, or Kushans).”¹¹⁸ As in Bactria, such local

114 On the Bactrian documents, consult editions and translations in Sims-Williams 2012a; 2007, with most recent comments on their use as a historical source in Sims-Williams 2020. For an analysis of the role of local elites as powerbrokers in these documents, see King 2020.

115 Ideally in the framework of controlled scientific excavations, without the involvement of the antiquities market.

116 See Senior 2001, Nos. 175–185.

117 *CKI* 249, edition and trans. Baums 2012, no. 24.

118 Olivieri 2020, 409.

dynasts were far better situated to coordinate state extraction of resources than newly installed royal or imperial agents.

V.2 Urban and Mobile Elites

The period under examination appears to have seen the emergence of more elites in urban contexts who developed new capacities for consumption. This is already seen by the construction of mansions at Ai Khanum, if representing a small elite population probably related to the Graeco-Macedonian settler class,¹¹⁹ and then later in settlements like Taxila-Sirkap and Dal'verzintepe, which more likely represent the residences of elites more integrated into local society. The consumption capacities of elites in houses of the latter two sites are indicated by deposits of hoards there; see, for example, the numerous jewelry hoards from the Indo-Scythian/Indo-Parthian phases at Taxila-Sirkap¹²⁰ and the gold jewelry and ingots in the ca. second century CE hoard in house DT-5 at Dal'verinztepe.¹²¹ If the Begram hoard is not evidence of specifically royal patterns and capacities of consumption (discussed above under sec. II.1), it is evidence for those of local urban elites instead.

The wealth of such elites may have come from a range of sources: land ownership (including rents derived therefrom), employment by the state as officials or members of the military elite, coordination of craft production,¹²² and participation in trade. The latter impression is cemented by the discovery of the Greek acrostic funerary epigram of a certain Sophytos, said to have been found in Kandahar (Ara-chosia), and perhaps dating to the second or first century BCE.¹²³ This epigram, carved on a 62 × 62 cm square of white limestone, is a monument narrating how Sophytos rebuilt his destroyed ancestral house: by using money borrowed on interest to become a successful merchant. Clearly, merchants could be members of the elite, and will be discussed further below (under sec. VIII).

As hinted above with respect to imperial rulers as coordinators of consumption patterns (sec. II.4), both sedentary and mobile local elites across Bactria and Gandhāra also fashioned themselves with objects that drew in part on styles and motifs of Hellenistic origins and were clearly associated with prestige. Among many examples, these included dolphin-amphora style earrings which are found in regionally different versions in the rich houses of Taxila-Sirkap, as many surface finds at Begram and its hinterland, and among the tombs of local elites associated with mobile pastoral lifeways in Bactria.¹²⁴

119 See Lecuyot 2013.

120 Marshall 1951, 147, 159–160, 155–157, 180, 180–181, 186, 187, 188–189.

121 Pugachenkova and Rtveladze 1978, 35.

122 See the discussion of finds in Block D' House 4 at Taxila-Sirkap below under sec. VII.2

123 First edition and translation in Bernard, Pinault, and Rougemont 2004, 227–332. On the later date, see recently Lougovaya 2016.

124 See Belaňová 2016; Rubinson 2019.

That being said, certain mobile pastoralist elites in Bactria also appear to have maintained social networks stretching across the Eurasian steppe, reflected in their modes of burial, as well as the types and styles of objects they were buried with. An emblematic group in this period is represented by the six graves of Tillya Tepe, located in the Sheberghan oasis in western Bactria (i.e., at the frontiers of areas under Kushan and Arsakid control) and probably dating to the latter half of the first century CE.¹²⁵ Grave goods included, for example, Chinese mirrors, Roman glass unguentaria, and gold Parthian and Roman coins. Moreover, the styles of the burial rituals and rich personal effects, jewelry and sewn-on clothing appliquéés – dominated by goldwork inlaid with precious stones (particularly turquoise) – combine components from Hellenistic Bactria, Gandhāra, and mobile groups of the Eurasian steppe with links stretching from the north Pontic to Caspian areas and the domains of the Xiongnu. Importantly, much of the golden clothing appliquéés and jewelry was clearly made at a single local, highly specialized workshop in Bactria, perhaps at the nearby settlement of Emshi Tepe.¹²⁶ Overall, these burials reflect the immense consumptive capacity, and far-reaching consumption preferences and networks that were cultivated by the elites of mobile groups in this period.

VI Households

Households, of course, must have been the primary economic organizations which structured the behavior of most people in society; yet, as ever, we know little about the specifics of household organization in Bactria and Gandhāra in this period, with one major exception which will be discussed below. Some generalities can be stated: especially in rural environments, most households would have been engaged in varying components of primary and secondary production (discussed below under VII) to fulfil their own consumption needs, while the surplus goods they produced could theoretically be exchanged – through market systems or otherwise – for goods not produced by the household, as well as cash.¹²⁷ Broadly, the size of elite houses in urban contexts (like those discussed above under V.2) and dedicated service entrances and areas in Bactrian examples probably imply the presence of ser-

125 The primary publications are Sarianidi 1985; 1989. The identity of this group and the date of the burials have been debated; for a recent overview and the date given here, see Peterson 2020, 49–50, and for an overview of the cultural connections demonstrated by the burials, see Francfort 2012.

126 Hickman 2012.

127 For more on the organization and activities of households in the Mediterranean, see Fabian and Weaverdyck, ch. 3.A, VI, this volume, and for their position in early historic India – which should be broadly similar to Gandhāra – see Dwivedi, ch. 5, II, this volume.

vants or slaves attached to households.¹²⁸ Despite the emphasis placed on slavery by Soviet scholarship with respect to irrigated agricultural production in this period – especially the construction and maintenance of canals¹²⁹ – we have no real conception of the extent to which slave labor was used in Bactria, although we can be sure that it was exploited in domestic contexts. Likewise, a reference to being put “for hire in free service” – i.e., in opposition to being subjected to slavery – in the earliest of the Bactrian Documents (the marriage contract discussed below),¹³⁰ implies that at least middling households had access to hired external labor.

From a global perspective, the most curious feature of households in Bactria in this period was the practice of fraternal polyandry. It is documented already in the Bactrian-language marriage contract between a certain Ralik and two brothers Bab and Piduk, in the borough of Steb of the town of Rōb; although it dates to ca. 332 CE, the marriage was arranged according to the “established custom of the land.”¹³¹ Generally, fraternal polyandry is an economic coping strategy historically practiced especially in the mountainous borderlands at the nexus of Central and South Asia, and the Tibeto-Himalayan highlands. It is motivated by the advantageousness of pooling human resources for household production in higher altitude and marginal environments, especially those also with substantial tax burdens.¹³²

Accordingly, Azad’s recent study of the historical practice between late antique pre-Islamic and early Islamic Bactria looks at the role of high tax burdens extracted on a household basis as providing an economic incentive for the practice, noticing too that the incentive was lost in the eighth century when the Abbasids replaced household taxation with an individualized caliphal tax system. Azad also notes that the practice of fraternal polyandry probably necessitated the deprivation of children born to slave women from inheritance rights.¹³³ More generally, the practice could be motivated by the desire to avoid dividing a family’s inherited property.¹³⁴ Ultimately, rather than simply a last resort necessitated by poverty, fraternal polyandry was a viable economic strategy for middling groups in rural highland areas, although it may have disproportionately affected the fortunes of some.

Finally, marriages refigured the compositions of households, created networks between families, and transferred goods between them. The description of the dowry provided for Ralik’s marriage to the household of the groom (or here, grooms) also sheds light on the kinds of goods involved in such legally binding transactions.

128 See comments on the case of Dal’verzintepe in Bernard 1980, and examples of services entrances and areas in rich and palatial residences at Ai Khanum in Lecuyot 2013, 49–51, 124–125, fig. 73.

129 See Morris, vol. 1, ch. 16, 677–679.

130 Document A, line 27, trans. Sims-Williams 2012a.

131 Document A, line 15, trans. Sims-Williams 2012a.

132 Observed by Goldstein 1971 in an anthropological study of fraternal polyandry in Tibet; see also Willett 1997.

133 Azad 2016. On forms of taxes in this period and their burdens, see also Morris, ch. 9, II.2.

134 See Yakubovich 2005.

This included a blanket, a pillow, a cloak, four bracelets, three pairs of shoes, two sheep, and three measures of wheat,¹³⁵ giving an impression of the agropastoral lifeway of Ralik's family.

VII Producers

As stated above, most households in Bactria and Gandhāra were probably engaged in a combination of both primary – agricultural and/or pastoral – and secondary production. However, the nature and scope of each household's activities must have varied a great deal, for example in respect to their proximity to urban environments and markets, social factors, and the affordances of the landscapes which they were able to exploit, which could vary widely. Although increasing specialization in certain arenas of production can be observed in this period, the majority of people in Bactria and Gandhāra were rarely, if ever, only agriculturalists, only pastoralists, or only secondary producers. Because of this, in the below I look at primary and secondary production as a process, rather than strictly in terms of actors.

VII.1 Primary Production

The diverse affordances of Bactria's landscapes which shaped modes of primary production are strikingly illustrated within Curtius's account of Alexander's campaigns:

The land of the Bactriani is of a manifold and rich nature. In one part many trees and vines produce plentiful and mellow fruits, frequent brooks irrigate the rich soil, the milder parts of this they sow with grain, the rest they leave for pasture for the flocks. Farther on a great part of the same land is occupied by sterile sands; because of its frightful dryness the region is uninhabited and produces no fruit [...] But where the land is milder it breeds a great multitude of men and horses. Therefore the cavalry of the Bactriani had amounted to 30,000.¹³⁶

Not only does this text reflect the conception of Bactria's profound productive fertility in Graeco-Roman literary sources,¹³⁷ but also points at the prominence of both agricultural and pastoral production in the region. On the one hand, the threat posed by 'nomad' mobile pastoralists in southern Central Asia to sedentary agriculturalists of the region's 'oases' (i.e., river valleys) has served as a perennial theme

¹³⁵ Document A, lines 34–35, Sims-Williams 2012a.

¹³⁶ Curt. 7. 4. 26–27, 30, trans. Rolfe.

¹³⁷ See Morris, vol. 1, ch. 9, 386–387. See too the description of the town of Bazira (Barikot) in the Swat Valley as an *urbs opulenta* in Curtius, with *opulenta* an adjective otherwise used rarely by the writer, but twice in reference to Bactria (Prandi in Olivieri 2020, 400, n. 17).

of historical writing on the region. On the other, scholarship has also long recognized the coexistence and even symbiotic relationship between practitioners of these different modes of exploitation throughout Central Asia's history.¹³⁸ There is likely a reality to both perspectives with respect to antiquity: economically, certain mobile groups within Bactria and at its frontiers could have exchanged with sedentary ones by means of both raids and trade. For example, the seasonal mobility of mobile pastoralist groups probably brought them to markets (including periodic ones) attached to permanent settlements, and even stimulated the opening of temporary bazaars.¹³⁹

Although Bactria tends to be treated in scholarship as a part of Central Asia characterized by sedentary agriculture in its oases, some of the many burials of this period associated with elites of pastoral lifestyles probably represented members of groups who were of local origin, and the question of their identification needs future reassessment, including some liberation from the written sources mentioning the influx of foreign groups of nomadic origin (i.e., Saka and Yuezhi) into the region from the second century BCE.¹⁴⁰ Moreover, recent archaeological research on certain borderlands in Central Asia also highlights the fuzziness of the distinction between the two modes of production, pointing instead to the prevalence of practitioners of 'agropastoral' lifestyles who relied on varying components of farming and herding.¹⁴¹

VII.1.1 Agriculture

Despite the important role played by pastoralism (see below), agriculture was the basis of the economy – both in terms of subsistence consumption and surplus production – for inhabitants of the river oases of Bactria in the period under study.¹⁴² More specifically, irrigated agriculture, which has the potential to increase both

138 This theme appears already in the late nineteenth century work of Bartol'd (Bustanov 2015, 37). See further discussion in Morris, vol. 1, ch. 16, 676. In principle, symbiotic long-term relationships were probably established between mobile and sedentary groups, e.g., in the case of other highland populations in summer pastures, or with lowland sedentary populations in terms of less-mobile piedmont grazing. For ethnographic parallels see e.g., Jentsch 1973; Barfield 2004; Stride 2007 and reference therein. From a historical perspective, the symbiosis of these groups in southern Central Asia has been recently reiterated in Mairs 2014, and in Rouse 2020 in reference to the Bronze Age.

139 See similar comments in Stark 2020, 79 regarding pastoral groups both north and northeast of Bactria.

140 See comments in Stark 2020, 86, Stark forthcoming.

141 See e.g., inhabitants of the Talgar alluvial fan in southeastern Kazakhstan in Chang 2018; Bashtepa on the western Bukhara oasis in Kidd and Stark 2019, 177–178.

142 A point also captured in the observations about Daxia (Bactria) compiled in Zhang Qian's report in *Shiji* 123.3162, trans. Watson 1993, 269.

yield and crop security, was employed in the region's fertile loess river plains. Pests probably remained a persistent threat.¹⁴³ Rain-fed farming was possible in some areas, such as piedmonts, but was likely restricted in practice by low precipitation.

Although it can be presumed that polyculture was the norm, the range and economic roles of different agricultural resources in this period are still being illuminated. Archaeobotanical evidence from Kyzyltepa (sixth-fourth centuries BCE) in the Mirshade oasis in northern Bactria suggests that barley, wheat, and millet were cultivated as staple grains for both human and animal consumption with the aid of artificial irrigation already by this time.¹⁴⁴ The cultivation of the triad of barley, wheat, and millet indicates that land use was intensified by expanding food crop yields through year-round production: barley and wheat were typically planted in the autumn and grown through the winter, while millet was a drought-resistant and fast-growing warm-season crop which could grow in marginal environments and did not require irrigation – but could thrive with its help.¹⁴⁵ Presumably, wheat in varying grades of quality was oriented toward human consumption, with barley probably serving both as a primary human food source as well as fodder, and millet as a lower-status food more suitable for soldiers, servants, and perhaps to be stored in case of emergencies, or used as fodder.¹⁴⁶ It is not clear whether the composition and use of staple grain crops in Bactria changed much in the Kushan period.¹⁴⁷ Recently published archaeobotanical evidence from Khalchaian seems to suggest some experimentation with rice cultivation, the impetus for which may have come from contact with the northwest frontier of India.¹⁴⁸ Otherwise, cultivated and exploited plants throughout the period under study also included a small proportion of pulses, fruits (e.g., grapes and stone fruit), nuts, and oil plants (e.g., flax), as well

143 See, for example, a fourth-century BCE reference to locusts threatening crops in the Aramaic Bactrian documents (A4) in Naveh and Shaked 2012.

144 Six-row barley and bread wheat have been cultivated since the Neolithic in Central Asia, and broomcorn millet across Eurasia by the Iron Age. See the report from Kyzyltepa in Wu, Miller, and Crabtree 2015, 96–98.

145 Barley, millet, and the triad of 'barley, wheat and millet' also figure in the Bactrian Aramaic documents (C4), for which see Naveh and Shaked 2012, 34.

146 Wu, Miller, and Crabtree (2015, 107) note that it is given as rations to servants; see comparative material cited in Baratin and Martinez-Sève 2013. For a different comparative case, see escalating human (and animal) consumption of C4 grains, i.e., millet, in historic Mongolian empires, discussed in Wilkin et al. 2020. On the general culinary usage of millet and barley, see Spengler 2019, 77–78, 115–117.

147 Among the collected and disbursed produce mentioned in the Bactrian Documents, only early texts refer specifically to wheat, which appears to have been later replaced by terms which may mean 'barley' or 'grain' more generally. Millet does not appear to be named explicitly. See notes on terminology and etymology in Sims-Williams 2007, 188, 216.

148 I.e., two grains of rice in Chen et al. 2020. There is however also literary testimony for rice cultivation in Ferghana (north of Bactria) in the second century BCE, seen in Zhang Qian's report. See the discussion in Nesbitt, Simpson, and Svanberg 2010 and now Spengler, Zhou, and Stark forthcoming.

as wild and weedy plants.¹⁴⁹ References to fodder (hay and lucerne) and perhaps onions also appear slightly later in apparent extractive and redistributive contexts in the Bactrian Documents.¹⁵⁰ Viticulture (i.e., the cultivation and harvesting of grapevines) has a long history within Central Asia and the highland borderlands of South Asia.¹⁵¹ Bactria had somewhat limited wood resources outside of highland forests, where the drought-resistant juniper was a key source. Pistachio trees also grew wild in certain marginal environments and their nuts were probably collected.

Agriculture was equally important in the vicinity of Gandhāra, although environmental affordances and management differed somewhat in this landscape. On the one hand, agriculture in the lowland plains – where the region’s major urban centers also lay – was likely dependent entirely on summer monsoon rains rather than irrigation, allowing only a single (*kharif*) crop per year.¹⁵² However, a number of highland river valleys along the Hindu Kush and Karakorum-Himalayas are examples of “double-crop pocket zones,” of which the Swat Valley has been subject to the most archaeological research.¹⁵³ Such areas feature climatic conditions and year-round water resources to facilitate the cultivation of two staple crops in a year on the same land, such as barley and/or wheat harvested in spring and rice harvested in autumn. Archaeobotanical data covering the first millennium BCE from the urban site of Barikot in Swat not only reflects such a system and reiterates the importance of grain among food resources, but – especially in comparison to Bactria – shows the high diversity and intensity of agricultural production. For example, a variety of legumes were grown, such as lentils, peas, black gram, and horse gram, grapes were cultivated, fruits and nuts were harvested from trees (the extent of deliberate horticulture is not clear), and the use of irrigation in this highland region is implied by the cultivation of rice and cotton.¹⁵⁴ Despite this diversity, such areas

149 Wu, Miller, and Crabtree 2015, 96–98 and Neef 2013. Compare the crops and plants exploited at Bashtepa at the frontier of the Bukhara oasis (Sogdiana), which indicate a similar farming system in Stark et al. 2020, 37–38.

150 A receipt dating to ca. 360 CE notes units of flour and grain, wine, sieves, straw, lucerne, and a chicken that were apparently disbursed from a central storehouse by a member of the *khar* of Rōb’s family to a certain Aspal-bid in Document B, Sims-Williams 2012a. Wheat, wine, and perhaps onions are described in the split tally sticks of this corpus (Documents am1–38 in Sims-Williams 2012a), perhaps referring to assessed amounts of produce to be taxed from certain local estates – most of the sticks are broken, meaning the accounts are settled – but certainly representing official redistributive contexts.

151 See references in Spengler et al. 2021 as well as a description of the practice of burying vines to protect them from winter frosts among the Paropamisadae as encountered during Alexander’s conquests in Diodorus Siculus (Diod. Sic.) 17. 82. 4; Curt. 7. 3. 10.

152 Olivieri 2020, 390, forthcoming. On the lack of evidence for prehistoric or early historic irrigation in the Peshawar valley, Coningham and Ali 2007, 15, 242.

153 Olivieri 2020, 390; Spengler et al. 2021; Olivieri forthcoming.

154 Spengler et al. 2021; Olivieri forthcoming; note the absence of millet in the collected samples, which may be either a product of collection methods, or reflect the reality that millet was not cultivated.

may also have been among the first (and only) places in ancient South Asia to practice cereal monoculture.¹⁵⁵

As noted above with respect to imperial rulers and their inner circles (sec. II.2), we lack direct information about land ownership, management, and property rights in the period under study. Larger estates were probably owned by a range of actors: kings (i.e., *basilike chora* in Hellenistic contexts), imperial elites (such as *satraps* and *karalrangs*), local elites including dynasts and aristocrats, temples in Bactria, and – especially from the turn of the Common Era in Gandhāra – Buddhist monasteries.¹⁵⁶ Larger estates could probably be directly managed directly through hired free laborers and perhaps slaves (see comments above under sec. IV), or leased to tenants who probably paid rents in kind (i.e., through sharecropping arrangements). At least some privately owned land could also be transferred as a gift, bought, and sold.¹⁵⁷ Small plots of land were also probably owned and worked by peasants. Irrigated agriculture and its extensification necessitated the creation and maintenance of water management systems. The identification of the parties – whether royal officers, communities, or slaves – responsible for constructing and maintaining major (feeder) irrigation canals in Bactria and wider southern Central Asia has been subject to considerable scholarly debate, which I evaluate elsewhere in this volume. In short, it is often difficult to be certain, but the possible influence of the state cannot be so easily dismissed in major projects.¹⁵⁸ The later Bactrian Documents give the impression that land ownership was rather conceived of as ‘land and water,’ with the meaning of ‘irrigated land,’¹⁵⁹ and some deeds refer specifically to the transfer of land “and the water which (is) adjacent thereto.”¹⁶⁰

Depending on land ownership and tenure arrangements, a proportion of surplus agricultural production would have been appropriated through the extraction of rents and/or taxation. When taxes were extracted in coined money rather than in kind, this would have necessitated the transfer of agricultural products to markets for sale and conversion into coined money. Presumably, most trade in grain would have been regional rather than long distance in scope. The volume of production in the Swat Valley implies that the agricultural surplus produced in such regions was oriented toward export to the lowland urban centers in the Peshawar plain like Charsadda.¹⁶¹

155 Olivieri forthcoming.

156 For example, acquired through gifts given to monasteries by wealthy lay people.

157 For ca. fourth century CE documents, see a land sale contract from the vicinity of Gandhāra in Falk 2021 and deeds of transfer in the Bactrian Documents in Documents aa, ab, and C in Sims-Williams 2012a. See further discussion in Morris, ch. 9, III.

158 See Morris, ch. 13, III.3, this volume.

159 See glossary in Sims-Williams 2007, 182.

160 Documents aa, ab, C, edited and translated in Sims-Williams 2012a.

161 Olivieri forthcoming.

The consumption of specific kinds of grain was impacted by social factors. For example, the Aramaic documents from Bactria reflect status-oriented dispersal of produce (presumably from royal or satrapal estates) as rations within the Achaemenid administrative system. Generally, higher grade grain (i.e., usually barley) is allocated to higher officials, and lower-grade grain (usually millet) to servants.¹⁶² The conception of millet as a low-status or emergency food appears to be reiterated by the excavation of six rooms of an early Hellenistic-period granary excavated on the acropolis of Marakanda-Afrasiab each with an estimated capacity of up to 75 tons. This granary yielded substantial remains (among what could be identified) of broomcorn millet and barley (destroyed by a later fire), which is suggested to have perhaps been linked to the food stores of the garrison occupying the city.¹⁶³ Flour allocated as rations in the Bactrian Aramaic documents is also classed according to different grades.¹⁶⁴

VII.1.2 Pastoralism

Pastoralism – referring to all components of animal husbandry – also played an important role in local economies. Animals were raised for food, traction, transport, and warfare, or to herd and protect livestock, as well as for the production of secondary goods, such as dairy products, textiles, and leather goods. Hunted wild animals also supplemented food resources and secondary production. In principle, pastoralism can be practiced in many different forms, encompassing differential levels of mobility (also according to distance, regularity, and seasonality) and sedentism, reliance on agriculture, and the proportion of any community involved in the practice.¹⁶⁵ While mobile pastoralism – including seminomadic, semisedentary, herdsman husbandry, and transhumant pastoralism – was likely the dominant form of this strategy in this period, we also know that certain animals were also raised in the vicinity of settlements. Hence, in an institutional context, the Aramaic documents from Bactria refer to both ‘sheltered’ and ‘grazing’ cattle and sheep.¹⁶⁶ However, mobile pastoralism was an important strategy for exploiting marginal landscapes, such as piedmonts. More systematic isotopic studies of zooarchaeological data recovered at settlements are needed to determine which strategies were used to raise animals represented in faunal assemblages.

162 Naveh and Shaked 2012, 33.

163 Baratin and Martinez-Sève 2013, 9. In light of links drawn between soldiers and millet consumption, it is interesting that only wheat and barley are represented among the identified cultivated crops at the early Hellenistic fortress at Kurganzol (see Neef 2013), although this could be an artifact of sample recovery methods.

164 Naveh and Shaked 2012, 33.

165 See an overview of general forms of pastoral nomadism in Khazanov 1994, 19–25.

166 Naveh and Shaked 2012, 178, 181.

Nonetheless, according to such data from Bactria, commonly raised species in the region included sheep and goats, cattle, horses, camels, donkeys, chickens, pigs, and dogs. This body of evidence reveals the structure and the slow expansion in the diversity of the food repertoire of the region.¹⁶⁷ Data from Kyzyltepa and Kurganzol have a similar composition, showing a high proportion of sheep and goats followed by a lower proportion of cattle, supplemented to a smaller degree by other domesticates (such as chickens and pigs) and hunted wild animals. The culling pattern of the main species indicate that they were primarily exploited for meat production with goats and sheep providing some dairy component, rather than wool or hair.¹⁶⁸ These data at Kyzyltepa were interpreted to indicate that the settlement's meat was provided by pastoral specialists raising animals for market, rather than by subsistence farmers or herders, but some of the young and elderly animals could have been raised in the vicinity of the site, with the latter used for breeding or small-scale wool and hair production.¹⁶⁹ Thus we may presume that some portion of the pastoral specialists supplying meat to markets in this period were part of semi-mobile or mobile groups.

On the other hand, pastoral strategies in Gandhāra were different. Faunal assemblages of the lowland plains reveal the predominance of buffalo and cattle kept for transport, traction, and the production of dairy products (milk, ghee, cheese, yoghurt). Chickens were also raised as a source of meat, while sheep and goats were rarely kept. Comparably, in the northern valleys of Swat and Dir, sheep and goats were more important and were presumably raised in both sedentary and transhumant contexts, although cattle remained significant.¹⁷⁰

The ways in which pastures and herds were managed are not clear. Presumably, the rights to use pastures were probably conceived of in kinship or community terms, although a letter among the Bactrian Documents about the transfer of ownership of the land and stream in a 'meadow' (*margo*)¹⁷¹ may suggest that pastures could be privately owned and alienable – although this is hardly the only way this document could be interpreted (the land could have been cultivated for hay). However, Olivieri points to the possible Buddhist monastic ownership of highland pastures and management through tenancy arrangements in the vicinity of Swat.¹⁷² Apparently, herds were also subject to rent or tax in kind, as indicated by a later list among the Bactrian Documents.¹⁷³ States could also become involved in pastoral production in other ways. For example, the Aramaic documents from Bactria indi-

167 See Wu, Miller, and Crabtree 2015, 109 and the discussion in Stančo 2020, 269–271.

168 Wu, Miller, and Crabtree 2015, 103, compare Benecke 2013.

169 Wu, Miller, and Crabtree 2015, 103

170 For the above, Young 2003, 70; Coningham and Ali 2007, 250.

171 See Document bg in Sims-Williams 2007.

172 Olivieri forthcoming.

173 See a list of individuals and the sheep requisitioned from them in Document ak, Sims-Williams 2012a.

cate institutional camel breeding (i.e., royal camel keepers) through state-contracted herdsmen, perhaps to facilitate regular camel caravans within state supply networks.¹⁷⁴

The unusually high proportion of horse remains at Hellenistic Kampyrtepa in Bactria¹⁷⁵ has been suggested as reflecting the function of the fortress as a garrison facilitating the deployment of cavalry troops.¹⁷⁶ It seems possible that these horses had been raised by local specialist mobile pastoralists. This, at least, raises an interesting question about the role of horse breeding in Bactria in this period within both regional and long-distance markets, for use as war animals, as well as high-status gifts. As in the excerpt from Curtius discussed above, Graeco-Roman writers had a strong conception of the productivity of horse breeding in Bactria. Likewise, references to tribute brought to a Yudhiṣṭhira in the *Mahābhārata* reiterate the impression that, from an Indian perspective, peoples beyond the northwestern frontier (including the Kambojas and Tukhāras/Tocharoi) produced good horses.¹⁷⁷ Certain Central Asian horse breeds were also esteemed in China, seen emblematically in the episode of Han incursion into the country of Dayuan (Ferghana) in the late second century BCE,¹⁷⁸ a region known for its ‘heavenly horses.’ This event may be contextualized within increasing contact and military engagement between polities of China and nomadic groups of Central Asia in this period, which was probably driven by the desire to acquire such warhorses.¹⁷⁹

Throughout the period under study, Chinese historical sources increasingly associated the Yuezhi/Kushan Empire with horses. By the third century CE, it is written that “there are so many riding horses in that country that the number often reaches several hundred thousand,”¹⁸⁰ and that “in foreign countries there are three world-famous multitudes: China has many people, Qin [Eastern Rome] has many treasures, [and] the Yuezhi have many horses.”¹⁸¹ We also find reference to Yuezhi horses being transferred as diplomatic gifts and through high-status trade to Southeast Asia: “Merchants of Yuezhi frequently bring ships filled with horses to the country of Jiaying and the king of the country purchases them all.”¹⁸² Some of these horses were most likely bred in Bactria, more specifically in the pastures of the upper val-

174 Henkelman 2017, 56.

175 S. O. Dvurechenskaia 2016.

176 Stančo 2020, 271.

177 *Mahābhārata* 2. 47. 3–22, see Morris, vol. 1, ch. 9, 382–383.

178 Recounted in *Shiji* 123. 3174–3179, trans. Watson 1993, 280–288.

179 See, e.g., discussion in Leese-Messing, vol. 1, ch. 12.A, 509; Stark 2012, 127.

180 A Tang-period annotation in *Shiji* 123.3162 (trans. Liu 2001, 278), drawing from the third century CE lost *Yiwuzhi* of Wan Zhen.

181 From the now lost *Waiguo zhuàn* of Kang Tai, third century CE, reproduced in *Shiji* 123.3160, 3161, trans. Moritz Huber. See Thierry 2005, no. 11.

182 *Taping yulan* 359.1650a, trans. Wade 2008, 164; see also Thierry 2005, no. 12. For an earlier note on the significance of this passage, Mukherjee 1970, 37–39.

leys of the tributaries of the Oxus.¹⁸³ This trade was possibly organized in part by mobile groups, if we can judge from later historical examples. For instance, in the fifteenth and sixteenth centuries, Afghan nomads had a near monopoly on a similar trans-regional trade of horses, procuring them primarily from Balkh or more northern regions of Central Asia, and bringing them to India for sale.¹⁸⁴ Speaking from a broader historical perspective on Central Asia, mobile pastoralists are likely to have played an important role as distributors who facilitated and stimulated trade, not just by engaging in exchange themselves, but also by acting as guides through marginal landscapes, and carving out preferred routes through mountainous terrain.¹⁸⁵

VII.2 Secondary Production

Most households in Bactria and Gandhāra would have engaged to some extent in small-scale manufacture of secondary agricultural, pastoral, and craft products on a subsistence basis. For example, tools utilized in textile production – spindle whorls and loom weights – are frequently found in excavated habitation areas. Although direct evidence about the social dynamics of textile production remains limited, it tends to be assumed that it was performed by women in sex-segregated areas of the house, although a recent study advocates for caution on this point.¹⁸⁶ However, there is also increasing evidence for more specialized production in the period under study,¹⁸⁷ which was organized in a number of ways.

For example, in Bactria, specialist craft producers were clearly attracted to urban centers, but could also directly serve different kinds of settlements through a model of mobility. For example, the study of an extramural kiln at the fortress Kampyrtepa during the Hellenistic period indicates that itinerant specialized potters seasonally visited settlements to produce pots in specific shapes (i.e., especially large storage vessels).¹⁸⁸ Likewise, as mentioned earlier (under sec. IV.2), such itinerant potters probably also produced pottery at kilns near monasteries. A different model of production was seen in urban contexts, such as the potter's quarter identified within the town of Dal'verzintepe, which included kilns, residential premises, and a temple.¹⁸⁹ As Bolelov has suggested, this may indicate the existence of professional corporations of craftspeople.¹⁹⁰ However, he also warns against insisting too much

183 See the reputation of horses from these regions in medieval times, discussed in Stark 2020, 88–89, n. 36, 61, 62.

184 Wink 2019, 113–114.

185 Gorbunova 1993; Frachetti et al. 2017.

186 Urbanová 2011, 117.

187 See also Morris, ch. 13, IV.2, this volume.

188 Bolelov 2011, 69–70.

189 Pugachenkova and Rtveladze 1978, 115–143.

190 Bolelov 2010, 28.

upon an increasing urban-rural divide in the structure of craft production in this period, observing that production was also undertaken in villages to some degree.¹⁹¹ The finds of unfired and discarded loom weights at Dal'verzintepe, which had been stamped with intaglios, has been suggested to indicate the presence of a specialist workshop in that town,¹⁹² but they do not necessarily have to.

Specialist craft producers could also be linked with wealth and social status. For example, among three hoards found at a rich house in Taxila-Sirkap (alongside objects of presumed private use) were dies and ornamental copper objects apparently related to jewelry production,¹⁹³ also implying that this activity might have been performed within the physical confines of the house rather than solely in a dedicated workshop space. Additionally, among the earlier texts in the Bactrian Documents, a “Bag-bandag the master craftsman” is cited as a witness to a marriage contract,¹⁹⁴ suggesting that he was a man of some local import.

Two particular examples of secondary goods – wine and textiles – can be looked at more closely, as these products appear to have become more important in local and regional markets throughout the period under study. The date and cultural context of the emergence of viticulture (the cultivation of grapes for winemaking) and wine production in Bactria and Gandhāra is not clear. However, the evidence in aggregate gives the impression that local production and even transregional trade of wine flourished in the period under study. For example, references to wine in the Aramaic documents from Bactria indicate that production here and in Arachosia had already begun before Alexander's conquests, with trade – at least in the context of state supply networks – occurring from Arachosia to Bactria.¹⁹⁵ The production and long-term storage of huge quantities of wine in Dayuan (Ferghana), i.e., further to the north in Central Asia, was famously observed by Zhang Qian in the late second century BCE.¹⁹⁶

Local production in both Bactria and Gandhāra begins to be firmly archaeologically attested by the first centuries of the Common Era through the documentation of wine presses.¹⁹⁷ Processing, filtering, and drinking processes are also reflected in iconographic evidence from both Gandhāra and also (presumably) Bactria.¹⁹⁸ Such

191 Bolelov 2010, 28.

192 Pugachenkova and Rtveladze 1978, 203–204; Urbanová 2011, 117.

193 Block D' House 4, Marshall 1951, 188–189.

194 Document A7, Sims-Williams 2012a.

195 For these references, including to ‘wine of Arachosia’ (C1:31) Naveh and Shaked 2012, 34.

196 *Shiji* 123.3171. On the development of viticulture and viniculture in Central Eurasia generally, including a discussion on wine in Ferghana, see Spengler 2019, 175–195.

197 For Bactria, see a potential oil or wine press in a Hellenistic-period manor house in Ai Khanum's hinterland, Francfort 2013a, 169. For a Kushan-period wine-pressing and fermentation building, presumably attached to a nearby farm, in the vicinity of Dal'verzintepe see Pugachenkova and Rtveladze 1978, 171–172. For rock-cut presses of a broad date range in the Kandak and Kotah valleys (tributaries of Swat), Olivieri and Vidale 2006, 142–146.

198 For depictions on Gandhāran sculpture, see those collected in Falk 2009b [2013]. With respect to depictions in Bactria – i.e., the probable place of production for the embroidered wool hanging

depictions of wine processing, filtering, and consumption in Gandhāran art appear to speak to ritualized behavior, and it is possible that some wine production was overseen by Buddhist monasteries.¹⁹⁹ More generally, pottery devices for distilling alcohol – showing a local production and consumption tradition – also become prevalent in Gandhāra in this period.²⁰⁰ Evidence for a wine trade is implied in a reference to *madhu* (here, probably meaning wine) named ‘Kāpiṣāyana’ in the *Arthaśāstra*,²⁰¹ suggesting that wine from Kapisa became known in India, presumably through export, by some point in the Early Historic or Historic period. After the end of the Kushan period, the frequent references to vineyards and wine in the Bactrian Documents reflect the transformation of grapes into a cash crop for surplus wine production, which was also extracted through rents or taxes.²⁰²

Textile production based on spun plant and animal fibers could have been practiced toward household consumption as well as market exchange, and may have served to increase household surplus production in winter months, in addition to providing a supplementary source of household income.²⁰³ Although it appears that textiles made from spun flax were produced in Bactria,²⁰⁴ the question of the beginning of the cultivation of cotton in this region is less clear. Cotton was already grown in the Indus Valley from the third millennium BCE, and had dispersed north to be cultivated in the Swat Valley by at least the Historic period, presumably exploited through small-scale production.²⁰⁵ The firmest archaeobotanical evidence next puts its small-scale cultivation in the fourth to fifth centuries CE in Chorasmia, but potential earlier data from other oases is hard to verify.²⁰⁶ However, archaeological finds of textiles probably produced in Bactria during the late first century BCE

excavated from Kurgan 20 at Noyon uul – see Francfort 2013b, 1560–1564; Polos’mak, Francfort, and Tsepova 2015, 10–16 (Polos’mak, however, thinks the textile was produced in northwest India).
199 Falk 2009b [2013].

200 Allchin 1979.

201 *Arthaśāstra* 2. 25. 24–25.

202 For an early example of an official redistributive context, see Document B (ca. 359 CE) in Sims-Williams 2012a.

203 See observations with respect to cotton production in Chorasmia in the fourth-fifth centuries CE in Brite and Marston 2013, 49–50.

204 For flax clothing in the Tillya Tepe burials, Sarianidi 1989, 236. For flax used in the composite ‘wool cover’ from Kurgan 6 at Noyon uul, Kulikov et al. 2012. I thank Sören Stark for drawing this article to my attention. This cover is composed of different pieces of fabric sewn together, some of which depicted motifs of fish, turtles, and birds. The place of manufacture of these textiles is debated, but on their Bactrian origin, see e.g., Elikhina 2010.

205 Spengler et al. 2021. Pliny’s discussion of trees in India encountered by Macedonian witnesses mentions a tree from which cloth was produced, and implies larger-scale cultivation (Pliny *Naturalis historia* 12. 13). As suggested in Bostock’s translation, this could refer to cotton, although the description of the plant leaves the question somewhat open.

206 Brite and Marston 2013, 44. This expansion of cultivation into new temperate regions was subject to biological factors, i.e., the selection of photoperiod-neutral varieties, as explained in Brite and Marston 2013, 41–42.

to the early first century CE found in Xiongnu burials at Noyon uul (northern Mongolia, discussed again shortly) contained some cotton thread,²⁰⁷ suggesting the possibility that small-scale cotton production may have also been introduced to Bactria by this period, although this remains to be confirmed. The introduction of sericulture to Bactria is also unclear, although Lyovushkina has argued that it may have begun already by the second and third centuries CE.²⁰⁸

All this being said, apparently animal fibers were more important, at least in respect to Bactria's prestige textile production. Wool is usually identified as the main fiber used in elaborate embroidered hangings attributed to Bactrian manufacture that were found in funerary contexts associated with nomads who lived well beyond the region: one hanging was remade into a pair of trousers, found in a burial at Sampula (Tarim Basin, ca. first century BCE)²⁰⁹ and others were recovered in Xiongnu elite burials at Noyon uul.²¹⁰ Analyzed samples taken from probable Bactrian textiles among the 'wool cover' from Kurgan 6 actually indicate that this wool was spun from camel hair, not sheep. It was also blended with flax fiber, and accompanied by occasional use of horse hair and cotton thread,²¹¹ reiterating both the agricultural and pastoral strategies contributing to this prestige work.

Textiles like this must have been produced in highly specialized workshops, including those connected with royal patronage, to judge from the examples embroidered with royal and ceremonial imagery depicting 'Yuezhi' figures.²¹² An emerging sense of the quality of Bactrian textiles and evidence for their wider demand are reiterated in roughly contemporary Indic texts,²¹³ as well as Chinese historical accounts dating to the third century CE. Here, in reference to 'Da Yuezhi,' we

207 Again, the composite 'wool cover' from Kurgan 6, in Kulikov et al. 2012, of presumed Bactrian manufacture (see above, note 204).

208 Lyovushkina 1996, 146–147.

209 See Wagner et al. 2009.

210 A number of textiles from these burials are attributed to Bactrian manufacture, although not indisputably. On the corpus in the State Hermitage, including the composite 'wool cover' from Kurgan 6, Elikhina 2010. For the fragments depicting people who have been linked by their costume with the 'Yuezhi' in Bactria from Kurgans 6 and 24, as well as the recently discovered examples from Kurgan 31, see Yatsenko 2012. For good photographs and a discussion of the latter group and the recently discovered hanging from Kurgan 20, see Polos'mak 2015 (although Polos'mak attributes the textiles to northwest Indian manufacture), and see also the discussion about their iconography and implications in Francfort 2013b, 1559–1576.

211 Kulikov et al. 2012.

212 On the identification of the figures depicted on these textiles as 'Yuezhi,' Yatsenko 2012, and on the textiles from Kurgans 20 and 31 as expressions of aulic Yuezhi art, Francfort 2013b, 1573–1574.

213 See a blurred reference in the *Mahābhārata* in the enumeration of tribute brought to Yudhiṣṭhira, where "textiles of ample size, rich and colors, and good to the touch" are bought from Bāhli (Balkh) and Cīna (China), *Mahābhārata* 2. 47. 21–22, trans. van Buitenen 1975, 117.

learn that “local products, rarities, treasures, clothing, and upholstery are very good, and even India cannot compare with it.”²¹⁴

VIII Merchants

In the above, we have seen a range of evidence for regional and long-distance exchange which enacted the movement of goods especially between Bactria, Gandhāra, wider Central Asia and Gangetic India, but also Han China, the Eurasian Steppe, and the Roman Mediterranean.²¹⁵ Of course, some transit trade must have also run through Bactria and Gandhāra too. As ever, we are missing direct information about the people who facilitated this trade, and the social networks they cultivated. Earlier sources refer to Bactrian merchants transporting precious stones and carpets; actors like these may have been co-opted by the Achaemenid administration to procure certain commodities in exchange for credit in silver.²¹⁶ A poorly-preserved unprovenanced parchment from Bactria probably dating from the second century BCE appears to constitute the record of a handover: something “which Archises has (received) for transport,” seemingly followed by a reference to stone.²¹⁷ Coloru notes the Iranian origin of Archises’s name, and considers that he may have been a merchant,²¹⁸ but is it not out of the question that the text may derive from an official context. The Sophytos inscription from Kandahar (mentioned above, sec. V.2) reiterates that merchants could attain substantial wealth, and also borrow money on interest – “having taken from elsewhere money that bears fruit” to support their ventures,²¹⁹ although the source of Sophytos’s loan is not stated.

Associations of merchants most likely existed in Bactria and Gandhāra – as in the Mediterranean, Near East, and wider South Asia²²⁰ – but our only references to the reality of such organizations appear in donative contexts in Gandhāra. Here, *sahaya* groups (usually understood as ‘companions’ or ‘business partners’) are seen piously donating a number of wells.²²¹ Such a group is also attested establishing a

214 Annotation in *Shiji* 123.3162 (trans. Liu 2001, 278), drawing from the third century CE lost *Yiwuzhi* of Wan Zhen.

215 For further discussion, see Morris, ch. 13, V.1, this volume.

216 The references are in Photius’s epitome of Ktesias’s *Indica* and another testimony that may also originate from Ktesias, for which see Henkelman and Folmer 2016, 194–196; Henkelman 2018, 247.

217 Edition and trans. in Clarysse and Thompson 2007, 277–279.

218 Coloru 2009, 263.

219 Line 9, trans. Lougovaya 2016, 187. See also Bernard, Pinault, and Rougemont 2004, 227–332; Mairs 2014, 106–110, and comments in Bresson 2012, 233.

220 For further information, Fabian and Weaverdyck, ch. 3.A, IX.1.2, and Dwivedi, ch. 5, V, this volume.

221 See e.g., nos. 1.1, 1.3, 2.1 and 3.1 in Falk 2009a.

stūpa as a collective of 23 individuals with names of both Indic (some Buddhist) and uncertain origins,²²² perhaps implying that *sahaya* groups did not necessarily have to be founded on kinship terms. Looking to the example of the Sogdian ancient letters found west of Dunhuang and dating to the early fourth century CE,²²³ it is possible to imagine that the emergence of diaspora communities of merchants and caravan leaders represented in these letters was a wider phenomenon in the period under study, and played a similar role to formal associations. Building from the basis of a shared identity or kinship, such communities could cultivate far-reaching networks, and organize communication, transport, and financing. Indeed, Rtveldze has suggested that Indian diaspora communities, including merchants, were established in settlements of Bactria during this period.²²⁴

IX Conclusion

Focusing on the core regions of Bactria and Gandhāra, this chapter has described the spectrum of economic actors operating under and between the Greek Kingdoms of Central Asia and the Kushan Empire. I have examined the roles of a range of actors – from kings to pastoralists – in the realms of consumption, production, distribution, and coordination. Even though we are often lacking direct evidence that speaks precisely to these activities, many probabilities and possible scenarios in this story can be proposed (as well as speculated) in light of comparative perspectives drawn from across Afro-Eurasia and a wide range of sources. What is obvious, however, is that Bactria and Gandhāra were anything but Afro-Eurasia’s transit trade zones. Many actors in these regions between the third century BCE to the third century CE were – among other things – prolific, highly connected consumers and producers too.

References

- Albery, H. 2020. “Buddhism and society in the Indic north and northwest. 2nd century BCE–3rd century CE.” PhD diss., Ludwig-Maximilians-Universität München.
- Allchin, F. R. 1979. “India: The ancient home of distillation?” *Man* 14.1, 55–63.
- Allon, M. 2019. “A unique Gāndhārī monastic ledger recording gifts by Vima Kadphises.” *Journal of the International Association of Buddhist Studies* 42, 1–46.
- Atwood, C. P. 1991. “Life in third-fourth century Cadh’ota: A survey of information gathered from the Prakrit documents found north of Minfeng (Niyā).” *Central Asiatic Journal* 35.3/4, 161–199.

²²² *CKI* 455, Sadakata 1996, 305–308; Fussman 2015, 160–161. This gold leaf inscription was allegedly found in a reliquary in Hadda.

²²³ Discussed with further bibliography in Morris, vol. 1, ch. 9, 413–414.

²²⁴ Rtveldze 2012, 225–227.

- Azad, A. 2016. "Living happily ever after: Fraternal polyandry, taxes and 'the house' in early Islamic Bactria." *Bulletin of the School of Oriental and African Studies* 79.1, 33–56.
- Baratin, C. and L. Martinez-Sève. 2013. "Le grenier grec de Samarkand." In J. Bendezu-Sarmiento (ed.), *L'archéologie française en Asie centrale: Nouvelles recherches et enjeux socioculturels*, 373–389. Paris: De Boccard.
- Barfield, T. J. 2004. "Nomadic pastoralists in Afghanistan: Reconstruction of the pastoralist economy." Washington, D. C.: Bank Information Center.
- Basu, C. 2006. "Patronage and representation at the Huviṣka Vihāra, a Kuṣāṇa-Period monastery in Mathurā." *Studies in History* 22.2, 157–179.
- Baums, S. 2012. "Catalog and revised texts and translations of Gandharan reliquary inscriptions." In D. Jongeward, E. Errington, R. Salomon, and S. Baums, *Gandharan Buddhist Reliquaries*, 200–251. Seattle WA: University of Washington Press.
- Baums, S. and A. Glass. 2002–. "Catalog of Gāndhārī texts." gandhari.org.
- Bustanov, A. K. 2015. *Soviet Orientalism and the creation of Central Asian nations*. London: Routledge.
- Belaňová, P. 2016. "Ancient adornments of Central Asia influenced by the Greek jewellery of the Classical and Hellenistic Period." *Studia Hercynia* 20.1, 111–126.
- Benecke, N. 2013. "Faunal remains of Kurganzol." In L. M. Sverchkov (ed.), *Курганзол. Крепость Александра на юге Узбекистана*, 172–178. Ташкент: SMI-ASIA.
- Bernard, P. 1980. "Une nouvelle contribution soviétique à l'histoire des Kushans: La fouille de Dal'verzin-tépé (Ouzbékistan)." *Bulletin de l'École française d'Extrême-Orient* 68.1, 313–348.
- . 1987. "Le temple du dieu Oxus à Takht-i Sangin en Bactriane: temple du feu ou pas?" *Studia Iranica* 16.1, 103–115.
- Bernard, P. 2002. "Langue et épigraphie grecques dans l'Asie Centrale à l'époque hellénistique." In J. A. Todd, D. Komini-Dialeti, and D. Hatzivassilou (eds.), *Greek archaeology without frontiers*, 75–108. Athens: National Hellenic Research Foundation.
- Bernard, P., G.-J. Pinault, and G. Rougemont. 2004. "Deux nouvelles inscriptions grecques de l'Asie centrale." *Journal des Savants* 2, 227–356.
- Bernard, P. and C. Rapin. 1994. "Un parchemin gréco-bactrien d'une collection privée." *Comptes rendus des séances de l'Académie des Inscriptions et Belles-Lettres* 138.1, 261–294.
- Bolelov, S. B. 2010. "Гончарные производства Бактрии античного периода" [Pottery of Bactria of the ancient period]. In *Древние цивилизации на Среднем Востоке. Археология, история, культура. Материалы международной научной конференции, посвященной 80-летию Г.В. Шишкиной*, 26–28. Москва: Государственный музей Востока.
- . 2011. "Производственный центр эпохи эллинизма на цитадели Кампыртепа" [The Hellenistic production center at the citadel of Кампыртепа]. In *Материалы Тохаристанской экспедиции*. Vol. 8, 48–79. Елец: ЕГУ им И.А. Бунина.
- Bopearachchi, O. and P. Flandrin. 2005. *Le portrait d'Alexandre le Grand*. Paris: Éditions du Rocher.
- Bordeaux, O. 2018. *Les Grecs en Inde. Politiques et pratiques monétaires (IIIe s. a.C.–Ier s. p.C.)*. Bordeaux: Ausonius.
- Bracey, R. 2020. "The limits of Kushan power and the limits of evidence." In R. E. Payne and R. King (eds.), *The limits of empire in ancient Afghanistan: Rule and resistance in the Hindu Kush, circa 600 BCE–600 CE*, 113–155. Wiesbaden: Harrassowitz.
- Bresson, A. 2012. "Greek epigraphy and ancient economics." In J. Davies and J. Wilkes (eds.), *Epigraphy and the historical sciences*, 223–247. Oxford: Oxford University Press.
- Brite, E. B. and J. M. Marston. 2013. "Environmental change, agricultural innovation, and the spread of cotton agriculture in the Old World." *Journal of Anthropological Archaeology* 32.1, 39–53.
- Chang, C. 2018. *Rethinking prehistoric Central Asia: Shepherds, farmers and nomads*. London: Routledge.

- Chen, G., X. Zhou, J. Wang, J. Ma, M. Khasannov, N. Khasanov, R. N. Spengler, A. Berdimurodov, and X. Li. 2020. "Kushan period rice in the Amu Darya basin: Evidence for prehistoric exchange along the southern Himalaya." *Science China Earth Sciences* 63, 1–11.
- Clarysse, W. and D. J. Thompson. 2007. "Two Greek texts on skin from Hellenistic Bactria." *Zeitschrift für Papyrologie und Epigraphik* 159, 273–279.
- Cohen, G. M. 2013. *The Hellenistic settlements in the East from Armenia and Mesopotamia to Bactria and India*. Berkeley, CA: University of California Press.
- Coloru, O. 2009. *Da Alessandro a Menandro. Il regno Greco di Battriana*. Pisa: Fabrizio Serra.
- . Forthcoming. "Seen from Ecbatana: Aspects of Seleucid policy in Media." In T. Daryae, M. Canepa, and R. Rollinger (eds.), *Iran and the transformation of ancient Near Eastern history: The Seleucids (ca. 312–150 BCE)*. Harrassowitz: Wiesbaden.
- Coningham, R. A. E. and I. Ali. 2007. *Charsadda: The British-Pakistani excavations at the Bala Hisar of Charsadda*. Oxford: Archaeopress.
- Daffinà, P. 2017. "L'economia dell'India antica." In P. Cannata and P. Daffinà (eds.), *Eurasica: Scritti scelti*, 535–575. Rome: Scienze e Lettere.
- Drujinina, A. P. and G. Lindström. 2013. "Kultgefäße im Oxos-Tempel. Zur Frage der Kultkontinuität im unruhigen 2. Jh. v. Chr." In G. Lindström, S. Hansen, A. Wiczorek, and M. Tellenbach (eds.), *Zwischen Ost und West. Neue Forschungen zum antiken Zentralasien*, 171–186. Darmstadt: Philipp von Zabern.
- Dvurechenskaia, N. D. 2018. "К методике полевых исследований в горной местности (на примере эллинистической крепости Узундара)" [Toward a methodology of field research in mountainous areas (using the example of the Hellenistic fortress of Uzundara)]. Краткие сообщения Института археологии 251, 168–180.
- Dvurechenskaia, S. O. 2016. "Предварительные итоги изучения костных останков животных из раскопок территории крепости Кампыртепа" [Preliminary results of the study of animal bones from the excavations in the territory of Kampyrtepa fortress]. Проблемы Истории, Филологии, Культуры 2, 75–82.
- Eley, T., P. Marquis, and N. A. Noori. 2016 [2019]. "Archaeometallurgical evidence at Mes Aynak, Logar province, Afghanistan." *Archäologische Mitteilungen aus Iran und Turan* 48, 265–281.
- Elikhina, Iu. I. 2010. "Бактрийские ткани из коллекции Государственного Эрмитажа" [Bactrian fabrics from the collection of the State Hermitage]. In V. A. Alekshin, L. B. Kircho, L. A. Sokolova, and V. Ia. Stegantseva (eds.), *Древние культуры Евразии. Материалы международной научной конференции, посвященной 100-летию со дня рождения А. Н. Бернштама*, 153–156. Санкт Петербург: Институт истории материальной культуры РАН.
- Falk, H. 2009a. "The pious donation of wells in Gandhara." In G. J. R. Mevissen and A. Banerji (eds.), *Prajñādhara: Essays on Asian art, history, epigraphy and culture in honour of Gouriswar Bhattacharya*, 23–36. New Delhi: Kaveri.
- . 2009b [2013]. "Making wine in Gandhara under Buddhist monastic supervision." *Bulletin of the Asia Institute* 23, 65–78.
- . 2021. "Two fragmentary Kharoṣṭhī inscriptions." *Annual Report of the International Research Institute for Advanced Buddhology at Soka University* 24, 7–16.
- Frachetti, M. D., C. E. Smith, C. M. Traub, and T. Williams. 2017. "Nomadic ecology shaped the highland geography of Asia's Silk Roads." *Nature* 543, 193–198.
- Francfort, H.-P. 1979. *Les fortifications en Asie Centrale de l'âge du bronze à l'époque kouchane*. Paris: Centre national de la recherche scientifique.
- . 2012. "Tillya Tepe and its connections with the Eurasian steppes." In J. Aruz and E. Valtz Fino (eds.), *Afghanistan: Forging civilizations along the Silk Road*, 86–99. New York, NY: Metropolitan Museum of Art.
- . 2013a. "Habitat rural achéménide, hellénistique et kouchan dans la plaine d'Aī Khanoum-Shortughai." In Lecuyot (2013), 157–178.

- . 2013b. “Les nomades installés dans la Bactriane (IIe s. av. J.-C.–Ier s. ap. J.-C.): nouvelles découvertes.” *Comptes rendus de l’Académie des Inscriptions et Belles-Lettres*, no. 4, 1543–1576.
- Fussman, G. 2015. “Kushan power and the expansion of Buddhism beyond the Soleiman mountains.” In H. Falk (ed.), *Kushan histories: Literary sources and selected papers from a symposium at Berlin, December 5th to 7th, 2013*, 153–202. Bremen: Hempen.
- Fussman, G., T. Annaev, and G. Fussman. 2011. *Monuments bouddhiques de Termez*. Vol. 1, *Catalog des inscriptions sur poteries*. Paris: De Boccard.
- Galli, M. 2011. “Hellenistic court imagery in the early Buddhist art of Gandhara.” *Ancient Civilizations from Scythia to Siberia* 17.2, 279–329.
- Goldstein, M. 1971. “Stratification, polyandry, and family structure in Central Tibet.” *Southwestern Journal of Anthropology* 27.1, 64–74.
- Gorbunova, N. 1993. “Traditional movements of nomadic pastoralists and the role of seasonal migrations in the formation of ancient trade routes in Central Asia.” *Silk Road Art and Archaeology* 3, 1–10.
- Grenet, F. 2008 [2012]. “Mary Boyce’s legacy for the archaeologists.” *Bulletin of the Asia Institute* 22, 29–46.
- . 2012. “The nomadic element in the Kushan Empire.” *Journal of Central Eurasian Studies* 3, 1–22.
- . 2015a. “Zoroastrianism among the Kushans.” In H. Falk (ed.), *Kushan histories: Literary sources and selected papers from a symposium at Berlin, December 5 to 7, 2013*, 203–240. Bremen: Hempen.
- . 2015b. “Zoroastrianism in Central Asia.” In M. Stausberg and Y. Sohrab-Dinshaw Vevaina (eds.), *The Wiley Blackwell companion to Zoroastrianism*, 129–146. Malden, MA: Wiley Blackwell.
- Hansen, V. 2004. “Religious life in a Silk Road community: Niya during the third and fourth Centuries.” In J. Lagerwey (ed.), *Religion and Chinese society*. Vol. 1, *Ancient and medieval China*, 279–315. Hong Kong: The Chinese University Press; École française d’Extrême-Orient.
- Henkelman, W. F. M. 2017. “Imperial signature and imperial paradigm: Achaemenid administrative structure and system across and beyond the Iranian plateau.” In B. Jacobs, W. F. M. Henkelman, and M. W. Stolper (eds.), *Die Verwaltung im Achämenidenreich: Imperiale Muster und Strukturen | Administration in the Achaemenid Empire: Tracing the imperial signature*, 45–256. Harrassowitz: Wiesbaden.
- . 2018. “Bactrians in Persepolis – Persians in Bactria.” In J. Lhiullier and N. Boroffka (eds.), *A millennium of history: The Iron Age in southern Central Asia (2nd and 1st millennia BC): Proceedings of the conference held in Berlin (June 23–25, 2014): Dedicated to the memory of Viktor Ivanovich Sarianidi*, 223–255. Berlin: Reimer.
- Henkelman, W. F. M. and M. L. Folmer. 2016. “Your tally is full! On wooden credit records in and after the Achaemenid Empire.” In K. Kleber and R. Pirngruber (eds.), *Silver, money and credit: A tribute to Robartus J. van der Spek on the occasion of his 65th birthday on 18th September 2014*, 133–239. Leiden: Nederlands Instituut voor het Nabije Oosten.
- Hickman, J. 2012. “Bactrian gold: Jewelry workshop traditions at Tillya Tepe.” In J. Aruz and E. Valtz Fino (eds.), *Afghanistan: Forging civilizations along the Silk Road*, 78–87. New York: Metropolitan Museum of Art.
- Holt, F. L. 1981. “The Euthydemid Coinage of Bactria: Further hoard evidence from Ai Khanoum.” *Revue Numismatique* 6.23, 7–44.
- Jentsch, C. 1973. *Das Nomadentum in Afghanistan. Eine geographische Untersuchung zu Lebens- und Wirtschaftsformen im asiatischen Trockengebiet*. Meisenheim am Glan: Hain.
- Khazanov, A. M. 1994. *Nomads and the outside world*. Second ed. J. Crookenden (trans.). Madison: University of Wisconsin Press.

- Kidd, F. and S. Stark. 2019. "Urbanism in antique Sogdiana? A view from the Bukhara oasis." In C. Baumer and M. Novák (eds.), *Urban cultures of Central Asia from the Bronze Age to the Karakhanids: Learnings and conclusions from new archaeological investigations and discoveries. Proceedings of the first international congress on Central Asian archaeology held at the University of Bern, 4–6 February 2016*, 163–183. Wiesbaden: Harrassowitz.
- King, R. 2020. "Local powerbrokers in Iranian and post-Iranian Bactria (ca. 300–800 CE): Aristocrats, dependents, and imperial regimes." In R. E. Payne and R. King (eds.), *The limits of empire in ancient Afghanistan: Rule and resistance in the Hindu Kush circa 600 BCE–600 CE*, 245–270. Wiesbaden: Harrassowitz.
- Kradin, N. N. 2011. "Stateless empires: The structure of the Xiongnu nomadic super-complex chiefdom." In U. Brosseder and B. K. Miller (eds.), *Xiongnu archaeology: Multidisciplinary perspectives of the first steppe empire in Inner Asia*, 77–96. Bonn: Vor- und frühgeschichtliche Archäologie, Rheinische Friedrich-Wilhelms-Universität Bonn.
- Kulikov, V. E., E. Yu. Mednikova, Y. I. Elikhina, and S. S. Miniaev. 2012. "The method of polypolarization: An experiment in studying the ancient fabrics from Noyon Uul." *Tyraetia* 21, 329–345.
- Lecuyot, G. 2013. *Fouilles d’Ai Khanoum*, Vol. 9, *L’habitat*. Paris: De Boccard.
- Lindström, G. 2016. "Der Oxos-Tempel. Räumliche Aspekte und Kultkontinuität im Spiegel der Motivpraxis." In S. Hansen, D. Neumann, and T. Vachta (eds.), *Raum, Gabe und Erinnerung. Weihgaben und Heiligtümer in prähistorischen und antiken Gesellschaften*, 281–310. Berlin: Edition Topoi.
- Liu, X. 1988. *Ancient India and ancient China: Trade and religious exchanges, AD 1–600*. Delhi: Oxford University Press.
- . 2001. "Migration and settlement of the Yuezhi-Kushan: Interaction and interdependence of nomadic and sedentary societies." *Journal of World History* 12.2, 261–292.
- Lo Muzio, C. 2017. *Archeologia dell’Asia centrale preislamica. Dall’età del Bronzo al IX secolo d.C.* Milan: Mondadori Università.
- Lougovaya, J. 2016. "Greek poetry in a post-Greek milieu: The epigram for Sopyhtos from Kandahar contextualized." In P. Sängler (ed.), *Minderheiten und Migration in der griechisch-römischen Welt: Politische, rechtliche, religiöse und kulturelle Aspekte*, 185–201. Paderborn: Ferdinand Schöningh.
- Lyovushkina, S. V. 1996. "On the history of sericulture in Central Asia." *Silk Road Art and Archaeology* 4, 143–150.
- Mairs, R. 2014. *The Hellenistic Far East: Archaeology, language, and identity in Greek Central Asia*. Oakley, CA: University of California Press.
- Mann, M. 1986. *The sources of social power*. Vol. 1. Cambridge: Cambridge University Press.
- Marquis, P. 2016. "The site of Mes ’Aynak." In M. Tisucká, L. Stančo, D. Stefanović, L. Novák, and R. Frečer (eds.), *Afghanistan: Rescued treasures of Buddhism*, 50–59. Prague: National Museum.
- Marshall, J. 1951. *Taxila: An illustrated account of archaeological excavations*. Vol. 1, *Structural remains*. Cambridge: Cambridge University Press.
- Martinez-Sève, L. 2010. "Pouvoir et religion dans la Bactriane hellénistique: Recherches sur la politique religieuse des rois séleucides et gréco-bactriens." *Chiron* 40, 1–27.
- . 2014. "The spatial organization of Ai Khanoum, a Greek city in Afghanistan." *American Journal of Archaeology* 118.2, 267–283.
- . 2015. "Ai Khanoum and Greek domination in Central Asia." *Electrum* 22, 17–46.
- Miho Museum. 2002. *Kodai Bakutoria ihō [Treasures of ancient Bactria]*. Shiga Prefecture: Miho Museum.
- Morris, L. 2020. "Roman objects in the Begram hoard and the memory of Greek rule in Kushan Central Asia." In R. Mairs (ed.), *The Graeco-Bactrian and Indo-Greek world*, 580–592. London: Routledge.

- . 2021. “The Begram hoard and its context.” PhD diss., Ludwig-Maximilians-Universität München.
- . Forthcoming. “Hoards from Hellenistic to Kushan Central Asia: Towards some interpretations.” In G. Lindström (ed.), *Ritual matters: Archaeology and religion in Hellenistic Central Asia: Proceedings of the second meeting of the Hellenistic Central Asia Research Network, Berlin, November 2017, Studia Hercynia*.
- Mukherjee, B. N. 1970. *The economic factors in Kushāna history*. Calcutta: Pilgrim.
- Naveh, J. and S. Shaked. 2012. *Aramaic documents from ancient Bactria (fourth century BCE) from the Khalili Collections*. London: The Khalili Family Trust.
- Naymark, A. 2016. “The coinage of Nakhshab during the first–fourth centuries CE: Towards a new systemization of Sogdian coinages and the political history of Sogd during antiquity.” *Journal of Inner Asian Art and Archaeology* 7, 55–77.
- Neef, R. 2013. “Note on the plant remains from Kurganzol.” In L. M. Sverchkov (ed.), *Курганзол. Крепость Александра на юге Узбекистана, 179–181*. Ташкент: SMI-ASIA.
- Nesbitt, M., S. J. Simpson, and I. Svanberg. 2010. “History of rice in Western and Central Asia.” In S. D. Sharma (ed.), *Rice: Origin, antiquity and history*, 312–344. Boca Raton, FL: CRC Press.
- Nikonorov, V. P. 1997. *The armies of Bactria 700 BC–450 AD*. Vol. 1, *Text*. Stockport: Montvert Publications.
- Noori, N. A., L. M. Olivieri, and E. Iori. 2019. “Fashion ware in Mes Aynak, Logar: Chronology and comparison (with an appendix on a single specimen of tulip-bowl from Site MA-100).” *Afghanistan* 2.1, 91–114.
- Olbrycht, M. J. 2015. “Arsacid Iran and the nomads of Central Asia – Ways of cultural transfer.” In J. Bemann and M. Schmauder (eds.), *Complexity of interaction along the Eurasian steppe zone in the first millennium CE*, 333–390. Bonn: Vor- und Frühgeschichtliche Archäologie, Rheinische Friedrich-Wilhelms-Universität Bonn.
- Olivieri, L. M. 2011. “Coat scales and correlated finds from Bir-kot-ghwandai stratigraphic context (Swat, Pakistan).” *South Asian Studies* 27.1, 1–24.
- . 2020. “Gandhāra and North-Western India.” In R. Mairs (ed.), *The Graeco-Bactrian and Indo-Greek world*, 386–415. London: Routledge.
- . Forthcoming. “Double-crop pocket zones and empires: The case of Swat.” In M. Dwivedi, L. Fabian, K. Leese-Messing, L. Morris, E. J. S. Weaverdyck (eds.), *Economies of the edge: Frontier zone processes at regional, imperial, and global scales (300 BCE–300 CE)*. Heidelberg: Heidelberg University Press.
- Olivieri, L. M. and M. Vidale. 2006. “Archaeology and settlement history in a test area of the Swat Valley: Preliminary report on the AMSV project (1st phase).” *East and West* 56.1/3, 73–150.
- Pagel, U. 2007. “Stūpa festivals in Buddhist narrative literature.” In K. Klaus and J. Hartmann (eds.), *Indica et Tibetica. Festschrift für Michael Hahn zum 65. Geburtstag von Freunden und Schülern überreicht*, 369–394. Vienna: Arbeitskreis für tibetische und buddhistische Studien Universität Wien.
- Peterson, S. 2020. “A closer look at the Tillya-tepe folding crown and attached pendants.” *Afghanistan* 3.1, 48–82.
- Petitot-Biehler, C.-Y. and P. Bernard. 1975. “Trésor de monnaies grecques et gréco-bactriennes trouvé a Aï Khanoum (Afghanistan).” *Revue Numismatique* 17, 23–69.
- Polos'mak, N. 2015. “Nouvelles découvertes de tentures polychromes brodées du début de notre ère dans les tumuli n° 20 et n° 31 de Noin-Ula (République de Mongolie).” *Arts Asiatiques* 70, 3–32.
- Pugachenkova, G. A. 1966. Халчаян. К проблеме художественной культуры северной бактрии [*Khalchaian. On the problem of the artistic culture of northern Bactria*]. Ташкент: ФАН.
- . 1971. Скульптура Халчаяна [*Khalchaian Sculpture*]. Москва: Искусство.

- Pugachenkova, G. A. and E. V. Rtveldadze. 1978. Дальверзинтепе. Кушанский город на юге Узбекистана [*Dal'verzintepe. Kushan city in south Uzbekistan*]. Ташкент: Академия Наук Узбекской ССР.
- Rapin, C. 1992. *Fouilles d'Aï Khanoum*. Vol. 8, *La Trésorerie du palais hellénistique d'Aï Khanoum. L'Apogée et la chute du royaume grec de Bactriane*. Paris: De Boccard.
- Rea, J. R., R. C. Senior, and A. S. Hollis. 1994. "A tax receipt from Hellenistic Bactria." *Zeitschrift für Papyrologie und Epigraphik* 104, 261–280.
- Rosenfield, J. M. 1967. *The dynastic arts of the Kushans*. Berkeley, CA: University of California Press.
- Rouse, L. M. 2020. "Silent partners: Archaeological insights on mobility, interaction and civilization in Central Asia's past." *Central Asian Survey* 39.3, 398–419.
- Rtveldadze, E. V. 2012. Великий индийский путь: Из истории важнейших торговых дорог Евразии [*The Great Indian Road: From the history of the most important trade routes of Eurasia*]. Санкт-Петербург: Нестор-История.
- Rubinson, K. S. 2019. "Why wear dolphins? Greek imagery among the pastoralists along the ancient Oxus." In S. A. Lullo and L. V. Wallace (eds.), *The art and archaeology of bodily adornment: Studies from Central and East Asian mortuary contexts*, 51–63. London: Routledge.
- Sadakata, A. 1996. "Inscriptions kharoṣṭhī provenant du marché aux antiquités de Peshawar." *Journal Asiatique* 284.2, 301–324.
- Sarianidi, V. I. 1985. *The golden hoard of Bactria: From the Tillya-tepe excavations in northern Afghanistan*. New York, NY: Abrams.
- . 1989. Храм и некрополь Тиллятепе [*The temple and necropolis of Tillya Tepe*]. Москва: Наука.
- Schlumberger, D., M. Le Berre and G. Fussman. 1983. *Surkh Kotal en Bactriane*. Vol. 1, *Les Temples: Architecture, sculpture, inscriptions*. Paris: De Boccard.
- Schopen, G. 1999. "The bones of a Buddha and the business of a monk: Conservative monastic values in an early Mahāyāna polemical tract." *Journal of Indian Philosophy* 27.4, 279–324.
- . 2004a. *Buddhist monks and business matters: Still more papers on monastic Buddhism in India*. Honolulu, HI: University of Hawai'i Press.
- . 2004b. "Art, beauty, and the business of running a Buddhist monastery in early northwest India." In Schopen (2004a), 19–44.
- . 2004c. "Doing business for the lord: Lending on interest and written loan contracts in the Mūlasarvāstivāda-vinaya." In Schopen (2004a), 45–90.
- . 2004d. "The good monk and his money in a Buddhist monasticism of 'the Mahāyāna Period.'" In Schopen (2004a), 1–18.
- . 2019. "The business model of a Buddhist monasticism: Acquiring productive assets." *Hualin International Journal of Buddhist Studies: E-journal* 2.2, 217–249.
- Senior, R. C. 2001. *Indo-Scythian coins and history*. Vol. 2, *The illustrated catalogue of Indo-Scythian and Indo-Parthian coins*. London: Chameleon Press.
- Sims-Williams, N. 2004 [2008]. "The Bactrian inscription of Rabatak: A new reading." *Bulletin of the Asia Institute* 18, 53–68.
- . 2007. *Bactrian documents from northern Afghanistan*. Vol. 2, *Letters and Buddhist texts*. London: The Nour Foundation.
- . 2009 [2013]. "Some Bactrian inscriptions on silver vessels." *Bulletin of the Asia Institute* 23, 191–198.
- . 2010. *Bactrian personal names. Iranisches personennamenbuch*. Vol. 2, *Mitteliranisches Personennamen*. Vienna: Verlag der Österreichischen Akademie der Wissenschaften.
- . 2012a. *Bactrian documents from northern Afghanistan*. Revised ed. Vol. 1, *Legal and economic documents*. London: The Nour Foundation.
- . 2012b. "Bactrian historical inscriptions of the Kushan period." *The Silk Road* 10, 76–80.

- . 2015. “A new Bactrian inscription from the time of Kanishka.” In H. Falk (ed.), *Kushan histories: Literary sources and selected papers from a symposium at Berlin, December 5th to 7th, 2013*, 255–264. Bremen: Hemen.
- . 2020. “The Bactrian documents as a historical source.” In R. E. Payne and R. King (eds.), *The limits of Empire in ancient Afghanistan. Rule and resistance in the Hindu Kush circa 600 BCE–600 CE*, 231–244. Wiesbaden: Harrassowitz.
- Sinisi, F. 2017. “Royal imagery on Kushan coins: Local tradition and Arsacid influences.” *Journal of the Economic and Social History of the Orient* 60.6, 818–927.
- Spengler, R. N. 2019. *Fruit from the Sands: The Silk Road Origins of the Foods We Eat*. Oakland: University of California Press.
- Spengler, R. N., L. Tang, A. Nayak, N. Boivin, and L. M. Olivieri. 2021. “The southern Central Asian mountains as an ancient agricultural mixing zone: New archaeobotanical data from Barikot in the Swat Valley of Pakistan.” *Vegetation History and Archaeobotany* 30, 463–476.
- Spengler, R. N., X. Zhou, and S. Stark. forthcoming. “Rice: A journey to the west.” *Rice*.
- Stančo, L. 2020. “Southern Uzbekistan.” In R. Mairs (ed.), *The Graeco-Bactrian and Indo-Greek World*, 249–285. London: Routledge.
- Stark, S. 2012. “Nomads and networks: Elites and their connections to the outside world.” In S. Stark, K. Rubinson, Z. Samashev, and J. Y. Chi (eds.), *Nomads and networks. The ancient art and culture of Kazakhstan*, 107–138. Princeton, NJ: Princeton University Press.
- . 2016. “‘Hellenism’ at the fringes: On the relationship between Bactria and western Sogdiana (Bukhara Oasis).” In История и археология Турана 3: Посвященный юбилею Джамалиддина Камаловича Мурзаахмедова, 134–150. Самарканд: Институт археологии АН РУз.
- . 2020. “Central Asia and the steppe.” In R. Mairs (ed.), *The Graeco-Bactrian and Indo-Greek World*, 78–105. London: Routledge.
- . Forthcoming. “Age of migrations? Archaeological perspectives on the ‘Yuezhi’ in Bactria.” In R. Bracey and J. Cribb (eds.), *The Kushan world*. New York, NY: Routledge.
- Stark, S., F. Kidd, J. K. Mirzaakhmedov, S. Wang, R. N. Spengler, S. J. Mirzaakhmedov, Z. Silvia, S. Pozzi, H. Rakhmonov, M. Sligar, and M. Sultanova. 2020. “The Uzbek-American expedition in Bukhara. Preliminary report on the third season (2017).” *Iran*, 1–51.
- Stark, S. and L. Morris. Forthcoming. “Between Alexander and Byzantium: Notions and concepts of the ‘West’ in Central Asia during antiquity.” In M. Canepa (ed.), *Persian cultures of power and the entanglement of the Afro-Eurasian world*. Los Angeles, CA: The Getty Research Institute.
- Strauch, I. 2008. “The Bajaur Collection: A New collection of Kharoṣṭhī Manuscripts – A preliminary catalogue and survey. Online version 1.1 (May 2008).” https://serval.unil.ch/resource/serval:BIB_F6788E40C78C.P001/REF.
- Stride, S. 2007. “Regions and territories in southern Central Asia: What the Surkhan Darya Province tells us about Bactria.” In J. Cribb and G. Hermann (eds.), *After Alexander: Central Asia before Islam*, 99–117. Oxford: Oxford University Press.
- Strootman, R. 2011. “Hellenistic court society: The Seleukid imperial court under Antiochos the Great, 223–187 BCE.” In J. Duindam, M. Kunt, and T. Artan (eds.), *Royal courts in dynastic states and empires: A global perspective*, 63–89. Leiden: Brill.
- Thierry, F. 2005. “Yuezhi et Kouchans: Pièges et dangers des sources chinoises.” In O. Boppearachchi and M.-F. Boussac (eds.), *Afghanistan: Ancien carrefour entre l'est et l'ouest: Actes du colloque international organisé par Christian Landes & Osmund Boppearachchi au Musée archéologique Henri-Prades-Lattes du 5 au 7 mai 2003*, 421–539. Turnhout: Brepols.
- Tsantini, E., V. M. Ferreras, E. A. Gil, J. M. G. I. Esparraguera, and S. Pidaev. 2016. “Pottery production in the Buddhist communities in Central Asia: The Kushan-Sassanian pottery workshop of Kara Tepe (Termez, Uzbekistan).” *Archaeometry* 58.1, 35–56.

- Urbanová, K. 2011. "Textile production at Jandavlattepa." In K. Abdullaev and L. Stančo (eds.), *Jandavlattepa: The excavation report for seasons 2002–2006*. Vol. 1, 105–118. Prague: Karolinum Press.
- van Buitenen, J. A. B., trans. 1975. *The Mahābhārata*. Vol. 2, *The book of the assembly hall. The book of the forest*. Chicago, IL: University of Chicago Press.
- Verardi, G. 1983. "The Kuṣāṇa emperors as Cakravartins: Dynastic art and cults in India and Central Asia: History of a theory, clarifications and refutations." *East and West* 33.1/4, 225–295.
- von Hinüber, O. 2006. "Everyday life in an ancient Indian Buddhist monastery." *Annual Report of the International Research Institute for Advanced Buddhology at Soka University* 9, 3–32.
- Wade, G. 2008. "The horse in Southeast Asia prior to 1500 CE: Some vignettes." In B. G. Fagner, R. Kautz, R. Ptak, and A. Schottenhammer (eds.), *Pferde in Asien: Geschichte, Handel und Kultur. Horses in Asia: history, trade and culture*, 161–177. Vienna: Verlag der Österreichischen Akademie der Wissenschaften.
- Wagner, M., B. Wang, P. Tarasov, S. M. Westh-Hansen, E. Völling, and J. Heller. 2009. "The ornamental trousers from Sampula (Xinjiang, China): Their origins and biography." *Antiquity* 83, 1065–1075.
- Watson, B. 1993. *Records of the Grand Historian: Han dynasty II*. Revised ed. New York, NY: Columbia University Press.
- Wilkin, S., A. Ventresca Miller, B. K. Miller, R. N. Spengler, W. T. T. Taylor, R. Fernandes, R. W. Hagan, M. Bleasdale, J. Zech, S. Ulziibayar, E. Myagmar, N. Boivin, and P. Roberts. 2020. "Economic diversification supported the growth of Mongolia's nomadic empires." *Scientific Reports* 10.1.
- Willett, J. 1997. "Tibetan fraternal polyandry: A review of its advantages and breakdown." *Nebraska Anthropologist* 113, 96–107.
- Wink, A. 2019. "Afghan caravan trade and imperialism in India." *Chungarā (Arica)* 51.1, 111–120.
- Wu, X., F. N. Miller and P. Crabtree. 2015a. "Agro-pastoral strategies and food production on the Achaemenid frontier in Central Asia: A case study of Kyzyltepa in southern Uzbekistan." *Iran* 53, 93–117.
- Yakubovich, I. 2005. "Marriage i. The marriage contract in the pre-Islamic period." *Encyclopaedia Iranica*, online edition. <http://iranicaonline.org/articles/marriage-contract-in-the-pre-islamic-period>.
- Yatsenko, S. A. 2012. "Yuezhi on Bactrian embroidery from textiles found at Noyon Uul, Mongolia." *The Silk Road* 10, 39–48.
- Young, R. 2003. *Agriculture and pastoralism in the Late Bronze and Iron Age, North West frontier province, Pakistan*. Oxford: Archaeopress.
- Zwalf, W. 1996. *A catalogue of the Gandhāra sculpture in the British Museum*. London: British Museum Press.

Mamta Dwivedi

5 Territorial and Transterritorial Economic Actors in Early Historic South Asia

I Introduction

The period between 300 BCE to 300 CE is one of change and, in general terms, growth, which was the result of cooperation of different sociopolitical participants in the economy.¹ This chapter discusses the major actors that participated in and influenced various economic functions in early historic South Asia. The purpose here is to briefly introduce those engaged in different economic behaviors of production, consumption, acquisition, and redistribution of goods, services, and knowledge. As these behaviors are not strictly exclusive, this chapter is organized to highlight the capacities (individual or collective) in which the actors direct their wealth and pursue their economic goals. Here, the emphasis is on *who* are the actors and *what* are their functions in the economy. The questions about the structures within which these actors operated, and the various institutions they developed are discussed in my chapter below.²

Structurally, this chapter organizes the actors based on their geographical scope of operation and radius of interaction, moving from smaller to greater spheres of influence. Within this trajectory, I alternate between actors with a clear territorial base and those with a transterritorial presence, which do not necessarily have a physically identifiable core tied to a territory or locality. I begin with the domestic households at the core of the economy, which were the most basic production and consumption units in addition to being the primary provider of human resources to all other socio-economic organizations. I then go on to discuss the providers of manual labor, who were the first point of contact for fulfilling the labor demands of a household that cannot be fulfilled by the members of the household themselves. Therefore, while the household was an institution with a core, its transterritorial counterparts were the manual laborers. Local elites could be both territorial, when their wealth was based on agriculture; and transterritorial, when their wealth was based on trade. Mercantile and professional corporate bodies, and their territorial counterparts, settlements and cities, were more complex organizationally and operated over larger distances. Finally, the Buddhist monastic system and the monarchical state had the largest spheres of economic influence. The institution of state was bound to a dynasty and its territorial boundaries, while in contrast the monasteries had a pan-Indic presence, and a network of transmission and connection without capitals or administrative centers, surviving through political changes and the rise and fall of dynasties.

1 Dwivedi, ch. 14, this volume.

2 Dwivedi, ch. 10, this volume.

II The Household

In this section, I emphasize that the institutionalized household was the basic social and economic unit, which lay at the core of the economy. Literary sources conspicuously identify and emphasize the economic importance of households in society at large. A household was the basic institution because, first, most property transfers occur within households or in moments of household transformation. Second, households were consumers, not only involved in subsistence consumption, but also in their demand for goods to fulfill their ritual duties and express their social standing. Last but not the least, households were involved in production processes, both agriculture and crafting activities, either as producers themselves or as providers of human resources to these sectors.

II.1 A Normative Household: An Institutional Anchor of Private Property

The representation of the household as an institution is already visible in texts from the middle of the first millennium BCE,³ and therefore for the period of our concern, the household and its role in society are well theorized in the literary sources. A household, i.e., *gṛha*, was a special setting in which members were bound together by their ritual roles that defined their involvement in production, reproduction, and social linkage.⁴ The household is presented as one of the four stages in life for men, that is, the *āśrama* system. The *āśrama*, a social institution regulating the socioreligious life of a man, divides his socioritual life into four successive stages, i.e., student, householder, hermit, and anchorite/renunciator.⁵

The householder (*gṛhastha*), the second, stage of a man's life begins with his marriage. In ancient texts, the ritual duty of marriage, like all ritual duties and activities, is explained in an economic context. After marriage, both men and women gain the position of a legal entity eligible to participate in economic and legal contracts, but before this, a male 'student' is a minor and therefore cannot hold property or make transactions. The *Arthaśāstra* emphasizes, "all transactions presuppose marriage" (*vivāhapurvo vyavahāra*).⁶ Marriage, the first contract that a person enters into, is also conceived of as a means of property transfer between house-

³ Here, the reference is to the *Gṛhyasūtra* literature, which discusses the daily and occasional rituals to be carried out in a household. See Tyagi 2007; 2008.

⁴ Tyagi 2008, 8.

⁵ The life stages are *brahmacāri* (student), *gṛhastha* (householder), *vānaprastha* (hermit), *sanyāsin* (renouncer). For a historical study and bibliography of the development and changes in the conceptualization of the *āśrama* system in the Indic literary tradition, see Olivelle 1993.

⁶ *Kauṭīliya Arthaśāstra (KA)* 3. 2. 1.

holds.⁷ Gifting of daughter, *kanyādāna*, is the essence of a legal marriage.⁸ The direction of money transfer and other items identify the type of marriage, which is of eight types.⁹ The superior forms of marriages are when the girl is gifted along with jewelries or cattle,¹⁰ while any form where there is no gifting of daughter is a relatively inferior form of marriage. The three most inferior forms of marriage are where bride price is accepted (*śulkadāna*), where the girl is forcibly seized, and where she is seized or violated when asleep or under the influence of intoxication.¹¹ The type of marriage also determines whether the husband and wife have a common property or it remains separate, as in the case of the lowest form of marriages when the husband may not use the wife's belongings.

A woman's possessions (*strīdhana*) consist of various forms of payment and items.¹² The wealth of a woman consists of *vṛtti* (maintenance by her husband¹³ or livelihood)¹⁴ and *ābandhyaṃ* (ornaments).¹⁵ There is no limit to the ornaments she could possess, however, *vṛtti* may not exceed more than 2000 *paṇas*.¹⁶ A woman's property consists of payments or gifts from her relatives at the time of or after marriage. Again, it is with the marriage or entering the stage of a householder that a woman too acquires the status of a legal entity.

Additionally, the reproductive role of a household is celebrated in many normative texts.¹⁷ In norms, the importance of the reproductive role of a woman is greatly emphasized. In fact, the most important role of the wife is to bear a son, for which a woman (*strī*) is equated with Śrī (the goddess of fortune).¹⁸ Moreover, even a servile bonded woman, along with her entire family, gets manumitted if she bears children of the master.¹⁹ Kauṭilya's normative text even brings the state into the matters of reproduction within households. He emphasizes procreation as the main purpose

7 Other defined topics are various types of pious (also legitimate) and impious (also illegitimate) marriages, qualities of an appropriate wife/husband befitting the ritual, economic, and social status. For a brief discussion on the institution of marriage in the *śāstric* tradition, see Jamison 2017.

8 KA 3. 2. 2.

9 For the types of marriage see Jamison 2017.

10 KA 3. 2. 2, 4.

11 KA 3. 2. 7–9. Kauṭilya mentions that the first bride price (*śulka*) is taken by the parents, while the second, from the second marriage, is taken by the bride herself (KA 3. 2. 11, 12). See Kangle (1969) 2014b, 227; Olivelle 2013, 588.

12 See Kangle (1969) 2014b, 230. See also Olivelle 2013, 184.

13 Kangle translates *vṛtti* as maintenance a woman receives from her husband. See Kangle (1969) 2014b, 228.

14 Olivelle translates *vṛtti* as livelihood. See Olivelle 2013, 183.

15 KA 3. 2. 14.

16 KA 3. 2. 15. The limit of 2000 *paṇas* to be given to the women during marriage is also mentioned in Kātyāyana's *vārttika*, 902.

17 *Gautama Dharmasūtras* 3. 1–3, trans. Olivelle 1999, 83. Modern scholars also study the householder in comparison to the renunciants, see Heesterman 1982; Thapar 1982.

18 *Manusmṛti* (MS) 9. 26.

19 KA 3. 13. 23–24. See also Jaiswal 2001, 57.

of marriage, and thus in case of concealment of period or a man's failure to approach his wife at the right time, may lead to a fine of 96 *paṇas*.²⁰

The literary sources give an impression of the involvement of a wife in the management of the house, including keeping the accounts of expenses. Manu recommends that a husband should employ the wife in collection (*samgraha*) and disbursement (*vyaya*) of his wealth in cooking, cleaning, meritorious activity, and looking after the household.²¹ A wife is responsible for not only the needs of the husband but also the household in terms of looking after the vegetable garden and orchards.²² While the aesthetic importance for the maintenance of these flower gardens is mentioned, the number of spices, herbs, crops, and vegetables to be grown also has a great deal of economic significance to it. She is to have the knowledge of sowing and a sense of seasons of planting.²³ Gardening is one of the aspects of the 'Sixty-four Arts,' and so is the knowledge of handling expenses.²⁴ An ideal wife is to have the market knowledge of household goods as well as luxury items. The wife is to buy household commodities and stock up when the price is right. These are made of clay (*mṛd*), bamboo (*vidala*), wood (*kāṣṭha*), leather (*carma*), and iron (*lauh*).²⁵ There are also commodities that are to be bought, stocked, and kept hidden such as salt, oils and hard-to-get perfumes, spices, and medicines.²⁶

II.2 Consumption in the Household: Domestic Budget and the Role of Women

Here, I emphasize that the household and its expectations were particularly important in influencing women's consumption. Women are commonly mentioned in the context of their role as wives in the household, be it in the context of royal households or laity: first, as consumers of luxury, and second, as those spending money on donations and ritual activities.

Early historic art conspicuously represents well-dressed and highly adorned women in their representations in sculptures and relief art.²⁷ Archaeological finds, too, have brought forth a large variety of jewelry and beads from the habitational sites in the northern region of the subcontinent. Moreover, from the southern part of the subcontinent, megalithic burial deposits have also yielded a variety of jewelry

²⁰ KA 3. 2. 44.

²¹ MS 9. 11.

²² See *Kāmasūtra* (KS) 4. 1. 1–8.

²³ For the list of recommended plantations see KS 4. 1. 6–7; KS 4. 1. 29.

²⁴ The 'Sixty-four Arts' are a set of skills that qualified one as cultured. It includes a variety of crafting, vocational, social and sexual skills. For the complete list, see KS 1.3.16.

²⁵ KS 4. 1. 27.

²⁶ KS 4. 1. 28.

²⁷ P. Thakur 2018.

items of personal adornment.²⁸ Normative texts emphasize adornment and grooming for women. A wife should wear gorgeous jewelry, scented oil, and a dazzling dress when she goes to her husband to make love.²⁹ Even the recommended everyday attire includes thin and fine clothes (*dukūla*) and the wife should moderately decorate herself with jewelry.³⁰ It is not surprising that jewelry constitutes a very important part of a woman's property in the literary sources.

Even when women were consuming in nongendered ways, they identified themselves with reference to the male members of their household. Women participated in large numbers in the popular culture of consumption through donations as betrayed by epigraphic evidence. For example, a study of 518 donative inscriptions from Sanchi, dating between the mid-second century BCE and later decades of the first century BCE, revealed that almost 50 percent of donations to the monastery were made by women.³¹ They identify themselves either as nuns of the Buddhist order or with their roles within the household. In epigraphic evidence, patron women seeking merit for their family through donations identify themselves in the inscriptions by their household status, such as *sārvavāhinī* (wife of caravan leader), *banmanī* (wife of a Brāhmaṇa), *kuṭumbinī* (housewife), *mahāsenāpatinī* (wife of a military general) among many others.³² The donations women could make for the spiritual merit of their family shows their access to wealth and finances.

II.3 Households and the Processes of Production

Households were important participants in the production process as direct producers and suppliers of skilled and unskilled labor. The household was also the basic taxable unit, as the revenue officer, *gopa* (head of five to ten villages) was supposed to keep an account of the income of every household.³³ Here, I will discuss the agricultural household and artisanal households as producers and transmitters of traditional knowledge through generations.

II.3.1 Participation of the Household in Agricultural Production

Familial relationships within the household structured both property rights on land and agricultural production. Most of the agricultural land was owned by private

²⁸ Srinivasan 2018.

²⁹ *KS* 4. 1. 24.

³⁰ *KS* 4. 1. 25. Doniger and Kakar (2002, 95) translate the term *dukūla* as "silk."

³¹ Milligan 2019. Even though about 40 percent of female donors identify themselves as nuns, 60 percent of female donors are lay women.

³² Various inscriptions in Lüders 1912.

³³ *KA* 2. 35. 2–5.

households, although we are also aware of agricultural land held by the crown and monasteries.³⁴ With our current source base, it is difficult to discern the size of an average agricultural holding. We learn of small agricultural holdings where the owner may have managed the land with the help of family members and seasonal wage laborers (sec. III). We also learn of the *kuṭumbikas* (members of a family) and *gr̥hapatis* (lords of household),³⁵ who were landowning economic elites known from both textual and epigraphic sources. More specifically, *kuṭumbikas* were kin-based agrarian householders. At times, records report they were well off, and engaged in religious donations and moneylending.³⁶ The *gr̥hapati* was an exceptionally rich local elite, whose wealth marked him out from his extended kin (sec. IV). However, both *kuṭumbikas* and *gr̥hapati* are to be distinguished from tillers of lands, who were rather called *kinasa*, *kṛṣivala*, *karṣaka*, and *halikas*.³⁷ It is possible that these were farmers with their own land and tools.

Households had access to additional labor. From the *Arthasāstra* we also learn about tenants and hired laborers. Tenancy was also marked by the practice of sharecropping. We have reference to the female agricultural laborers, *ardhasitikās*,³⁸ who tilled the land for half the produce. Jaiswal suggests that this category is hardly visible in other ancient sources and is seldom taken into consideration.³⁹ She further points out that these women had some sort of financial independence, who along with women of cowherd communities (*gopālaka*) shared financial responsibility in the debts incurred by their husbands.⁴⁰ Texts also note the involvement of women in sowing, weeding, transplanting, harvesting, and processing the crops.⁴¹

II.3.2 Artisanal Households

Archaeological finds have shown that a majority of the craft activity took place at the household level. An example is that of the potter's household from Indor Khera (Uttar Pradesh), where the workspace and residential complex are found at the

³⁴ We also learn of royal land, see Dwivedi, ch. 10, II.1, this volume.

³⁵ The connotation of household here is of a holding larger than the conventional household (*gr̥ha*), and therefore he is to be distinguished from a householder, *gr̥hastha* (secs. II.1 and IV).

³⁶ R. Chakravarti 1996, 181–186.

³⁷ R. Chakravarti 1996.

³⁸ *KA* 3. 13. 9. Krishan Rao (1953, 143–144) considered them similar to the landless laborers who worked in cultivating the “crown lands” and who paid one-fourth or one-fifth share of the produce as land rent. While the tenant/sharecropper status on agricultural field of the *ardhasitikā* is also pointed by both Kangle ([1969] 2014b) and Olivelle (2013), the rent amount is debatable, as the latter scholars consider the share to have been half of the produce.

³⁹ Jaiswal 2001, 53.

⁴⁰ *KA* 3. 11. 23; Dwivedi 2015, 120–121; see also Jaiswal 2001, 53.

⁴¹ *KS (Kāmasūtra)* 5. 5. 6–8. See also Jaiswal 2001, 52, 53.

same place. Production space for ceramics can be identified relatively more clearly than other craft activities, not only because of the durability of the final product, but also because of the presence of easily identifiable tools and equipment, such as anvils and dabbers, firing facilities, lumps and rolls of clay, deposits of sand used for tempering, unbaked artifacts, wasters or over-vitrified material, etc.⁴² The rudimentary and miniature terracotta and clay objects found at the potter's site have been used as an indicator of children participating in learning activities related to the craft.⁴³ If we are to consider this case, it is possible to assume that some, if not all, of the craft skills were transferred within the family.⁴⁴

Residential workshops are also mentioned in the literary sources. The term *antarāpaṇa* (interior shop) perhaps refers to the workshop at a private residence and the items could be directly sold from the place of its production.⁴⁵ Additionally, these workshops were often found in clusters in their respective areas. An example commonly cited is that of the goldsmiths, who had their residence-cum-shop located together, and the street was named after them.⁴⁶ Households are therefore also economic institutions where members form the basic work group in both agricultural land or manufacturing units owned by a household. The individuals involved are primarily bound by ritual and kinship ties. However, households also reached out to other groups at times for additional labor requirements.

III Manual and Menial Labor

This section discusses the general labor system(s) of early India by identifying the social categories that shaped the provision of manual labor in different economic settings, ranging from wage-earning laborer in agricultural and crafting industries to subservient laborers working in domestic, royal, monastic, and corporate organizations. Unlike in the Graeco-Roman context, an institutionalized system of slavery did not shape the labor profile of early India. Indeed Megasthenes, the Seleukid ambassador to Candragupta Maurya's court, found it noteworthy that India had no slavery.⁴⁷ In the Indic context, the slave-free dichotomy did not play the same fundamental structuring role as it did in Graeco-Roman society. This does not mean

⁴² Varma and Menon 2015, 36–42.

⁴³ Varma and Menon 2011.

⁴⁴ The authors have also made other ethnoarchaeological studies of the household involved in pottery production. Their studies show a presence of a very long tradition of pottery production and children learning while playing within similar premise. Varma and Menon 2011; 2015.

⁴⁵ Schlingoff 2013, 14, n. 10.

⁴⁶ For the street of 'gold dealers,' see *KA* 2. 13. 2 with Olivelle 2013, 537.

⁴⁷ Diodorus Siculus 2. 39. Absence of slavery was echoed in Arrian's and Strabo's writings as well. For a discussion, see Thapar 2013, 113–114.

that subservient laborers were completely absent. There are instances of indentured and bonded labor, as well as a practice of offering labor for basic subsistence, which we shall discuss below. Rather, the stratification of society into socioritual groups with special economic roles, the *varṇa* system, was more important in defining labor roles.⁴⁸

In normative texts, society is divided into four socioritual groups who are also recommended to perform specific economic functions. Śūdras, the lowest of the four *varṇas*, are people who work with their hands. This includes craftsmen – such as ivory workers (*dantakāras*), masons (*vadhaki*), weavers (*sotika*), leather workers (*cammakāra*) – agriculturalists, and more inferior groups who performed manual labor.⁴⁹ While the normative texts describe the Śūdras as primarily a group serving the other three *varṇas*, epigraphic sources reveal that craftsmen could be part of professional associations and amass wealth on a scale that allowed them to commission carvings of caves and pillars as donations to the Buddhist monasteries.⁵⁰ The normative texts also do not characterize the Śūdras as slaves. They could own property, possess agricultural lands, be tenants and sharecroppers, and importantly, did not have a master.⁵¹ Moreover, it is noteworthy that they are paid wages unless they perform voluntary works or are reduced to bonded labor in the case of failure to repay their loans. Daily wages are on the lowest rung. The king is instructed to pay the daily allowance (*pratyahaṃ kalpayedvṛttiṃ*) for these laborers on the basis of their “rank and duties,” where the minimum is one *paṇa* and the maximum wage is set as six *paṇas* along with *bhakta* (payment in kinds) in the form of clothes every six months and one *drona* of grain every month.⁵²

Apart from the Śūdras, which is one socioritual umbrella group of manual laborers, we hear of other categories defined by an unequal relationship of subjugation on the provision of labor. These are *dāsas*, as well as *karmakaras* and *porisas*.⁵³ A person could enter such a condition of subservience in a variety of ways, by failing to pay their debts, or being pledged for an unpaid debt (*ādhāna*),⁵⁴ failing to pay fines or being sentenced to drudgery,⁵⁵ being captured in war, purchased, or simply

48 Thapar 2013, 113.

49 The other three are: the Brāhmaṇas, who are the priests and educators; the Kṣatriyas, who are the ruling and warrior section of the society, and; the third are the Vaiśyas, who are agriculturists and merchants. We are not sure how strictly hierarchized these groups were, as to an extent the strictly hierarchical socioritual status is a modern historiographic topos.

50 Lüders 1912, nos. 29, 92, 95, 331, 345, 1005, 986, 1177, 1273. See also Basant 2012, 299–348; Shima-da 2013, 238–242.

51 Sahoo 2012–2013.

52 MS 7. 126. *Drona* is one of the measures adopted in the *Manusmṛiti*. Olivelle (2005, 997) suggests that it could be five liters or approximately 9.5 kg.

53 Sharma 1990, 165–166.

54 Kauṭilya discusses the issues of *dāsas* and those pledged (*ādhāna*) on their own or by others in chapter 13 of book 3.

55 See MS 8. 415.

born into it.⁵⁶ These groups are mentioned in a wide range of contexts implying varied degrees of subservience.⁵⁷ The degree of servility can be determined by looking at the various conditions to which a laborer could be subjected, including but not limited to susceptibility to forced and unpaid labor, and loss of some legal agency by being treated as a property or commodity that could be transferred by sale or gifting.

The *dāsas* are a well-known subservient group who were used to perform menial labor. Their subjugation can be understood in terms of the “bundle of property rights” that identifies the rights of property and ownership in relation to those of others.⁵⁸ The three applicable determinants can be a) rights that masters have over a *dāsa*, or his labor, b) rights of a *dāsa* to hold property, and c) legal recourse in case of violation. Masters could have some property rights over *dāsas*. They commonly appear in a list of items indicating wealth along with chariots, horses, and similar items denoting affluent lifestyle, suggesting the master had the right to use their labor. Moreover, masters could transfer their property rights, as we learn about the sale and purchase (*kṛaya vikṛaya*) of *dāsas*, and they could be inherited (*dāyāgata*) and even be acquired as gift (*labdha*).⁵⁹ Another type of laborers who could be gifted are the *ārāmikas*. The *vinaya* texts refer to the *ārāmikas*, in the context of hundreds of workers involved in the upkeep of the monasteries and related buildings.⁶⁰ Indeed, Buddhist monasteries may have been one of the biggest organizations using servile labor or at least benefiting from unpaid labor.⁶¹

Unlike chattel slaves, however, *dāsas* had property rights of their own. The concept that an *ārya*⁶² should not be reduced to the status of a *dāsa*, especially minors,⁶³ suggests that there may be an implied loss of property associated with becoming a *dāsa*, but there is no clear instruction that a *dāsa* must be deprived of his property or ineligible to hold it. Moreover, there does not appear to be any legal restriction on earning an income and acquisition of property for *dāsa*. We even know of the property of the *dāsa* (*dāsadravya*), which goes to the master after him, and in case there is no master, the kinsmen shall inherit it.⁶⁴

56 U. Chakravarti 2006, 72.

57 U. Chakravarti 2006, 70–75.

58 For the theoretical framework behind this approach of property rights, see Furubotn and Richter 2005, 81–86.

59 See Ghoshal 1944, 93; also, *KA* 3. 13. 20.

60 Chanana 1960, 82–84; Schopen 1994, 198–212.

61 Here the intended reference is to the story of a prince gifting to a monastery 500 *ārāmikas* for the maintenance of the monastery and monastic residence, Schopen 1994, 198–212.

62 In the *KA*, *ārya* refers to the members of the four socioritual groups (*varṇas*) (*KA* 3. 13. 1). Nor are any members of the four *varṇas* (Śūdra, Vaiśya, Kṣatriya, and Brāhmaṇa) to be reduced to slavery or they are entitled to fine (*KA* 3. 12. 1–4) It also means an esteemed person with superior, noble origin, see Apte 1993, 229.

63 *KA* 3. 3. 1; 3. 13. 1.

64 *KA* 3. 13. 24. In the later *śāstras*, from the *Manusmṛti* onward, the slaves do not have property rights and whatever they make belongs to their owner.

Not only did *dāsas* have legally recognized kinship bonds, but subservient laborers also enjoyed some legal protection, especially those indentured as pledged security for debt. The pledged worker is considered capital (*mūla*) by Kauṭilya, so any abuse of them is equated with loss of capital. We hear of manumission (*mokṣa*) of female workers in case they have been sexually exploited by their masters.⁶⁵ The pledged person also gets his or her freedom on account of sexual exploitation or when forced to perform certain condemnable tasks.⁶⁶ Although in theory a subjugated laborer had some kind of protection from violations and option for legal recourse, mentions of laborers escaping and peasants protesting indicate that the reality may not have been rosy.⁶⁷

IV Local Elites

Although the literary sources talk mostly about the upper sections, the problem of defining the functional elite in India has been pointed out by scholars.⁶⁸ The elite status of a person or group in early India may be evaluated from two positions, the status derived from ritual or ideological power and that from the politico-economic power.⁶⁹ Thapar suggests that the elite could have come from the first three orders of the *varṇas* (socioritual status).⁷⁰ To some scholars, the warrior and the priest class appeared as the clear elite groups, as they enjoyed power.⁷¹ However, the forms of power these two groups enjoyed were often non-economic in nature. Also, since the *varṇa* stratification cut across the economic lines, Thapar suggests that

⁶⁵ KA 3. 13. 9.

⁶⁶ KA 3. 13. 9, 11.

⁶⁷ For instance, see Mandal 2007.

⁶⁸ Thapar (1978) 2006b, 109–136. The term ‘functional elite’ is often used by scholars in context of the modern world, and most commonly in the Marxist history writing where it is comparable to the upper class of the society. However, the structural functionalism was developed into theoretical framework by Durkheim. The functional elite theory agrees to the idea of circulation of elites in the society based on the changing power dynamics. A functional elite, therefore, is one who holds power and does everything necessary to keep it, while the non-power-holding elite strives for it. For further discussion, see Kocks 2016, 94.

⁶⁹ Thapar (1978) 2006b, 113.

⁷⁰ The *varṇa* system is characterized by ordering of society into four socioritual groups in the society, where each group has their respective prescribed economic, social, and ritual roles. Considering this order of society, many historians identify the economic elites with the upper sections of the order – Brāhmaṇa, Kṣatriya, and Vaiśya, viz., the intelligentsia, warrior, and merchant groups, respectively.

⁷¹ Cohen 1964. Cohen in this article brings forward the discussion about the status of the two *varṇas*, which he calls two upper classes, *Brāhmaṇa* and *Kṣatriya* (priests and warriors respectively).

the understanding of the category of the elite is varied.⁷² Being a part of high ritual status did not ensure economic prosperity, as we are aware of impoverished Brāhmaṇas from various narrative texts. Additionally, in prescriptive texts like the *Manusmṛti*, amassing of wealth by a Brāhmaṇa is condemned. The only group that is encouraged to amass wealth is that of the Vaiśya ritual status, who are traders and producers, coming from a variety of occupational groups and economic conditions.⁷³ In this condition, it shall be problematic to determine one ritual group as elite, or at least as economic elites capable of mobilizing and acquiring material resources. The distribution of economic power in the society indicates a situation of heterarchy.⁷⁴

So, is there any category that can be easily identified as the economic elite in early India? The answer is yes; we can locate economic elites by identifying certain basic economic functions they fulfilled. They are identified as those who a) amassed wealth, b) had the potential to mobilize resources, both in agricultural and mercantile contexts, c) hired specialized and nonspecialized laborers, and d) were often seen cooperating and coordinating with prevalent religious organizations as well as by their political alliance to elevate their social and economic position. *Gṛhapatis* and *śreṣṭhis* are the most visible titles indicative of elites in a socioeconomic context.

Gṛhapati, in Sanskrit and *gahapati* in Pali, commonly appear in textual sources between the sixth century BCE and fourth century CE, and from the second century BCE in epigraphy. This term means 'lord of household,' where the term *gṛha* means a house and *pati* means lord. However, *gṛhapati* is to be differentiated from a mere householder, *gṛhastha* (sec. II.1). The term *gṛha* in *gṛhapati* has a larger connotation than just a domestic household; it could be similar to a business house or an economic holding. *Gahapati*, the Pali version of the term *gṛhapati*, is also seen as an exalted title fit to be assumed by a man of social preeminence and considerable wealth.⁷⁵ As a title or epithet, *gahapati* was assumed by a person with growing wealth and reputation, which marked him out from his extended kin.⁷⁶ Loss or relinquishment of property would mean one could no longer be called a *gahapati*. The wealth of a *gahapati* consisted fundamentally of land, gold, and silver, as well as grain and cattle. A *gahapati* has a good presence in the agrarian setting.⁷⁷ It is often suggested that they could have been the major taxpayers. One of the passages often cited is that from a Buddhist text, the *Digha Nikāya*, which identifies a *gaha-*

72 Thapar (1978) 2006b.

73 MS 10. 74–80.

74 The concept of heterarchy allows to perceive the fluidity in the structure of the society, where both relatively ranked or unranked elements interact. The flexibility of power relations and dynamic interactions is therefore considered as a ground for potential space where social changes can originate from within. See Smith 2006.

75 R. Chakravarti 1996, 181.

76 R. Chakravarti 1996, 184. See also Wagle 1995, 152.

77 U. Chakravarti 1996.

pati as “one who pays taxes and thus increases the king’s wealth.”⁷⁸ A *gahapati*, in the Pali texts, is associated with hiring *dāsa-kammakaras* (sec. III), and the latter is a group of manual labor and actual producer, as discussed above. The *gahapati* is considered an appropriator of resources, while the *dāsa-kammakaras* produced the surplus that the *gahapati* collects and redistributes. The title *gahapati* is also found in various donative inscriptions in the subcontinent.⁷⁹ In one of the donative inscriptions, the donor is a woman who identifies herself as the wife of the brother of the *gahapati* named Patīhiya.⁸⁰ This type of identification makes it clear that *gahapati* is not a regular householder, but an important title, and any association with one brought status.

Another significant member of the economic elite was the *śreṣṭhi* (Pali *seṭṭhi*), who is identified as an immensely wealthy merchant with prominence in the mercantile community. It is suggested that a *śreṣṭhi* could have been a banker or a leader of a guild.⁸¹ As a mercantile designation, the term is also found in various donative inscriptions from the second century onward. Among the titles of prominent merchants, of particular importance is the *rājaśreṣṭhi*, who perhaps held an unpaid office in the court of the king, appointed by or closely associated with the ruler.⁸²

The Buddhist texts refer to the importance of an amicable relationship with the rulers, and how the *gahapatis* are one of the seven treasures of the king’s symbol of sovereignty and intrinsic to kingship.⁸³ We, however, come across a different perspective as well. One famous example is that of the famous merchant (*seṭṭhi*), Anāthainḍaka, who bought a garden by paying the number of coins that could physically cover the entire surface of the garden, i.e., 10 million coins. Anāthainḍaka had to pay this price because Prince Jeta refused to sell the garden and rather mockingly challenged the merchant for this kind of payment.⁸⁴ Suspicion and scorn toward the merchants is also seen in the *Arthaśāstra*, where the king is recommended to be wary of wealthy merchants and keep surveillance over merchants. The policy toward merchants is discussed under the title of “*kaṇṭaka śodhana*,” which literally means “Eradication of Thorns.”⁸⁵ It may be taken as the state’s recognition of the fact that the wealthy merchants pose a threat to the authority of the rulers because of their potential to mobilize resources against the state’s authority. In addition, the *śreṣṭhis* as leaders of professional associations also exercised their economic influence in various ways.

⁷⁸ U. Chakravarti 1996, 161–162.

⁷⁹ Lüders 1912, inscription nos. 193, 201, 202, 449, 450, 725, 908.

⁸⁰ Lüders 1912, inscription no. 450. There is also another donative inscription where *gahapati* Patīhiya himself is mentioned as a donor (Lüders 1912, no. 449).

⁸¹ Sircar 1966, 317. Neelis 2011, 24.

⁸² R. Chakravarti 2007, 102.

⁸³ *Anguttara Nikāya*, 3:75–76; *Dīgha Nikāya* 1:27, vide U. Chakravarti 1996, 161.

⁸⁴ *Cullavagga* 6. 4–9, trans. Horner (1952) 2001.

⁸⁵ *KA* Book 4.

V Merchants and Corporate Bodies

Professional corporations were important actors of transterritorial activity in early South Asia. Corporate bodies were formed by all kinds of professionals involved in manufacturing, finance, and trade. This section starts with merchants before turning to the discussion of a wider range of corporate bodies in early historic India.

V.1 Merchants

Vaṇik(a) is the most common term for traders in both Sanskrit and Tamil texts. Epigraphic records in Tamil-Brāhmī show the presence of specialized traders, such as oil traders (*eṇṇai vaṇikan*), textile traders (*aruvai vaṇikan*), ploughshare traders (*kolu vaṇikan*), and many others.⁸⁶ This coincides with the fact that markets were organized into streets dedicated to traders dealing in specialized items.⁸⁷ Local traders were either independent peddlers (*vaidehakas*), retailers (*pratikety*) operating at the village or city level, local agents (*upajīvāḥ*) of bigger merchants, or artisans who sold their goods directly from their workshops (*antarāpaṇa*).⁸⁸ They were distinguished from nonlocal merchants (*āgantuk/āgantum*) who, within the provisions of the *Arthaśāstra*, were allowed a higher profit margin and had access to legal protection in certain cases.⁸⁹

Long-distance traders were specialized either in overland travel with ox carts and portage animals, or in maritime trade across the Indian Ocean. Some caravans transported particular commodities, as is suggested in a Sangam text mentioning salt-trading caravans (*umanaccāttu*),⁹⁰ while others moved composite cargoes.⁹¹ Both caravan and maritime traders seem to have been organized in corporate bodies, as they appear in various literary and epigraphic texts in connection with a leader, *sārvavāha*.⁹² Two inscriptions from Vellari and Madurai refer explicitly to merchants organized in corporate bodies (*nikamatōr*).⁹³ Moreover, many Tamil-Brāhmī potsherds found at sites on the coast of the southern Arabian Peninsula, as well as at coastal sites in present-day Thailand, bear the names of traders, suggesting that long-distance traders habitually acted together when trading abroad.⁹⁴ All

⁸⁶ Rajan 2019, 183.

⁸⁷ See Dwivedi, ch. 14, IV.3.1, this volume.

⁸⁸ Again, Dwivedi, ch. 14, IV.3, this volume.

⁸⁹ *KA* 2. 16. 11–14.

⁹⁰ Champakalakshmi 1996, 106.

⁹¹ Dwivedi, ch. 14, III.2 and IV.1–2, this volume with Coningham et al. 1996, 89–92.

⁹² Dwivedi, ch. 14, IV.1, this volume. For further detailed references, see Neelis 2011, 25–29, 31–33.

⁹³ See also sec. VI.2.2.

⁹⁴ Rajan 2019, 183 for this and further evidence. For further reference, see also Dwivedi, vol. 1, ch. 10.A, 441–444.

this has been taken to suggest that both local retailers and long-distance caravan and maritime traders acted in collectives to share risks and profits.⁹⁵ This notion gains support when considered within the wider evidence for corporate bodies and associations.

V.2 Corporate Bodies and Associations

Private professional organizations are one of the most widespread economic actors in early historic South Asia.⁹⁶ They are identified by the very common generic term *śreṇi*, best translated as corporate body, or cooperative organization. These corporate bodies inevitably have been compared with medieval European guilds.⁹⁷ However, since the evidence does not allow to reconstruct the internal administration and functioning of the ancient Indian corporate bodies, any comparison with the medieval European guilds should be avoided. Instead, I emphasize that the *śreṇi* system was a form of economic cooperation which mitigated the risk factor for both members and clients, developed credit institutions, and served as a network of knowledge transfer and intellectual exchange.

Śreṇis were private bodies of professionals of the same field. We learn of a variety of guilds, such as associations of garland makers, weavers, ivory workers, and woodworkers. There were even mercenary guilds, who were often hired in the infantry segment along with other soldiers, and the chief of this guild is among those recommended for high remuneration from the state.⁹⁸ Guild offices had designated sections along the city walls in normative instructions for city planning.⁹⁹ The nature, composition, and size of these associations varied. While these are a profession-based organization within a village, it is possible that settlements and even cities formed a part of a corporate body with administrative functions (sec. VI).

Guilds also had legal standing, and they may have managed codes and rules (*śreṇidharma*) to regulate their internal affairs. These codes also had some validity outside their *śreṇi*, as they are to be taken into consideration by a king or judge

⁹⁵ Rajan 2019, 183.

⁹⁶ Ray 1986; K. K. Thaplyal 1996; Evers 2017, 148–171.

⁹⁷ Seshan points that the inevitable comparison of the ancient Indian craft guilds with those of the Medieval European ones, was made “with the underlying inference that guilds came into existence in medieval Europe, but were present in ancient India.” As guilds are an urban feature, it became important for the economic historians of India to demolish the ever-stagnant and ever-agrarian image of Indian past by highlighting the presence of guilds and cooperatives in ancient India. Seshan 2007.

⁹⁸ KA 2. 33. 8; 5. 3. 9; 7. 8. 32; 7. 14. 28; 8. 4. 27–29; 9. 2. 1, 4, 16. Kangle translates the *śreṇi* in reference to troops as “banded” soldiers, while Olivelle translates them as “corporate” troops. Kangle (1969) 2014b, 181; Olivelle 2013, 171.

⁹⁹ KA 2. 4. 16. For all Sanskrit references to the KA, see Kangle (1969) 2014a.

when solving a dispute between two parties.¹⁰⁰ Their legal standing may have also provided economic security to both the members and the clients, which perhaps was the main reason for the formation of these guilds. In context of artisanal guilds, the *Arthaśāstra* recommends acceptance of the raw material or monetary deposits only after the guarantee of the guild, and in case of any misfortune leading to non-delivery or nonpayment, the guild shall be responsible for the entrusted material.¹⁰¹

We also know of the involvement of these associations in commercial activities, and their potential to expend and invest in large capacity. The head of a guild is the *śreṣṭhi*, the title also having the connotations of a rich merchant, financier, and banker, as we just saw.¹⁰² Like bankers, guilds lent capital and received deposits, as is clear from their involvement in managing endowments (below). Like other wealthy members of society (sec. IV), the *śreṣṭhi* of guilds were donors to religious institutions. From Sanchi, 19 inscriptions with reference to *seṭṭhi* (Skt. *śreṣṭhi*) as donors have been found.¹⁰³ From Vidisha as well, donations by *śreṣṭhi* and his relatives have been noted.¹⁰⁴

Apart from direct donations, the associations accepted endowments (*nīvi*) on behalf of a monastery. Their potential for profitmaking is indicated in this practice. The guilds that accepted endowments forwarded a fixed share of their profit to the monastery on a monthly basis. One cave inscription from Nasik (Maharashtra) mentions monetary investments in two weavers' guilds, from which a fixed part of the interest generated was to cover the expenses for clothing and medicines of monks residing at the cave shelter.¹⁰⁵ Similarly, inscriptions from Mathura refer to two *śrenis* that received endowments in cash for feeding Brāhmaṇas regularly.¹⁰⁶ A similar example comes from a pillar inscription (ca. 250–300 CE) at Nagarjunkonda (Andhra Pradesh) that records a perpetual endowment (*akhayanīvi*, in Skt. *akṣayanīvi*), the interest from which goes to paying various guilds, for the performance of various rituals at the temple.¹⁰⁷ The payment is to be made monthly (*masanumasi[ka]*).¹⁰⁸

100 MS 8. 41.

101 KA 4. 1. 17.

102 The other variants of the term are *śreṣṭhin* (Skt.), *seṭṭhi* (Prakrit), and *sreṭhi* (Gāndhāri). A Gāndhāri birch bark manuscript from Afghanistan, dated between 1–100 CE, refers to *sreṭhiputra*. https://gandhari.org/n_dictionary.php. Accessed on 24. 09. 2019. See more about *seṭṭhi* as a local economic elite in sec. IV.

103 Basant 2012, 178, tab. 6.7. See also Lüders 1912, nos. 206, 207, 246, 255.

104 Lüders 1912, nos. 346, 248, 255, 283, 339, 348.

105 Nasik cave inscription of Rīṣabhadatta, no. 38 in Mirashi 1981, pt. 2, 95–100. See also Lüders 1912, no. 1133.

106 V. K. Thakur 1987, 73.

107 For the inscription, see <http://hisoma.huma-num.fr/exist/apps/EIAD/works/EIAD0056.xml>, EIAD 56 (accessed on 25. 09. 2019). Here, Sarkar's old reading of the term [vi]dhi, and that of the *vadhisa* as suggested by Arlo Griffiths et al. both may connote to the term *vaḍḍhi* in Pali (*vṛddhi* Skt.).

108 Here, *masanumasi[ka]* has been considered, as has been read by Arlo Griffiths et al. See <http://hisoma.huma-num.fr/exist/apps/EIAD/works/EIAD0056.xml>, EIAD 56 (accessed on 25. 09. 2019).

We also learn of corporations being formed among separate professional groups. These are *negamas*. The membership perhaps crossed through more than one profession, and they acquired administrative roles, including minting of coins and seals, in the city as well. For a discussion on these types of cooperatives found in the urban context with administrative functions, see section. VI.2.

VI Settlements and Cities as Economic Actors

Settlements and cities as economic actors were shaped by their geographical position, proximity to natural sources, and socioeconomic relations with neighboring and distant settlements. Here, I emphasize that cities and ports in South Asia developed within their highly connected ‘settlement localities.’ The discussion then focuses on the cooperative and corporate identities that villages and cities acquire.

VI.1 Connected Settlements and Urbanism

An increase in the number of cities is recorded in the early centuries CE. A large number of those are situated along navigable rivers, even the most celebrated of the port cities in Graeco-Roman sources, such as Barbarikon, Barygaza, Muziris, Arikamedu have been located at the mouth of riverine estuaries.¹⁰⁹ The development of these port cities should be seen in connection with their productive hinterlands, which were well connected with other neighboring settlements. An important feature of settlements in early historic India was their clustering, which created urban zones. The emergence of ‘settlement localities’ has been identified in Mathura, Varanasi, Sanchi, Anuradhapura, and other important urban zones.¹¹⁰ The clustering possibly allowed the development of an urban zone even when the sites could remain smaller, at least in comparison to Chinese and Roman contexts.¹¹¹ The size of urban sites in India ranged between 50 and 300 ha in the early centuries CE.¹¹²

The clustering is also noted in areas experiencing the megalithic phase in the eastern Deccan and the south, which are considered different from the archetypical urban zones in the north and the western Deccan. For example, a study of megalithic settlements from Tamil Nadu shows a presence of about 70 sites within a radius

Reference to monthly payment of interest also comes from various inscriptions discovered in the western Deccan. See Mirashi 1981.

¹⁰⁹ Deloche 1983; 1994, 5–128.

¹¹⁰ See Dwivedi, ch. 14, III.3, this volume.

¹¹¹ For example, for the megacities in Roman contexts, see Fabian and Weaverdyck, ch. 3.A, II.1, this volume. For Chinese imperial cities and structures, see Leese-Messing, ch. 6, II.1, this volume.

¹¹² Smith 2006, 119.

of about 20 km.¹¹³ Those sites classified as large settlements were about five ha and were capable of supporting a population of 1,000.¹¹⁴ Within these clusters, the largest cities had particular roles, such as centers of administration and centers of contact in long-distance networks. Both these roles could be seen as a result of the coordination of operations between smaller settlements and cities.

The settlement localities allowed the zones to operate in cooperation, serving various requirements of the zone and enabling villages/sites to develop craft specialization. For example, archaeological finds from areas around the port city of Bharuch (Barygaza) have shown the presence of allied industries and commercial manufacturing centers producing cotton textiles, semiprecious stone beads, and glass beads.¹¹⁵ Settlements with occupational specializations are also known from the texts, as we are aware of villages of ivory workers (*dantakāragāma*), carpenters (*vaḍḍakigāma*), sweepers or menial workers (*caṇḍālagāma*), and fowling and hunters (*nesādagāma*).¹¹⁶

The extended network of settlements is also visible in normative texts. From a state's perspective, the administrative unit is divided into a political core, fortified city (*paura*) and hinterland (*janapada*).¹¹⁷ An ideal countryside can protect itself (*svārakṣaḥ*), can sustain itself (*svājīvaḥ*), is rich in resources and capable of bearing fines and taxes, and has irrigable land, agricultural workers with good ethics, forest resources, and land and water routes.¹¹⁸

A village (*gāma*) is seen as the basic administrative unit. In normative texts, a village that is founded by the state should have a minimum of 100 and a maximum of 500 families, with the majority of a population being Śūdra agriculturists.¹¹⁹ As suggested above, we also find villages identified by the specialized occupation of the majority of their population, such as a village of carpenters (*vaḍḍhakigāma*). At 800 villages, there is a 'provincial capital' (*sthānīya*).¹²⁰ In terms of administrative division, there are three levels of administrative units between a collection of 10 to 800 villages. A similar structure is found in the *Manusmṛiti*, where the administrative units are set up at various levels. For example, administrative units that oversee 1, 10, 20, 100, or 1000 villages.¹²¹

113 Moorti 1994, 16, 108.

114 Ray 2006, 114–115.

115 Ghosh 2014.

116 These references commonly appear in various *jātaka* stories in the *Jātakatthavaṇṇanā*, see Cowell 1977. For the online database, see <https://jatakastories.div.ed.ac.uk/>.

117 For a discussion and further bibliography, see Basant 2012, 272–275.

118 *KA* 6. 1. 8.

119 *KA* 2. 1. 2. In the *MS*, a Brāhmaṇa is recommended not to take up agriculture as a livelihood as ploughing of land involves injury to other living creatures, *MS* 10. 83–84. For a discussion on agricultural laborer, see II.3.1 and III.

120 *KA* 2. 1. 4. Olivelle (2013, 99) translates the term *sthānīya* as a 'provincial capital,' while Kangle ([1969] 2014b, 56) mentions it as the headquarter of revenue officers.

121 *MS* 7. 114–119.

VI.2 Settlements and Their Identities

The role of settlements as physical spaces that create a platform for interaction and economic exchange is important. They were anchors for setting up infrastructures, such as irrigation facilities, road and transport facilities, and physical market spaces that have been discussed elsewhere.¹²² Here, I focus on how villages and cities in particular developed cooperative and corporate identities, which provide an institutional framework for economic activities to be coordinated in early South Asia.

VI.2.1 Villages as Socioeconomic Entities

Villages had both internal and external economic roles. By appointing village headmen, they emerged as administrative entities regulating internal legal matters. They also organized themselves to exercise communal responsibilities. Within a village, the committee of village elders was responsible for managing and at times ‘increasing’ the property of the minors (*bāladravyam*) and property of the temple (*devadravyam*).¹²³ Also, if one was away on a journey, a share of one’s property was deposited with the village elders.¹²⁴ They are also sought to witness any local transaction, division of property, and drafting of contracts.¹²⁵

The economic roles of villages were expressed externally in their position vis-à-vis other villages and in the hierarchical administrative structure with respect to the state. Some specialized villages, such as villages of hunters and fowlers (*nesādagāma*) and menial workers (e.g., *caṇḍālagāma*), supplied the labor force for the cities. Another role of the villages, with respect to administrative hierarchies, was that of the basic unit of tax collection for a state official.¹²⁶ The ideas of community ownership, accountability, and employment are also visible in the concept of unpaid labor (*viṣṭi*) offered by villages to the state for building fortresses, etc., often in lieu of taxes.¹²⁷

VI.2.2 Cities and Their Corporate Entities

Cities have been classified based on their attributes even in the ancient literature. There are fortified administrative cities (*paura*), the port cities (*paṭṭana*), and cities

¹²² For infrastructure related to water management and transportation, see Dwivedi, ch. 10, VI, this volume. For organization of markets, see Dwivedi ch. 14, IV.3, this volume.

¹²³ KA 2. 1. 23.

¹²⁴ KA 3. 5. 19.

¹²⁵ KA 3. 9. 17.

¹²⁶ See Dwivedi, ch. 10, II, this volume.

¹²⁷ Sharma 1990, 166. *Viṣṭi* is also interpreted as forced labor.

as religious centers (*fīrtha*). Other than being a part of the administrative hierarchy, many commercial cities developed their own corporate entities. Thakur considers the presence of city-coins as an indication of the corporate nature of some cities.¹²⁸ Among the city-coins, the most noticeable ones are from: Ujjain, bearing the legend *ujaniyi*; Eran, with the legend *erakanya*; Ayodhya, with different legends *ajudhe*, *ajadhe*, or *ajidhe*; and, Tripuri, bearing the legend *tripurī*.¹²⁹

Cities were hubs of different kinds of civic bodies. An example is the *nigama*, which carried out not only some of the administrative functions, but also made collective donations for merits.¹³⁰ We are aware of city-based guilds and corporations called *negama* and *naigama* ('belonging to the *nigama*') from epigraphic evidence, such as reference to the *Dhānyakaṭaka nigama* in an inscription from Amara-vati and four seals bearing "*nigama*" found at Bhita. Many inscribed potsherds also bear the inscription *nikama* or *nekama*, which can be associated with specific guilds or special civic bodies in early South Asia. The cities provided a framework within which the *nigama* could operate, but they were often not restricted to one city. A famous example comes from Taxila, where coins with the inscription *pancanegama* (a body of five corporations) have been found. The role of the *negamas* may also have been administrative in nature.¹³¹

Perhaps similar to the *negama/nigama* was the *goṣṭhi* (Pali *goṭhi*), meaning committee. In the *KS*, *goṣṭhi* appears as an important circle (also association) of people, primarily the esteemed city-men (*nāgaraka*). As members of the *goṣṭhi*, these refined citizens, were of equal means, intelligence, disposition, and age.¹³² There is a reference to a *goṭhī* of more than 35 members in an inscription on a Buddhist casket from Bhattiprolu.¹³³ Another inscription mentions a treasurer (*hirīṇakāra*) of the committee.¹³⁴ *Goṭhis* also made collective donations and investments, which is clear from epigraphic records by *Bodhagoṭhi* and *Vamdagoṭhi* from Sanchi and Amaravati, respectively.¹³⁵ From Sri Lanka too, the epigraphic records mention donations by the head of a corporation called *pūga* at various instances. The heads of corporations identify themselves as the *jeṭa* (Skt. *jyeṣṭha/śreṣṭha*) and *anu-jeṭe*,¹³⁶ who may have also functioned as influential local elites (see sec. IV).

In addition to the coordination function of cities, the idea of urbanity was closely linked to particular forms of consumption. The ethos of urban living is a notable

128 V. K. Thakur 1987, 71.

129 Allan 1936, cxxx, cxl; Lahiri 1974.

130 A donative inscription records a donation for the excavation of a cave and an assembly hall for the *saṃgha* by a corporate/civic body (*negama*). Mirashi 1981, pt.1, 172–173.

131 V. K. Thakur 1987.

132 Ali 2004, 65.

133 Lüders 1912, no. 1332.

134 Lüders 1912, no. 1333.

135 Lüders 1912, no. 234; Shimada 2013, 142.

136 Parānavitana 1970, xcix.

aspect in the representation of urban spaces in literary sources. *Nāgaraka*, literally, who lives in a city (*nagara*), is distinguished from a village dweller, *jānapada* and *grāmīṇa* (villager) in the literature.¹³⁷ A city dweller is considered more sophisticated in the sense of the items he consumes and the services he has access to, for example, grooming and leisure activities.¹³⁸ For a *nāgaraka*, social engagement with a village-based woman is considered condemnable and inferior.¹³⁹ Even among monks, who might not live in cities, those “possessed of urban speech” (*nāgara-lapita*) are more revered.¹⁴⁰

VII The Monastery and Monastic Body as Economic Agents

Schopen has pointed to the conspicuousness of material remains in the form of sculptures, coins, and architecture found at the religious sites:

... how is it that groups of ascetic, celibate men who were supposed to have renounced all wealth and social ties, left such largesse in the archaeological records; how is it that they, and sometimes they alone, lived in North India in permanent, architecturally sophisticated quarters, that they, and they alone, lived in intimate association with what we call art?¹⁴¹

From the second century BCE onward, architectural remains represent a structured and organized mendicancy.¹⁴² What had started with the renunciation of the social and family life by individuals, emerged as an institution with considerable social and economic power, drawing from the general practice of making religious donations (*dāna*) for merits. There is evidence for the *saṃgha* (monastic community) in the structural remains of the *stūpas* (apsidal shrines to house relics), *caityas* (worship halls), and residences for monks and nuns (*vihāra* and *varṣakas/upassayas*,

137 *Kāmasūtra* (KS) 2. 10. 36–38.

138 A *nāgaraka*'s lifestyle is extravagant and expensive. He is expected to spend on items of grooming and toiletries, which are: *anulepana* (fragrant ointment generally made of sandal wood paste), perfume and incense, use of *alaktaka* to redden the lips, use of oils for massage and shampoo for limbs (*utsādana*), and use *phenaka* (soap?) regularly. In addition, decoration of house and maintenance of vegetable garden and orchard are practices that are encouraged. KS 1. 4. 16–17.

139 KS 5. 5. 11.

140 Only a monk “speaking the language of those living in a city” (*nāgara-lapita*) can be appointed as the Admonisher-of-Nuns. It is suggested that only they have elegant speech. Schopen 2010, 110–111.

141 Schopen 2004, 19.

142 This was perhaps also true for Jaina monastic communities, but here I discuss specifically the Buddhist community.

respectively).¹⁴³ These architectural structures are found throughout the subcontinent – in the plains constructed with stone and baked bricks, and in the plateaued and highland regions as rock-cut monuments and excavated caves. These monastic centers became so grand that they housed a large number of monks and nuns, developed hierarchies within their order to manage the donations and construction,¹⁴⁴ and had servile laborers working to take care of the daily chores and maintenance.¹⁴⁵

The Buddhist monastic centers were nodes in a larger Buddhist network that were bound by the movements of monks and nuns. The pan-Indic presence of the monasteries and spread of Buddhism in Central Asia and Southeast Asia was an extension of religious as well as economic network, which also spanned centuries.¹⁴⁶ The monasteries not only became centers of learning and recordkeeping, where the canonical texts could be compiled and reproduced, but as part of the monastic network, they also became transmitters of knowledge to different regions.¹⁴⁷ The network enabled the transmission of ideas, information, and technologies, which were used and shaped according to the local requirements.¹⁴⁸

VII.1 As Consumers with Influences on Elite Consumption Patterns

Monastic networks may have provided a vector along which elite consumption patterns might have spread. The main items used to honor and worship the Buddha and other sacred figures were merchandise traded in the Kuṣāṇa period, such as pearls, corals, lapis lazuli, silk, and other precious items.¹⁴⁹ Because these items were considered precious enough to be donated to a monastery, they were also sought by the laity. The *Mahāvastu* encourages decorating Buddhist monuments in silk, and

143 Schopen 2008, 625.

144 From Kanheri, we find an evidence of monks taking the work of supervising and overseeing the construction of a *caitya* cave financed by a merchant family. See Mirashi 1981, no. 28; Lüders 1912, no. 987.

145 The reference here is to the *ārāṃikas* and *kalpikāra* working in the monasteries. A story from the *vinayas* refers to a gift of 500 *ārāṃikas*, who settled down with their families in a village near a monastery. A monk was also elected, called *ārāṃika-pessaka*, to supervise the work of these *ārāṃikas*. See Chanana 1960, 83.

146 Neelis 2011; Ray 2020.

147 Schopen 2004, 2. Many scholars identify the popularity of *stūpa* construction and worship of relic as a phase of the Mahāyāna school of Buddhism, which brought about the divination of Buddha resulting into worship of the Buddha and potential Buddhas (Bodhisattvas). See Liu 2009, 179–182.

148 See also Dwivedi, ch. 14, this volume for cooperation between monasteries and mercantile groups.

149 Liu 2009.

this form of worship promised worshippers a higher status and material gains. Likewise, the *Mahāvastu* references similar use of silk in urban and court life.¹⁵⁰

VII.2 Monastic Communities as Property Owners and Credit Institutions

Even though individual monks were not allowed to possess property, we learn of corporate or communal property of the monastic community (*saṃgha*) from both Buddhist and non-Buddhist texts.¹⁵¹ These ‘community assets’ (*sāṃghika*) were used for the restoration and repairs of the monastic buildings if they had not found a donor.¹⁵² Additionally, we learn of depositories (*koṣṭhikā*) at the monastery that not only contained books, but also legal documents and money.¹⁵³ Recovered sections of the *Mūlasarvāstivāda-vinaya* throws light on the storage of ‘perpetuities’ (*akṣaya*) donated and stored in the *koṣṭhikā* of the monastery. Monastery as a center of wealth is also known from non-Buddhist texts. For example, Kauṭilya recommends in the *Arthaśāstra* that a king or prince should seize the wealth from *pāṣāṇḍasaṃgha* (non-Brahmanical ascetic organizations) as a quick way to acquire resources in times of grave need.¹⁵⁴

Donors to monasteries came from different professional backgrounds and the types of donations monasteries received also vary greatly. The majority of epigraphic remains from early India record donations to monasteries, and the inscriptions have been found on architectural stone slabs, copings, pillars, and cave walls. Many of such inscriptions refer to the donation of caves,¹⁵⁵ shares in agricultural fields,¹⁵⁶ coconut saplings for the purposes of commercial farming,¹⁵⁷ custom duties from a port,¹⁵⁸ and the recurring interest from endowments.¹⁵⁹ Also, some monasteries had servants and at times servile labor to take care of the regular maintenance of the residential complex and the prayer halls.

The monasteries perhaps also became the repositories of the wealth of members who joined as monks in the later stages of their lives. A sonless old man could join the *saṃgha* as a renunciant monk. The monastery could care for him in his days of

150 Liu 2009, 181–183.

151 Schopen 2004, 4; see also Morris, ch. 4, IV.2, this volume.

152 Schopen 2004, 27.

153 Schopen 2004, 51.

154 KA 1. 18. 9.

155 Various inscriptions in Lüders 1912; Mirashi 1981.

156 Mirashi 1981, no. 11, 24, 27. Lüders 1912, nos. 1000, 1073.

157 Mirashi 1981, no. 38, 43.

158 An example of dedication of custom duties to a monastery comes from Godavaya, Sri Lanka. Muthucumarana et al. 2014, 43.

159 See also sec. V.

illness in old age, and the property would go to the monastic community instead of being forfeited to the state on account of the absence of an heir.¹⁶⁰

The monks (*bhikkhu*) and nuns (*bhikkuni*) had an important role in developing monasteries as depositories of material wealth. Various donative inscriptions indicate that monks and nuns possessed property and were able to make donations for the erection of sacred architecture. At Sanchi itself, almost 40 percent of the donors are monks and nuns.¹⁶¹ Other than being donors themselves, the monks and nuns brought in donations from the laity for the construction and maintenance of monastic structures. Donative inscriptions often give the names of monks and nuns who had influenced the lay devotees (*śiṣya/śiṣinī, upāsakas/upāsikā* and *atevāsini*).¹⁶²

VII.3 Roles of Monasteries in Local Communities

As centers of wealth, monasteries could adopt relevant technologies, which is commonly visible in the adoption and popularization of written forms of recordkeeping, their involvement in water management projects, and their development as medical care centers. Moreover, the popularity of Buddhism throughout the subcontinent allowed monastic institutions to cater to the other specific socioeconomic needs of local people, such as their need for banking facilities.¹⁶³ These were services that locals were able to avail by perhaps making donations.

Monasteries emerged as credit institutions, which is particularly visible in the *Mūlasarvastivādi-vinaya*. One passage reveals a discussion on lending money to others and the pledge to pay twice the value.¹⁶⁴ However, what is stark about this section of the text is that it emphasizes the need for and importance of maintaining written credit notes and contracts. The passage presents a standard formula to be used when charting the contracts. This standardization is a response to losses when borrowers did not pay their debts. Even if the practice of maintaining written contracts did not start in monasteries, they had an important role in popularizing it in different areas of the subcontinent that had generally relied on oral agreements.

The involvement of monastic units in the management of water bodies and the use of technology associated with irrigational activities is discussed elsewhere in this volume.¹⁶⁵ Monasteries also developed as centers of healing and medical practice, especially related to maternity care.¹⁶⁶ Monasteries provided care to the sick in

160 For more about property of monks, leaving of a householder's life and old age renunciation to join the *saṅgha* for care, see Schopen 2004, 7–13.

161 Schopen 2004, 383.

162 Lüders 1912, nos. 57, 69a, 1295 and so on.

163 Shaw 2016, 535.

164 Schopen 2004, 48–49.

165 Dwivedi, ch. 10, VI.1, this volume.

166 For a detailed discussion on medical practices in Buddhist monasteries and further references, see Rees and Yoneda 2013.

return for a donation and maternal care for women at various stages of pregnancy, such as providing contraceptives and fertility drugs to members of the laity, and providing childbirth assistance.¹⁶⁷ Monasteries emerged as repositories of medical knowledge and skill that were compiled and reproduced in various Buddhist canonical texts.¹⁶⁸ While monastic culture was a phenomenon that was pan-Indic, monasteries also interacted with local population at various levels and incorporated folk practices, such as village-level fertility- and mother-goddess cults.¹⁶⁹

VIII Kings and Rulers

The king should seek to acquire what he has not acquired, preserve diligently what he has acquired, augment what he has preserved, and distribute what he has augmented on worthy recipients.¹⁷⁰

Along with guilds and monasteries, kings are among the most visible and consequential economic actors in early historic South Asia. As the quote demonstrates, a king's economic role as an appropriator, manager, and redistributor is clearly stated in normative and pedagogical texts of early historic India. Matters of economy (*vārttā*) are some of the most vital parts of a prince's education system.¹⁷¹ Kings were seen as resource managers, acquiring and distributing property. The acquisition of resources is treated in ch. 10 of this volume. Here, I focus on how state resources were distributed to politically important organizations and institutions. In particular, kings invested a great deal in monumental architecture, the royal household, salaried officials, and the army. They also showed favor to certain groups through tax exemptions and, along with other members of the royal household, through donations to monasteries. In addition, however, the king and his state also influenced the economic behavior of others, both by setting an example and by urging certain types of behavior.

VIII.1 Exempla

Aśoka Maurya (mid-third century BCE) is one of the rulers who was a trendsetter as a consumer and mobilizer of resources. In his edicts, he not only instructs on the

167 Rees and Yoneda 2013.

168 Rees and Yoneda 2013, 265–266.

169 For Buddhism as an assimilator of local practices, see Shaw 2013; 2016. For a discussion on representations of fertility cult in monastic art, see Rees and Yoneda 2013.

170 *MS* 7. 99, trans. Olivelle 2005, 159.

171 According to the *Arthaśāstra*, *vārttā* (economy) consists of agriculture, animal husbandry, and trade; and these sectors are important as sources of grain, livestock, money, forest produce, and labor (*KA*, 1. 2. 1; *MS* 7. 43). Other subjects (*vidyā*) that a king should be well-versed in are *ānvīkṣikī* (philosophy or critical enquiry), *trayī* (the three *Vedas*), and *daṇḍanīti* (governance).

moral conduct of his subjects,¹⁷² but also directs their behavior as consumers. Aśoka forbids animal sacrifices, festivals, and ceremonies. He also recommends that it is “not only good to spend little, but to own the minimum of property.”¹⁷³ Special officials were instructed to ensure that the recommendations and reasons were manifested to the public.¹⁷⁴ He claims that he forbade the killing of thousands and thousands of animals for the royal kitchen’s daily meat demand, and rather limited it to two peacocks and a deer, and even these were to be stopped in the future.¹⁷⁵ Aśoka also praises the benefits of gift-giving (*dāna*) and recommends that people should make donations to *śramaṇa* (religious mendicants), Brāhmaṇas, and in favor of *Dhamma*.¹⁷⁶ From the third century BCE onward, there is a stark increase in the number of donative inscriptions in the subcontinent, however, it is difficult to say how much of it was the result of Aśoka’s instructions/promotion of gifting to Buddhist monasteries. Yet, scholars have noticed that the architecturally grand religious monuments were definitely post-Aśokan.¹⁷⁷

VIII.2 Donations and Favors

Religious donation and expenses on rituals continued to play an important role in royal self-fashioning. By the third century CE, six different inscriptions refer to kings having performed the *Aśvamedha yajña*.¹⁷⁸ Other elaborate descriptions of ritual patronage and sacrifices offered by queens on behalf of their family members are also recorded in epigraphic material. One interesting example is Nāganika, a queen of the Sātavāhana king Sātakaṛṇi I. The reference comes from a cave inscription at Nanaghat (Maharashtra). For our studies, this inscription has two important components, a) the family ties mentioned and b) the elaborate listing of the various ritual sacrifices and payments. Nāganika identifies herself in relation to her various relatives by name, however only two of the relations and names are clearly decipherable, which are of her progenies Vediśrī and Śakti. These sacrifices not only incur the cost of the items required in the sacrifices, but the expenses given as sacrificial fees (*dakṣiṇā*) are also grand. The inscription lists 17 Vedic sacrifices by name, a specific sacrificial fee (*dakhin*, Skt. *dakṣiṇā*), and gifts given for each in cash as well as kind.¹⁷⁹ In the *Angārika* sacrifice, Nāganika claims that one of the 17 sacrifices

172 Major Rock Edict (MRE) 3, 4, 9, 13 of Aśoka.

173 MRE 3. Trans. Thapar 2013, 377–378.

174 MRE 3.

175 In MRE 1.

176 MRE 9, 11, 13.

177 Schopen (2004, 1–2) writes that the Buddhist ‘monasteries’ in the pre-Aśokan period were perhaps unorganized natural caverns or poorly constructed shelters built of rubble.

178 Sircar 1971, 175.

179 Mirashi 1981, pt. 2, 11–16. For more on the concept of *dakṣiṇā*, see Thapar (1978) 2006a.

had a sacrificial fee of 11,000 cows, 1,000 horses, some portion of an excellent village, and a total of 34,401 *kāṣṭhāpaṇas* (a denomination of currency) to the sacrificial attendant.¹⁸⁰

There are two more detailed inscription records where a head queen of the Sātāvāhanas, Gautamī Bala-śrī, orders donations of land to the Buddhist monks. In one, she donates the land with her son, King Gautamīputra Sātakarṇi. In the other, a cave and village land are donated with her grandson, King Pulumāvi.¹⁸¹

Examples of donations from other members of the royal families are also common in the inscriptions, especially from the western India. One example is Rīṣabhādatta, son-in-law of the Kṣātrapa King Nahapāna, and comes from a cave inscription in Nasik.¹⁸² It boasts of a gift of gold, 300,000 cows and 32,000 coconut saplings, the feeding of 100,000 of Brāhmaṇas annually, residential houses at four cities/villages, the building of several gardens, water tanks and wells, the construction of charitable rest houses for travelers, and various other charitable works.

Kings could also perform such benefactions by redirecting revenue streams toward religious institutions. A cave inscription from Nasik records the donation of a village's fields and a portion (100 *nivartanas*) of royal fields to the mendicant monks dwelling in the cave on a particular hill by a king.¹⁸³ His son, Pulumāvi, also adds another village to the existing donation for the same group of monks. He announces that all royal rights of enjoyment of the land are renounced and the donated land gets certain immunities, meaning the donated land should not be entered by royal officials, nor should the land be dug for salt.¹⁸⁴ Another interesting case is an inscription of King Hamani Abaya, from Godavaya (Sri Lanka) in the second century CE. It refers to the donation of the custom duties from the port of Godavaya Paṭṭanam to the nearby *vihāra* (monastic residence).¹⁸⁵ Various other instances of the donation of revenues to monasteries have also been recorded in other inscriptions in Sri Lanka.¹⁸⁶

Not all beneficiaries were monasteries. Kings could exempt individuals, families, and even villages from taxation, debts, fines, etc. One famous instance is recorded in the Rummindei inscription issued by Aśoka. The inscription records the exemption of the village of Lumbinī, the birthplace of the Buddha, from the payment of tribute (*bali*) to the state. It also announces the reduction of the tax to

180 Mirashi 1981, pt. 2, 15–16. The eligibility of a priest and other attendants to qualify as participants in the sacrificial ceremonies has been discussed in detail in the *Manusmṛti*. The eligibility of the performing priests and the client is to be determined by their 'ritual competency' (*adhikāra*).

181 Mirashi 1981, pt. 2, 34–35, 48–49.

182 Mirashi 1981, pt. 2, 111–113, see inscription no. 43.

183 Mirashi 1981, pt. 2, 34–35.

184 Mirashi 1981, pt. 2, 48–49, 53–55.

185 Muthucumarana et al. 2014, 43.

186 Paranavitana 1970, no. 1216, 99.

one-eighth of the produce (*aṭṭhabhāga*) for the village.¹⁸⁷ From the Hathigumpha inscription, we also learn that King Khāravēla celebrated his consecration as the king by remitting all tithes and cesses, and bestowed many privileges amounting to hundreds of thousands (of an undefined monetary denomination).¹⁸⁸ Most performances of royal largesse, however, were targeted at particular locations and institutions. Monasteries, in particular, profited handsomely.

VIII.3 Monumental Construction

Aśoka also mobilized significant resources in monumental construction, as is clear from the edicts found in pan-Indic contexts, except in the southernmost parts of the subcontinent.¹⁸⁹ The Aśokan pillars are royal monuments that required the procurement of the raw material from a quarry, sculpting of the pillars and capitals, technological expertise to polish and coat the surface of the pillars, and transportation to their sites of erection.¹⁹⁰ Further, also installation at sites required expertise, as they weigh from 8.6 tons (Lumbini) to 51 tons (Vaishali), and with their sculpted capitals that weighed around 2 tons each.¹⁹¹ The pillars are made of Chunar sandstone obtained for quarries at the Chunar Hills, and their respective sites of erection indicate a clustering in the northern part of middle Ganga Plain, connecting the resource area and sites through riverine navigational channels.¹⁹²

Aśoka is not the only ruler who erected monuments. A biographical inscription of King Khāravēla (first century BCE), of Kalinga, declares him the “repairer of temples,” and he is lauded for the construction of a royal residence called the Palace of Great Victory (*Mahāvijaya*) for a cost of 38 hundred thousand (unspecified denomination of money). He also built excellent towers with carved interiors and repaired the gates of his capital.¹⁹³

VIII.4 The Palace and the Royal Household

The king’s palace, too, required significant investment. Literary sources are replete with normative or rhetorical descriptions of the monumentality and material extra-

187 Thapar 2013, 84–85. The reading of the term *aṭṭhabhāga/aṭṭhabhāgiya*, however, is disputed. Falk (2012) agrees that the village was made tax-free, however suggests the term *aṭṭhabhāgiya* does not mean reduction of taxes from one-sixth to one-eighth. He points out that the term suggests that Lumbinī would receive a one-eighth share of the ashes of the Buddha as relic.

188 K. P. Jayaswal and Banerji 1929; Kant 2000 12, 26.

189 See Dwivedi, vol. 1, ch. 10.A, map 1.

190 V. Jayaswal 2012.

191 Falk 2006, 139.

192 V. Jayaswal 2012, 230, 243–250.

193 Kant 2000, 18–19, 30.

vagance of *rājaparigraha*, the royal property and palace grounds.¹⁹⁴ They are depicted as large complexes of dwellings and are represented in literature as *bhavana*, *antahpura*, *niveśa*, *prāsāda*, and *harṃya*. One of the descriptions of an extravagant residence includes “emerald flooring, tiles studded with rubies, the garden, vine creeper bowers, the house of shower baths and the palaces with secret passages between walls, murals, the royal pastimes, mechanical devices, birds, caged tigers and lions and other such things.”¹⁹⁵ The space of the palace is divided to cater for the daily royal routines with separate buildings for dressing, bathing, feasting, courtship, and counsel. The palaces have various rooms for different activities (*garbha* and *kakṣa*) and various quarters or courtyards (*kakṣya*).¹⁹⁶

Such opulent building complexes houses not only the royal household, consisting of the king’s immediate and extended family members (many of whom enjoyed salaried positions),¹⁹⁷ but a large support staff as well. The palace includes residences for priests and ministers, a maternity ward, worker’s quarters, treasury, storehouse, armory, stables, etc. We find references to a large number of servants and perhaps slaves as well, employed in the service of royal household. We learn of female servants, called *kañcuki* and *mahattarikā*, who are the attendants in the harem, and take the messages and items from the harem to the king.¹⁹⁸ The palace, then, was a large, complex institution requiring significant expenditure for its construction, upkeep, and operation.

VIII.5 Salaries

Monarchical states also distributed resources in the form of salaries to various individuals. In addition to members of the royal household, Mauryas and post-Mauryan polities exhibit elaborate administrative machineries with a number of managerial and mid-managerial level roles. As I am discussing below, the salaried positions of accountants, scribes, supervisors, and other skilled officers gave them the potential spending capacity to stimulate the use of coined money.¹⁹⁹

We also learn about the hierarchical organization in the army, along with recommended salaries in cash. At Karari an inscription on wood lists the presence of various state officials during the commission of a tank, which also includes the

¹⁹⁴ Ali 2004, 38. *KA* 2. 36. 22; 2. 36. 28.

¹⁹⁵ *KS* 5. 5. 17, trans. Upadhyaya 1961.

¹⁹⁶ *KA* 1. 20.13; 1. 21. 3. For depictions of royal architecture in the *Rāmāyaṇa*, see Guruge 1991, 97.

¹⁹⁷ The crown prince (*yuvārāja*), king’s mother (*rājamātrī*), and the crowned queen (*rājamahiṣī*) are listed as those entitled to highest scale of salary, i.e., 48,000 *paṇas*. Other members of the royal household recommended for a salary of 12,000 *paṇas* are the princes and the mothers of princes. *KA* 5. 3. 3, 7.

¹⁹⁸ *KS* 4. 2. 73. In some versions *KS* 4. 2. 56.

¹⁹⁹ Dwivedi, ch. 14, III.6; see also Smith 2018.

names of the *senāpati* (Chief of the Armed Forces), two *nagarakhins* (city guards/police inspectors), *yānaśālayudhagharika* (officer in charge of carriage-shed and armory), and the *mahāsenāni* (commander-in-chief), among others.²⁰⁰

The highest-ranked military official is the *senāpati* (Chief of the Armed Forces), who is among the highest-paid state officials, with a recommended salary of 48,000 *paṇas*.²⁰¹ The chiefs of the four divisions of the army (infantry, chariots, horses, and elephants) have a recommended salary of 8,000 *paṇas*, while the superintendent of these units, who are responsible for acquisition and recruitment, are each to be paid 4,000 *paṇas*. Below them are the charioteers, and elephant and horse trainers, who are recommended for a salary of 2,000 *paṇas*. The salary recommended for trained foot soldiers is 500 *paṇas*.²⁰² In addition to the base salary, at the battle array the army is to be roused by the Chief of the Armed forces with a promise of the following rewards:

100,000 *Paṇas* for killing the king; 50,000 *Paṇas* for killing the Chief of the Armed Forces or the Crown Prince; 10,000 *Paṇas* for killing the leaders of eminent warriors; 5,000 *Paṇas* for killing an elephant or chariot fighter; 1,000 *Paṇas* for killing a cavalryman; 100 *Paṇas* for killing a leader of infantry; and 20 per head; and in addition, double the pay and individual plunder.²⁰³

We are not aware of the actual size of the army, but representative numbers from different sources would indicate that a good number of men were involved, and their monetary recompense indicates that they participated in monetary transactions.²⁰⁴

IX The Army

The economic impact of royal armies went well beyond soldiers' and officers' salaries. The expansion of his kingdom was a king's most important activity, and the

200 Sastri 1925.

201 KA 5. 3. 3.

202 KA 5. 3. 9, 11, 14.

203 KA 10. 3. 45 trans. Olivelle 2013, 379. The next verse (KA 10. 3. 46) states that the officer of his unit shall certify the claim by a soldier of his kills.

204 The largest regiment in Indic sources is mentioned as the *akṣauhiṇi* comprising of perhaps more than 200,000 units (U. P. Thaplyal 2002, 77). The size of army mentioned in Graeco-Roman Indographies are different. Diodorus and Curtius mention that the army comprised of 20,000 cavalrymen, 2,000 chariots, and 4,000/3,000 elephants. Plutarch mentions that Candragupta Maurya subdued India with an army of 80,000 horses, 200,000 foot soldiers, 8,000 chariots, and 6,000 elephants (Plutarch *Life of Alexander* 62. 3; Pliny *Naturalis historia* 6. 22. 67; Majumdar [1960] 1981, 192–193, 198). These numbers are daunting considering Alexander had some 5,000 cavalrymen, and between 9,000 to 10,000 heavy and light infantry soldiers (Roy 2016, 12–13).

army formed the most important means to that goal.²⁰⁵ The term *danḍa* means ‘army’ and ‘police,’ which are the apparatuses of enforcement. *Vigraha* (declaration of hostility) and *yāna* (marching into battle) are two of the six measures of foreign policy.²⁰⁶ Declaration of war is noted as a common solution to the problems with the neighboring kingdoms, and kings should plan well economically. As warfare is one the most expensive affairs a state could carry out, a king is directed to declare war only when he foresees certain gains and advantages for the forts, irrigation works, trade routes, settlements in wastelands, and acquisition of forests with resources and mines.²⁰⁷

The economic implications of an army are many. It was an instrument of subjugation and acquisition of land, labor, and tribute. Additionally, an army was both a mobilizer of human resources and a consumer. For a polity, either pre-state or empire-like, the army as a professional unit was an absorber of human resources. In normative and prescriptive texts, the *maula* (hereditary troops) is described as the core of an army, which perhaps was the state’s standing army.²⁰⁸ The presence of an organized professional army meant that thousands of able-bodied men were withdrawn from other economic activities, and the impact of maintaining a standing army was particularly noticeable. Theoretically, the organization of a standing army implies the presence of a treasury built on regular tax collection and/or tributes for recruiting and training full-time soldiers.²⁰⁹

Warfare drove economic activity through more than just the *maula*. There were five other types of units in an army: the mercenaries or hired troops (*bhṛta*), the guild levies or the corporate troops (*śreṇī*), the ally’s troops (*suhṛdbalam*), the troop of captured or troop from the enemy (*daviṣadbalam*), and the troops of forest tribe (*aṭavibalam*).²¹⁰ Other than these troops, we hear of the *autsāhika*, who are the groups of fighters or vandals that are not paid but fight for booty,²¹¹ and *āyudhajīvi-saṃgha*, those “making a living by the profession of arms.”²¹²

205 See the concept of *vijigīṣu* in Dwivedi, vol. 1, ch. 3, 109. As the *vijigīṣu* is the type of ‘king bent on conquest’ and the ‘universal conqueror.’ *KA* 6. 2. 13.

206 *KA* 7. 1. 2. The other four strategies are, peace pact, staying quiet or remaining stationary, seeking refuge, and double stratagem. See Kangle (1969) 2014b, 321; Olivelle 2013, 277. See also *MS* 7. 162.

207 *KA* 7. 1. 20.

208 The *maula* type of soldiers basically refers to the soldiers of a kingdom or region, who are native to the region and also constitute the core of the army. Kangle suggests that the etymology conveys a sense of hereditary connection of the troops, who are loyal to the dynasty from generation after generation (Kangle [1969] 2014b, 409, n. 2).

209 For a discussion on standing army as a prerequisite of a state system in early historic South Asia, see Thapar 1992, 112–113.

210 *KA* 9. 2. 1.

211 *KA* 9. 2. 9.

212 These groups are discussed in the Sanskrit grammatical work, the *Aṣṭādhyāyī*, of Pāṇini. See Agrawala 1953, 422, 434–442. The *KA* also mentions a *āyudhiya-prāyaḥ*, explained as *āyudhajīvi-Kṣatriyādi-pracurāḥ*, those mostly comprising soldiers, Agrawala 1953, 434.

South Asian armies had complex organizational structures that often required specialized equipment and training, which further increased military costs. The most common organizational types were *caturanga-bala* and *caturang-vāhīni*, which referred to the traditional fourfold division of the army, including infantry, chariots, cavalry, and elephant corps.²¹³ Moreover, in special instances, we also come across references to the ‘six-fold’ and ‘eight-fold’ divisions of the army. The six-fold army includes ‘treasure’ (*koṣa*) and ‘machines’ (*yantra*). The ‘eight-fold’ army is more elaborate, as it also has officers, spies, military guides, and workmen like mechanics, tunnel makers, bridge builders, etc.²¹⁴

Specialized units required not only equipping the soldiers with weapons and armor, but also with the acquisition and training of horses and elephants for warfare. The fascination of Greek Indographers with the usage of elephants in Indian warfare is well noted.²¹⁵ However, the *Arthaśāstra* provides a better picture of processes involved in acquiring elephants for war purposes. The *Arthaśāstra* refers to designated officers, *aśvādhyakṣa* (‘superintendent of horses’) and *hastyādhyakṣa* (‘superintendent of elephants’), for the acquisition of war animals.²¹⁶ Further, we find references to special forests designated as the resource centers for elephants (*hastivana* and *nāgavana*).²¹⁷ The process of acquisition of elephants from the forested region also indicates interesting dynamics in the relationship between the state and the inhabitants of forests.²¹⁸ Further, the maintenance of elephants involves heavy costs, the most basic of which is food at a minimum of 150 kg daily per elephant when in the wild. It is suggested that a captive elephant must be fed higher-energy rations to enable the heavier workload.²¹⁹ Considering that not only does acquiring and training war animals require resources, even the march to the battleground and time at the war camps would have been expensive. A retinue of more than 14 specialized attendants for elephants is listed in the *Arthaśāstra*, which consists of a veterinarian, a trainer, a groom, a guard, a feeder, and other personnel.²²⁰ The ideological and practical importance of warfare to Indic kingship, and perhaps the political plurality of the subcontinent, ensured that the bulk of royal resources usually flowed to the army.

213 KA 10. 4. 15. Similar division of the army has also been mentioned in the Hathigumpha inscription of Khāravela (ca. 172 BCE). See Kant 2000.

214 P. C. Chakravarti 1941, 2, n. 1; U. P. Thaplyal 2002, 84–85.

215 Trautmann 2009.

216 KA 2.30; 2. 31.

217 KA. 1. 10. 15; 2. 1. 19; 2. 2. 6.

218 Parasher-Sen 1998.

219 Trautmann 2015, 54.

220 KA 2. 32. 15–16.

X Conclusion

The Indic economy was shaped by many different socioeconomic actors. As discussed in ch. 14 of this volume, kings and their states, monasteries, and corporate bodies were particularly important catalysts of change. But these cannot be understood in isolation. Households and manual laborers formed the foundation on which these larger organizations were built. Local elites played important interfacing roles, and settlements provided the physical and institutional framework within which they operated. Furthermore, these actors all operated in conjunction with one another, though not always in an intentionally coordinated manner. Monetization, for example, was driven by the coin production not only of civic bodies but also of guilds, while monasteries and guilds both functioned as credit institutions.²²¹ Finally, the influence of an economic actor was not constant in all regions and spheres. At political centers, the state's influence was more direct in managing transport and hydraulic infrastructure, while in central India and the Deccan, the Buddhist monasteries tended to the local needs of infrastructural requirements. It is the articulation of these actors' various behaviors that drove the economy in early historic South Asia. The institutions and structures that facilitated and resulted from that articulation are the subject of the chapter on South Asian Tools.

References

- Agrawala, V. S. 1953. *India as known to Pāṇini (A study of the cultural material in the Aṣṭādhyāyī)*. Lucknow: University of Lucknow.
- Ali, D. 2004. *Courtly culture and political life in early medieval India*. Cambridge: Cambridge University Press.
- Allan, J. 1936. *Catalogue of coins of ancient India in the British Museum*. London: British Museum.
- Apte, V. S. 1993. *The student's English-Sanskrit dictionary*. 3rd ed. New Delhi: Motilal Banarasidass.
- Basant, P. K. 2012. *The city and the country in early India: A study of Malwa*. New Delhi: Primus Books.
- Chakravarti, P. C. 1941. *The art of war in ancient India*. Dacca: The University of Dacca.
- Chakravarti, R. 1996. "Kutumbikas of early India." In V. K. Thakur, A. Aounshuman, and R. Choudhary (eds.), *Peasants in Indian history: Theoretical issues and structural enquiries (Essays in memory of Professor Radhakrishna Chaudhary)*. Vol. 1, 179–198. Patna: Janaki Prakashan.
- . 2007. "Rājaśreṣṭhī." In R. Chakravarti, *Trade and traders in Early Indian society*, 102–112. New Delhi: Manohar.
- Chakravarti, U. 1996. "In search of the peasant in early India: Was the *gahapati* a peasant producer?" In V. K. Thakur and A. Aounshuman (eds.), *Peasants in Indian history: Theoretical*

²²¹ For more on monetization, see Dwivedi, ch. 10, III, this volume.

- issues and structural enquiries (Essays in memory of Professor Radhakrishna Chaudhary)*. Vol. 1, 150–178. Patna: Janaki Prakashan.
- . 2006. “Of *dasas* and *karmakaras*: Servile labour in ancient India.” In U. Chakravarti, *Everyday lives, everyday histories: Beyond the kings and Brahmanas of ‘ancient’ India*, 70–100. New Delhi: Tulika Books.
- Champakalakshmi, R. 1996. *Trade, ideology and urbanization: South India 300 BC to AD 1300*. Delhi: Oxford University Press.
- Chanana, D. R. 1960. *Slavery in ancient India: As depicted in Pali and Sanskrit texts*. New Delhi: People’s Publishing House.
- Cohen, S. P. 1964. “Rulers and priests: A study in cultural control.” *Comparative Studies in Society and History* 6.2, 199–216.
- Coningham, R. A. E., F. R. Allchin, C. M. Batt, and D. Lucy. 1996. “Passage to India? Anuradhapura and the early use of the Brahmi script.” *Cambridge Archaeological Journal* 6.1, 73–97.
- Cowell, E. B., ed. 1977. *The Jātaka, or stories of the Buddha’s former births*. 6 vols. Oxford: Clarendon Press.
- Deloche, J. 1983. “Geographical considerations in the localisation of ancient sea-ports of India.” *The Indian Economic & Social History Review* 20.4, 439–448.
- . 1994. *Transport and communications in India prior to steam locomotion*. J. Walker (trans.). Vol. 2, *Water transport*. Delhi: Oxford University Press.
- Doniger, W. and S. Kakar, trans. 2002. *Vatsyayana Kamasutra*. Oxford: Oxford University Press.
- Dwivedi, M. 2015. “Understanding *Artha*: Pursuit of wealth in the Ganga-Yamuna Doab (c. BC 200 to AD 400).” PhD diss., Jawaharlal Nehru University.
- Evers, K. G. 2017. *Worlds apart trading together: The organisation of long-distance trade between Rome and India in antiquity*. Oxford: Archaeopress.
- Falk, H. 2006. *Aśokan sites and artefacts. A source-book with bibliography*. Mainz: Philipp von Zabern.
- . 2012. “The fate of Aśoka’s donations at Lumbini.” In P. Olivelle, J. Leoshko, and H. P. Ray (eds.), *Reimagining Aśoka: Memory and history*, 204–216. New Delhi: Oxford University Press.
- Furubotn, E. G. and R. Richter. 2005. *Institutions and economic theory: The contribution of the New Institutional Economics*. 2nd ed. Ann Arbor, MI: University of Michigan Press.
- Ghosh, S. 2014. “Barbarikon in the maritime trade network of early India.” In R. Mukherjee (ed.), *Vanguards of globalization: Port cities from the classical to the modern*, 59–74. New Delhi: Primus Books.
- Ghoshal, U. N. 1944. *The beginnings of Indian historiography and other essays*. Calcutta: Ramesh Ghoshal.
- Heesterman, J. C. 1982. “Householder and wanderer.” In T. N. Madan (ed.), *Way of life: King, householder, renouncer. Essays in honour of Louis Dumont*, 251–271. Delhi: Vikas Publishing.
- Horner, I. B., trans. (1952) 2001. *The book of the discipline (Vinaya-Piṭaka)*. Vol. 5, *Cullavagga*. Oxford: The Pali Text Society.
- Jaiswal, S. 2001. “Female images in the Arthasastra of Kautilya.” *Social Scientist* 29.3/4, 51–59.
- Jamison, S. W. 2017. “Marriage and the householder.” In P. Olivelle and D. R. Davis (eds.), *The Oxford history of Hinduism: Hindu law: A new history of Dharmaśāstra*, 125–136. Oxford: Oxford University Press.
- Jayaswal, K. P. and R. D. Banerji. 1929. “The Hathigumpha inscription of Kharavela.” *Epigraphia Indica* 20, 71–89.
- Jayaswal, V. 2012. “Mauryan pillars of the middle Ganga plain: Archaeological discoveries of Sarnath-Varanasi and Chunar.” In P. Olivelle, J. Leoshko, and H. P. Ray (eds.), *Reimagining Aśoka: Memory and history*, 229–257. New Delhi: Oxford University Press.
- Kangle, R. P., trans. (1969) 2014a. *The Kauṭīliya Arthaśāstra*. Vol. 1, *Sanskrit text*. Delhi: Motilal Banarsidass.

- . (1969) 2014b. *The Kauṭīliya Arthaśāstra*. Vol. 2, *Translation*. Delhi: Motilal Banarsidass.
- Kant, S. 2000. *The Hathīgumphā inscription of Khāravela and the Bhabru edict of Aśoka: A critical study*. 2nd ed. New Delhi: D. K. Printworld.
- Kocks, J. N. 2016. *Political media relations online as an elite phenomenon*. New York, NY: Springer.
- Krishna Rao, M. V. 1953. *Studies in Kautilya*. Mysore: H. Venkataramiah.
- Lahiri, B. 1974. *Indigenous states of northern India (circa 200 BC to 320 AD)*. Calcutta: University of Calcutta.
- Liu, X. 2009. “Buddhist ideology and the commercial ethos in Kuṣāṇa India.” In J. Hawkes and A. Shimada (eds.), *Buddhist stupas in South Asia. Recent archaeological, art-historical, and historical perspectives*, 117–191. New Delhi: Oxford University Press.
- Lüders, H. 1912. *A list of Brahmi inscriptions from the earliest times to about AD 400 with the exception of those of Asoka*. Calcutta: Superintendent Government Printing.
- Majumdar, R. C. (1960) 1981. *The classical accounts of India: Being a compilation of the English translations of the accounts left by Herodotus, Megasthenes, Arrian, Strabo, Quintus, Diodorus, Siculus, Justin, Plutarch, Frontinus, Nearchus, Apollonius, Pliny, Ptolemy, Aelian, and others with maps*. Calcutta: Firma K. L. Mukhopadhyay.
- Mandal, K. K. 2007. “Note: Forms of peasant protest in the ‘Jatakas.’” *Social Scientist* 35.5/6, 39–46.
- Milligan, M. D. 2019. “The economic power of women in early South Asian Buddhism.” *The Indian Economic & Social History Review* 56.1, 53–76.
- Mirashi, V. V. 1981. *The history and inscriptions of the Sātavāhanas and the Western Kshatrapas*. Bombay: Maharashtra State Board for Literature and Culture.
- Moorti, U. S. 1994. *Megalithic culture of South India: Socioeconomic perspectives*. Varanasi: Ganga Kaveri Publishing House.
- Muthucumarana, R., A. S. Gaur, W. M. Chandraratne, M. Manders, B. R. Rao, R. Bhushan, V. D. Khedekar, and A. M. A. Dayananda. 2014. “An early historic assemblage offshore of Godawaya, Sri Lanka: Evidence for early regional seafaring in South Asia.” *Journal of Maritime Archaeology* 9.1, 41–58.
- Neelis, J. E. 2011. *Early Buddhist transmission and trade networks: Mobility and exchange within and beyond the northwestern borderlands of South Asia*. Leiden: Brill.
- Olivelle, P. 1993. *The Āśrama system: The history and hermeneutics of a religious institution*. Oxford: Oxford University Press.
- , trans. 1999. *Dharmasūtras: The law codes of Āpastamba, Gautama, Baudhāyana, and Vasīṣṭha*. Oxford: Oxford University Press.
- , trans. 2005. *Manu’s code of law: A critical edition and translation of Mānava-Dharmaśāstra*. Oxford: Oxford University Press.
- , trans. 2013. *King, governance, and law in ancient India: Kauṭīliya’s Arthaśāstra: A new annotated translation*. Oxford: Oxford University Press.
- Paranavitana, S. 1970. *Inscriptions of Ceylon*. Vol. 1, *Containing cave inscriptions from 3rd century BC to 1st century AD and other inscriptions in the early Brāhmī script*. Ceylon: Department of Archaeology.
- Parasher-Sen, A. 1998. “Of tribes, hunters and barbarians: Forest dwellers in the Mauryan period.” *Studies in History* 14.2, 173–191.
- Rajan, K. 2019. *Churning the ocean: Maritime trade of early historic peninsular India*. Thanjavur: Manoo Pathippakam.
- Ray, H. P. 1986. *Monastery and guild: Commerce under the Sātavāhanas*. Delhi: Oxford University Press.
- . 2006. “Inscribed pots, emerging identities: The social milieu of trade.” In P. Olivelle (ed.), *Between the empires: Society in India 300 BCE to 400 CE*, 113–144. Oxford: Oxford University Press.

- . 2020. *Coastal shrines and transnational maritime networks across India and Southeast Asia*. London: Routledge.
- Rees, G. and F. Yoneda. 2013. "Celibate monks and foetus-stealing gods: Buddhism and pregnancy at the Jetavana Monastery, Shravasti, India." *World Archaeology* 45.2, 252–271.
- Roy, K. 2016. *Military manpower, armies and warfare in South Asia*. London: Routledge.
- Sahoo, P. C. 2012–2013. "Slavery, Manu and human rights." *Bulletin of the Deccan College Research Institute* 72/73, 451–456.
- Sastri, H. 1925. "Brahmi inscription on a wooden pillar from Kirari." *Epigraphia Indica* 18, 152–157.
- Schlingloff, D. 2013. *Fortified cities of ancient India: A comparative study*. London: Anthem.
- Schopen, G. 1994. "The monastic ownership of servants or slaves: Local and legal factors in the redactional history of two Vinayas." *Journal of Buddhist Studies* 17.2, 145–175.
- . 2004. *Buddhist monks and business matters: Still more papers on monastic Buddhism in India*. Honolulu, HI: University of Hawai'i Press.
- . 2008. "Separate but equal: Property rights and the legal independence of Buddhist nuns and monks in early north India." *Journal of the American Oriental Society* 128.4, 625–640.
- . 2010. "On incompetent monks and able urbane nuns in a Buddhist monastic code." *Journal of Indian Philosophy* 38.2, 107–131.
- Seshan, R. 2007. "Writing the nation in India: Communalism and historiography." In S. Berger (ed.), *Writing the nation: A global perspective*, 155–178. London: Palgrave Macmillan.
- Sharma, R. S. 1990. *Śūdras in ancient India: A social history of the lower order down to circa AD 600*. 3rd ed. Delhi: Motilal Banarsidass.
- Shaw, J. 2013. "Archaeologies of Buddhist propagation in ancient India: 'Ritual' and 'practical' models of religious change." *World Archaeology* 45.1, 83–108.
- . 2016. "Religion, 'nature' and environmental ethics in ancient India: Archaeologies of human:non-human suffering and well-being in early Buddhist and Hindu contexts." *World Archaeology* 48.4, 517–543.
- Shimada, A. 2013. *Early Buddhist architecture in context: The great stūpa at Amarāvati (ca. 300 BCE–300 CE)*. Leiden: Brill.
- Sircar, D. C. 1966. *Indian epigraphical glossary*. Delhi: Motilal Banarsidass.
- . 1971. *Studies in the religious life of ancient and medieval India*. Delhi: Motilal Banarsidass.
- Smith, M. L. 2006. "The archaeology of South Asian cities." *Journal of Archaeological Research* 14.2, 97–142.
- . 2018. "Urbanism and the middle class: Co-emergent phenomena in the world's first cities." *Journal of Anthropological Research* 74.3, 299–326.
- Srinivasan, S. 2018. "Early gold mining and jewellery: Some insights from the Nilgiris, Tamil Nadu and Karnataka." *SAARC Culture* 6, 88–102.
- Thakur, P. 2018. "Floral jewellery in ancient Indian tradition." *SAARC Culture* 6, 79–87.
- Thakur, V. K. 1987. "Role of guilds in ancient Indian urban administration (c. 200 BC–c. AD 600): A numismatic study." *Journal of the Numismatic Society of India* 49, 70–76.
- Thapar, R. 1982. "Householders and renouncers in the Brahmanical and Buddhist traditions." In T. N. Madan (ed.), *Way of life: King, householder, renouncer: Essays in honour of Louis Dumont*, 273–298. New Delhi: Vikas Publishing.
- . 1992. *From lineage to state: Social formations in the mid-first millennium BC in the Ganga valley*. 2nd ed. Delhi: Oxford University Press.
- . (1978) 2006a. "Dāna and dakṣiṇā as forms of exchange." In *Ancient Indian social history: Some interpretations*, 94–108. New Delhi: Orient Longman.
- . (1978) 2006b. "Social mobility in ancient India with special reference to elite groups." In *Ancient Indian social history: Some interpretations*, 122–151. New Delhi: Orient Longman.
- . 2013. *Aśoka and the decline of the Mauryas*. 3rd ed. New Delhi: Oxford University Press.

- Thaplyal, K. K. 1996. *Guilds in ancient India: A study of guild organization in northern India and western Deccan from circa 600 BC to circa 600 AD*. Delhi: New Age International.
- Thaplyal, U. P. 2002. "Military organization in the ancient period." In S. N. Prasad (ed.), *History of science, philosophy and culture in Indian civilization*. Vol. 10.3, 68–103. New Delhi: Motilal Banarasidass.
- Trautmann, T. R. 2009. "Elephants and the Mauryas." In T. R. Trautmann (ed.), *The clash of chronologies: Ancient India in the modern world*, 229–254. Delhi: Yoda Press.
- . 2015. *Elephants and kings: An environmental history*. Chicago, IL: University of Chicago Press.
- Tyagi, J. 2007. "Organized household production and the emergence of the Sangha." *Studies in History* 23.2, 271–287.
- . 2008. *Engendering the early household: Brahmanical precepts in the early Gṛhyasūtras, middle of the first Millenium BCE*. New Delhi: Orient Longman.
- Upadhyaya, S. C., trans. 1961. *Kama Sutra of Vatsyayana: Complete translation from the original Sanskrit*. Bombay: Taraporevala Sons & Co.
- Varma, S. and J. Menon. 2011. "Children playing and learning: Crafting ceramics in ancient Indor Khera." *Asian Perspectives* 49.1, 86–109.
- . 2015. "Mapping histories and practices of potters' households in ancient Indor Khera (200 BCE–500 CE)." In K. Roy (ed.), *Looking within, looking without: Exploring households in the subcontinent through time: Essays in memory of Nandita Prasad Sahai*, 19–45. Delhi: Primus Books.
- Wagle, N. K. 1995. *Society at the time of the Buddha*. 2nd ed. Bombay: Popular Prakashan.

Kathrin Leese-Messing

6 Economic Actors in Early Imperial China

I Introduction

This chapter examines various types of actors in the Qin 秦 and Han 漢 empires that played major parts in different kinds of economic activities. For some of these actors, one major economic role stands out in comparison to others, such as consumption in the case of *imperial elites*, production in the case of *primary* and *craft producers*, or distribution in the case of *traders*. But all types of actors are characterized by more complex patterns of behavior. For instance, members of *local elites* could be large-scale producers, but were at the same time essential consumers and redistributors of wealth. *Local government institutions* played important roles in all three aspects, and additionally acted as coordinators of economic behavior and as nodes between different types of economic actors. *Households*, as fundamental units of production and consumption, took over the essential function of organizing and coordinating their members' labor. The *military* was primarily a massive consumer, but also played an essential part in enhancing long-distance connectivity. And finally, *diplomatic delegations* acted as important vectors of interaction in inter-imperial politico-economic relationships.¹ In the interplay with the economic 'tools' (ch. 11), the socioeconomic roles of all of these actor groups shaped the larger structures and dynamics of the early imperial economy as a whole (ch. 15).

II Imperial Elites

II.1 The Emperor and the Court

II.1.1 Consumption, Production, and Redistribution

As the ruler on high takes delight in novelties, extravagant clothing is adopted among the people below. As the ruler on high treasures the goods from distant lands, wealth flows out-

¹ In contrast to the chapters on economic actors of other regions discussed in this volume, this chapter does not include a section on cities as actors. In contrast to cities of certain other parts of the ancient world, it is hard to fathom cities in early imperial China as corporate bodies that, as such, 'acted' economically. Certainly, this does not mean that early imperial Chinese towns and cities were economically unimportant. If not as corporate 'actors,' they were essential in their role as containers for concentrated economic activity. Just like in other parts of the ancient world, their sheer demographic size made cities serve as network hubs of production, consumption, and distribution.

Note: I would like to thank Armin Selbitschka for valuable comments on an earlier draft of this chapter.

ward. Therefore, the kingly one does not value useless things, so to set an example of thrift to his subjects; does not love exotic articles, so to enrich his country.

夫上好珍怪，則淫服下流，貴遠方之物，則貨財外充。是以王者不珍無用以節其民，不愛奇貨以富其國。²

The true gentleman, while checking excess, would disapprove of parsimoniousness. Parsimoniousness leads to narrowness ... If palaces and houses are not decorated, the timber supply will be over-abundant ... Without the embroidered ceremonial robes, the seamstresses will have no occupation.

君子節奢刺儉，儉則固。[...] 不飾宮室，則材木不可勝用，[...] 無黼黻，則女工不施。³

The first quotation, voiced by the ‘learned scholars’ (*wenxue* 文學) in the Former Han work *Discourses on Salt and Iron* (*Yantie lun* 鹽鐵論),⁴ implies more than anything else that the Han emperor at whose court they were debating did not actually adhere to a ‘kingly one’s’ modesty. The second, expressed by the ‘grandee,’ who is shown as the former’s opponent in this dialogic work, indicates that others saw imperial luxury in a much more positive light, for instance, as an economic stimulus.⁵ Similar to other ancient societies, consumption at the very top of the Qin and Han social hierarchy was intrinsically linked to the legitimization of power. Transmitted works of the Han period contain various norms and many records of people’s criticism or advocacy of imperial consumption. Archaeological evidence from tombs has provided further evidence for the central power holders’ role as consumers and redistributors.⁶

In general, the emperor himself was not meant to be a ‘public person.’ Contemporary ideals associated good rulership with invisibility rather than visibility. Except for high dignitaries and courtiers, even court members were not supposed to see the emperor with their own eyes, let alone the common people on the streets of Xianyang 咸陽, Chang’an 長安, or Luoyang 洛陽.⁷ Accordingly, in the capital cities of the Qin and Han Empires, one would have looked in vain for imperially sponsored buildings in service to the emperor’s public appearances and the gathering of

bution, which stimulated specialization and labor distribution. On the importance of cities, see, for instance, Leese-Messing, ch. 15, III.3 and IV.2, this volume.

² *Yantie lun jiaozhu* 2.29, trans. Gale 1967, 16 (with modifications).

³ *Yantie lun jiaozhu* 3.43, trans. Gale 1967, 22 (with modifications). The second part (“If palaces ...”) is indicated as a “Guanzi” 管子 quote, but is not to be found in the transmitted work *Guanzi*.

⁴ On the *Yantie lun* and its source value with regard to economic history, see Leese-Messing, vol. 1, ch. 12.A, 513–518.

⁵ For more references in ancient Chinese works to the idea of consumption as economic stimulus, see Yang 1957.

⁶ The tombs of the Han emperors themselves have mostly been located, but none of them has been excavated yet. Some objects found in elite tombs across and beyond the empire’s territory, however, bear inscriptions indicating that imperial palaces were their primary places of consumption, and therefore offer clues to both consumption and redistribution practices at court.

⁷ Lewis 2007, 79–80; Ch’ü 1972, 66–69.

crowds like the theaters or the Colosseum in Rome. Those buildings that were commissioned to display the power of Qin and Han emperors to the public, such as awe-inspiring terrace buildings constructed on slopes, were designed for seclusion rather than invitation. In a similar vein, the imperial palaces at the capital were hidden behind immense walls. It was the palaces' very seclusion, along with their sheer dimensions – they covered two thirds of the vast surface area of the walled city⁸ – which proclaimed that the most sublime of all earthly powers resided here.⁹

The palaces did not only consist of private chambers and administrative offices for the people who resided or worked at court on a long-term basis, however. They also comprised semipublic interior spaces for court guests – such as members of the political and noble elites or foreign rulers and delegations – at imperial audiences, ceremonies, and banquets.¹⁰ Of course, these spaces offered obvious opportunities for the display of wealth and conspicuous consumption – not for the excluded general public but for explicitly privileged groups. Both textual and (though scarce) archaeological evidence attest to their luxurious furnishing and decoration.¹¹ People of the Han court at Chang'an were well aware that their capital city had the potential to impress visitors, particularly those coming from afar. Envoys from Anxi 安息 (the Arsakid Empire) and the Wusun 烏孫, for instance, were reportedly very impressed by the wealth of the Han Empire during their visits to the capital and therefore changed their attitude and conduct toward the Han.¹²

Apart from the investments into the construction and furnishing of the hundreds of buildings, the daily maintenance of the imperial court and its appendages, including several huge palaces, the emperor's harem, and the Imperial Academy (*Taixue* 太學) with allegedly up to 30,000 prospective scholars at its height, demanded fuel, personnel, clothing, and food – from basic staples up to exquisite delicacies.

8 The whole city covered an area of ca. 36 sq. km *intra muros*. Pirazzoli-t'Serstevens 2010, 171, 173–174.

9 For an extensive treatment of the particularities in the display of power in the early Chinese empires in comparison to the Roman Empire, see Lewis 2015b.

10 After the Han dynastic founder, Liu Bang, had criticized his chancellor Xiao He for spending too many resources on the construction projects in the new capital during a time when their power base was not yet stable, Xiao He reportedly taught him the following: “It is precisely because the fate of the empire is still uncertain that we must build such palaces and halls. A true Son of Heaven takes all within the four seas to be his family. If he does not dwell in magnificence and beauty, he will have no way to manifest his authority, nor will he leave anything for his heirs to build upon.” 天下方未定，故可因遂就宮室。且夫天子四海為家，非壯麗無以重威，且無令後世有以加也。 *Shiji* 8.385–386, trans. Lewis 2007, 92–93.

11 Barbieri-Low 2007, 153–211, offers an illustrative impression of what we know about the palaces' interior decoration and furnishing, as well as of the craftsmanship involved.

12 *Shiji* 123.3169; 3171–3172, trans. Watson 1993, 239–240, 243; Nienhauser 2019, 77, 83. Emperor Wu also took foreign visitors on tours to other parts of the empire, showing off the empire's size, its huge storehouses, and populous cities, and regaling them with luxurious accommodations and gifts (*Shiji* 123.3173, trans. Watson 1993, 244).

cies, some of which were imported over long distances. Lychee and Longan fruits, for instance, were transported to the court as tribute from the tropical southern regions of the empire, requiring high-speed delivery to keep them fresh. Their consumption at court was an object of criticism on several occasions during Later Han times.¹³

Outside the Former Han capital of Chang'an, Shanglin 上林 Park was another place intrinsically connected to imperial power display and large-scale consumption. First established by the First Emperor of Qin and massively extended by Emperor Wu 武 (r. 141–87 BCE) of Han, it mainly consisted of a large wilderness preserve for imperial hunts and excursions. Invitations to take part in such events were regarded as an exclusive honor. According to several transmitted texts, Emperor Wu had the park equipped with all kinds of luxuries and curiosities, many of which (such as flora and fauna of foreign origin) stood out on account of their exotic nature and thus had a direct link to imperial expansionism. The park also comprised, among others, palatial edifices equipped to host high-level and large-scale imperial banquets that reportedly could, at least during Qin times, host up to 10,000 guests.¹⁴ An integral part of such gatherings was the bestowal of lavish gifts upon the guests, typically in the form of exclusive, high-value products from imperial workshops.¹⁵ After all, the ability to cause multitudes of people to travel from afar and pay their respect to the 'Son of Heaven' (*tianzi* 天子) was yet another central aspect of traditional rulership ideals.¹⁶ The massive distribution of gifts, along with the luxury tableware and exquisite food consumed both at feasts and in daily life at court, must have considerably driven the imperial demand for these goods. The same is true for the vast amounts of gifts that were exported in the context of foreign diplomacy. Under the name of the emperor, exquisite silk, as well as bronze, lacquer, and other items, were transported in massive quantities to the political centers of the empire's neighbors, especially the Xiongnu 匈奴 Empire. These imperial gifts were meant to build up or maintain friendly relations, which were expected to bring both peace and, in some cases at least, valuable gifts in return.¹⁷

Many of the luxury items (among others) are known to have been produced in imperial workshops officially run under the ownership of the emperor. The latter, therefore, also played a central role in the processes of state production. Imperial workshops were located both in the capital and across the empire. The locations of the facilities were often inherited from pre-Han times, with both local production traditions and availability of raw materials playing important roles. Sichuan, for instance, hosted the most prestigious imperial workshops for the production of lac-

¹³ Yü 1977, 80, with the according references from transmitted sources.

¹⁴ On Shanglin Park, see Lewis 2006, 171, 177–178; Hung 1995, 170–176.

¹⁵ Barbieri-Low 2001, 6–7.

¹⁶ Lewis 2007, 89.

¹⁷ On this form of long-distance exchange, see also sec. X below.

quer items consumed and redistributed at court, in a continuation and enhancement of centuries-old local traditions.¹⁸ And one of the most famous imperial production centers for textiles, the ‘Three [Seasons] Garments Office’ (*San fu guan* 三服官), was located in the commandery of Qi 齊 in the empire’s far east.¹⁹ Certainly, the manifold demands created by court consumption and redistribution practices did not only rest on state production but also involved procurement of both raw materials and finished products on the market. This aspect is, however, much less visible in our source material and is only beginning to be thoroughly investigated in scholarship.²⁰

As in the case of exotic animals and plants mentioned above, imperial consumption patterns also included a certain demand for imported goods. Some emperors are particularly famous for their fondness of foreign products. Some of this demand was – at least initially – based on pragmatic considerations, such as in the case of Emperor Wu’s eagerness to acquire Central Asian (and particularly Dayuan 大宛) horses for his army.²¹ But consumption of certain foreign products also played a role in more private imperial spheres. Emperor Ling 靈 (r. 168–189 CE) of the Later Han, for instance, is said to have had a particular soft spot for foreign items of daily use. He is said to have been fond of products originating from the empire’s northern neighbors, such as “Hu clothes, Hu curtains, Hu beds, Hu seats, Hu food, Hu lutes, and Hu flutes” 胡服、胡帳、胡牀、胡坐、胡飯、胡空侯、胡笛.²²

An important sphere in which the very idea of rulership demanded extensive consumption was the sphere of mortuary practice, ancestry cult, and services to super-human powers. The forms of practicing these cults, including their objects of worship (e.g., deities or certain mountains), their places, and their dimensions, changed considerably over time. Consideration of costs, but also of changes in popular religious beliefs, could play a role in such reforms.²³ Some of the rituals demanded extensive traveling. For Emperor Wu’s first performance of the newly introduced *fengshan* 封禪 sacrifices at Mount Tai (Taishan 泰山) in the east, which he combined with visits to other places as well, he reportedly traveled 18,000 *li*

18 On the distribution of Han imperial workshops across the empire, see Barbieri-Low 2001, 41–94. For the Sichuan lacquer workshops in particular, see Barbieri-Low 2001, chs. 3–5; Barbieri-Low 2007, 186–188. See also Leese-Messing, vol. 1, ch. 12.C. For the pre-imperial centers of lacquer production, see Thote 2003.

19 In today’s Shandong province. See, for instance, *Hanshu* 72.3070; Kuhn 1995, 103–104.

20 On some evidence for the relevance of markets to satisfy state demand for various products (e.g., textiles), see further Leese-Messing, ch. 15, III.1, this volume.

21 The demand for horses figures prominently in Sima Qian’s 司馬遷 (145 or 135–ca. 87 BCE) account on Dayuan, *Shiji* 123, trans. Watson 1993, 231–258; Nienhauser 2019, 54–104.

22 *Hou Hanshu* 13.3272 (treatises section). The designation ‘Hu’ 胡 often referred to the Xiongnu in particular, but was also used in a broader sense, then referring to various neighbors in the steppe region to the Han Empire’s north.

23 Loewe 1974, ch. 5, 1992; van Ess 1993, 182–184.

(ca. 9,000 km).²⁴ Such trips, which he undertook several times, demanded considerable preparation by the officials and other people of the places to and through which the emperor traveled, for instance with regard to the maintenance of roads.²⁵ Emperor Wu's undertakings in this regard were, however, rather exceptional among Han emperors.

It may be debated how far the emperors' often lavish expenditures in these domains could be interpreted as 'conspicuous consumption' and rational 'investment' in power preservation, i.e., a conversion of economic power into political power. While some of the practices – like funerary processions and regular ritual ceremonies at the emperors' shrines – involved a certain amount of public participation,²⁶ others were conducted in strict secrecy.²⁷ Qin Shihuang's enormous tomb complex may serve as the most illustrative example to show that publicity did not always play the central role: The thousands of life-size terracotta warriors and all the other luxurious inventories that have so far been unearthed from his necropolis, which covers an area of almost 100 km², are a breathtaking sight today, but they were not meant to be marveled at by contemporary passersby. They were, after all, buried underground.²⁸ Irrespective of the question of publicity, one may ascribe some wider economic impact to this kind of mortuary consumption. It established,

24 *Hanshu* 25A.1234–1236. Mount Tai is located in modern Shandong.

25 Van Ess 1993, 183.

26 The sources often do not give a clear picture of the extent of publicity involved in such events. Other than during later (i.e., Tang) times, ceremonial processions conducted by the emperor during Han times often appear to have been open to be witnessed by commoners (Nylan 2005, 48, n. 128). Loewe suggests that the monthly ceremony during which “the robes and headdress of the deceased emperor were conveyed from the rest chamber to the shrine” was an event that “may have attracted crowds of onlookers.” He further suggests that imperial shrines may have belonged to the “few ... great buildings with which the general public would have had direct contact” (Loewe 1999, 91, 99). A historical record of Emperor Ming 明 of the Later Han (r. 58–75 CE) practicing the ritual of plowing the ceremonial field in 69 CE mentions (otherwise unspecified) “spectators” (*guan zhe* 觀者) whom the emperor served food after the ritual (*Hou Hanshu* 2.116). Invited guests were definitely present at many occasions, such as imperial funerals and sacrifices.

27 One famous example being Emperor Wu's performance of the *feng* and *shan* sacrifices at Mount Tai, which was largely connected to his private quest for immortality (Loewe 1974, 184–185). But, whereas the ceremony itself was secret, the emperor's travelling to the mountain did have ample potential for public arousal.

28 Even though the tomb inventories were not seen after their burial, people may have gotten information on them, and thus, have marveled at their number, etc., without seeing them personally. Sima Qian, for instance, obviously knew about some of Qin Shihuang's lavish tomb inventory, and his knowledge may have derived from archived documents or some other form of information that had been made public. See *Shiji* 6.265, trans. Nienhauser 1994, 155. Nevertheless, both costly rituals and construction projects could also serve private rather than public means, as in the case of certain emperors' dreams of immortality. In comparison to Qin Shihuang, Han emperors seem to have been 'modest' with regard to their tomb inventory, but their expenses were nevertheless substantial.

for example, a substantial demand for mass production of certain funerary products, such as funerary figurines and, particularly during Later Han times, tomb bricks.²⁹ In the case of imperial tombs, most of these goods were probably produced in government-owned workshops rather than acquired on the open market.³⁰ Nevertheless, the mortuary mass culture associated with imperial entombments left a mark on production and logistical techniques that, through processes of elite emulation, became widespread phenomena in both a geographical and a social sense and are likely to have had spillover effects on other branches of production as well.³¹

Former Han emperors' tombs had yet another kind of economic impact: Each tomb's construction in the larger surroundings of the capital city of Chang'an was accompanied by the establishment of an entire new town right next to the tomb. Such so-called 'tomb towns' were filled with inhabitants by the forced resettlement of hundreds of thousands of people from the eastern part of the empire. In theory, these people were seen as the guards and maintainers of the tombs, but for practical purposes, resettlement dispossessed many wealthy and powerful people of their local resource bases and networks in the east and made them more manageable in a nearby place. Furthermore, the capital region needed manpower in many fields, such as construction and administrative work.³² Several of these tomb towns eventually belonged to the largest and most populous cities of the whole Han Empire, and therefore substantially changed the metropolitan area's economic role, especially with regard to urban consumption.³³

Apart from the production of burial objects and the construction of the tombs³⁴ with their accompanying tomb towns, it was the long-term costs of ancestor worship in particular that made mortuary practice a matter of enormous expenditure on behalf of the emperor on a regular basis. During the rule of Emperor Yuan 元 of Former Han (r. 48–33 BCE), services to the imperial ancestors at altogether 176 sites³⁵ reportedly required the offering of 24,455 meals annually and employed 45,129 service-

29 Or even mass-produced statues, in the case of the First Emperor of Qin, for which see Ledderose 2000, ch. 3.

30 Archaeological excavations at the site of the Former Han capital Chang'an have brought to light remains of kilns that produced funerary pottery figurines at a massive scale. Zhou and Wang 1985; Zhongguo shehui kexueyuan kaogu yanjiusuo Hancheng dui 1994. On the role of funerary figurines in ancient Chinese burial culture, Selbitschka 2015b.

31 On mass and modular production in ancient China, including techniques following the so-called 'assembly line' or 'conveyor principle,' see Barbieri-Low 2007, 73–101; Ledderose 2000.

32 Korolkov and Hein 2020, 10.

33 On the tomb towns, see Loewe 2017, 2015; Yu and Li 2012.

34 Ideally, the construction of an emperor's tomb was supposed to be started in the year after his accession and involved, among others, the erection of a huge, artificial tumulus, which housed many underground chambers and corridors. See Loewe 1999, 87.

35 The main shrines were those near Chang'an, but many more had been established at places far away from the capital to which some of deceased emperors had travelled.

men, 12,147 prayer-reciters, cooks, and musicians, not even counting those people that were deputed to tend the sacrificial animals.³⁶ The costs for mortuary practices, which also included state funerals for imperial relatives and high statesmen, and ceremonies held at the ancestral temple must therefore be considered as one of the largest expenditures of the emperor's privy purse.

II.1.2 Extraction

The finances of the Former Han government were split between two purses: a public purse under the control of the superintendent for agriculture (*da sinong* 大司農), on the one hand, and the so-called 'Lesser Treasury' (or 'Privy Purse,' 'Ministry of Resources,' *Shaofu* 少府), on the other. The fields of extraction and expenditure of the two were not always strictly separated and partly changed over time. But generally, it was the Lesser Treasury that was responsible for most of the expenditure associated with the person of the emperor, i.e., court consumption (including furnishings, clothes, food, and entertainment), imperial tomb furnishings (though not the construction of the tombs themselves), and the massive amounts of gifts handed out to officials, nobles, and foreign rulers.³⁷

The sources of revenue for this branch mostly included commercial taxes, which accounted for an estimated half of its budget. To a much lesser degree, they also comprised the poll tax on children, seigniorage, and tribute taxes (paid by nobles in gold). Furthermore, they comprised income from the products of the so-called 'mountains and marshes.' Among others, this included revenues from government-owned lakes and ponds but most importantly from the salt and iron industries. During the first century of Han rule, these were extracted as taxes, and are likely to have contributed the major part of the Lesser Treasury's budget. When Emperor Wu established the salt monopsony and iron monopoly, he transferred their enormous revenues to the public purse, i.e., the Ministry of Agriculture, which was at that time in dire need of new revenues for the expansionist wars.³⁸ The emperor also owned agricultural lands, most of which seem to have been located in the region around the capital. But since the available sources do not enable us to determine their size, or even if they grew or diminished over time, it is hard to

³⁶ Loewe 1992, 324.

³⁷ The Ministry of Agriculture extracted its income mainly from the field tax and the adult poll tax, by which it financed officials' salaries, infrastructural investments, and military defense. See Leese-Messing, ch. 11, II, this volume.

³⁸ For further details on the revenues from the salt and iron industries, see Leese-Messing, ch. 11, II.3.5. The taxation of natural resources during the time before the establishment of the monopolies has become clearer with the find of an according legal statute among the Zhangjiashan corpus. See Barbieri-Low and Yates 2015, 916–19, 926–27 (no. 12 of the "Statutes on Finance," slips 436–38).

fathom their economic relevance. According to Yamada's estimate, their revenue accounted for little more than a tenth of the Lesser Treasury's income.³⁹

In general, therefore, expenditure associated with the person of the emperor was largely funded through taxes. In comparison to Roman emperors, for instance, they were based to a much lesser extent on income generated by the emperors' imperial estates. Things become more obscure with regard to Later Han times, when private and public purse were merged under the superintendent for agriculture's ministry. This blurred the distinction between the two financial branches, which likely facilitated abuse of financial resources.⁴⁰

II.1.3 Imperial Consumption as a Model for Elite Emulation

Even though many aspects of court consumption and redistribution were connected to 'in-house' production via state-owned facilities, their economic impact was felt in much wider circles through elite emulation. The importance of the latter is clearly suggested both by many textual references (such as the critic's warning quoted at the beginning of this section) and by archaeological evidence. Critics of lavish consumption often bemoan a "competition in excess and extravagance" 競於淫靡,⁴¹ and imperial subjects "emulating [the emperor's] model of excess, so that their clothing, footgear, and ornamented arms have become confusingly like those of the emperor."⁴² The source of the latter quote further complained to the emperor that on a trip to the empress's palace he was "presented with lacquer cups and trays, all of which had painted decoration and gold and silver mounts," which were "not appropriate objects with which to present a subject to sup upon."⁴³ Lacquer tableware is a very clear example of elite emulation. Tombs of kings and local elites often contain a mixture of lacquer objects evidently produced in imperial workshops (likely gifted by the emperor on occasions like the previous example) and lacquer objects made in other, possibly 'private' workshops. Barbieri-Low has further called attention to a lacquer platter that bears all signs of a privately produced piece and even gives the family brand name of the private producer in its inscription. At the same time, this very inscription starts off by claiming that the platter was made in one of the famous imperial lacquer workshops, a fake branding, if you will, which is unthinkable without the phenomenon of emulation.⁴⁴

³⁹ Loewe 1985, 249. Von Glahn 2016, 117, based on Yamada 1993, 653–658.

⁴⁰ Bielenstein 1980, 46, 55, 67–68.

⁴¹ *Yantie lun jiaozhu* 3.42, trans. Gale 1967, 21, with modifications.

⁴² 臣下亦相放效，衣服履綉刀劍亂於主上。 *Hanshu* 72.3070, trans. Barbieri-Low 2001, 407.

⁴³ 見賜杯案，畫文畫金銀飾，非當所以賜食臣下也。 *Hanshu* 72.3070, trans. Barbieri-Low 2001, 408, with modifications.

⁴⁴ Barbieri-Low 2007, 142–145. On the social aspects of emulation more generally, and its role in silk consumption patterns as suggested by burial finds in the Tarim Basin between the second and fifth century CE, see Selbitschka 2018a.

Emulation processes at court most likely also contributed to a wider spread of demand for foreign products in high elite circles. As a result of Emperor Ling's fondness of 'Hu' products, for instance, "all the members of the imperial relatives at the capital competed in imitating him" 京都貴戚皆競為之.⁴⁵ Earlier, according to transmitted letters, the court historian Ban Gu 班固 (32–92 CE) asked his brother Ban Chao to procure certain foreign products for him that were available in the Tarim Basin, where the latter was stationed as a high military official and protector-general of the Western Regions (*Xiyu duhu* 西域都護). The products mentioned in their correspondence include exquisite Yuezhi rugs, storax incense, and horses, and one letter mentions Ban Chao's purchase, on behalf of his brother, of a multicolored woolen tapestry from the Yuezhi worth 800,000 coins.⁴⁶ That demand for foreign and exotic-looking products of daily use was neither restricted to the capital nor to the time of Emperor Ling's reign has been amply demonstrated by finds in tombs belonging to the kings in the east.⁴⁷

II.2 The Imperial Family

Economic processes that centered on the person of the emperor alone do not tell the whole story of the economic roles of the imperial elite. Many more aspects could be added here to diversify the picture, two of which will be touched upon in the following. Most generally, kings acted as important nodes of the imperial network through which certain imperial consumption and production processes were extended far beyond the central court. Broadening our field of vision further to include female members of the imperial family shows that active involvement in economic processes happened across gender roles.

II.2.1 Kings in the Eastern Part of the Empire

Except during the very first years of the Former Han dynasty's rule, Han kings (*wang* 王 or *zhuhou wang* 諸侯王) were almost exclusively members of the Liu ruling family.⁴⁸ Kingdoms (*wanguo* 王國) and the associated titles were usually granted to an emperor's sons. The kingdoms were all located in the eastern part of the empire, many hundreds of kilometers away from the Former and Later Han capital cities. The substantial administrative and economic power of the kings was drastically

⁴⁵ *Hou Hanshu* 13.3272 (treatises section).

⁴⁶ *Quan Hou Han wen* 25; Z. Wang 2018, 18.

⁴⁷ See the following section.

⁴⁸ One of the exceptional examples of "kings of a different surname" (*yixing wang* 異姓王) was Zhao Mo 趙昧, King of Nanyue 南越, whose body was also vested in a jade suit (on which see below).

curtailed through a number of measures during the first century of Han rule, including the integration of the local kingdoms' administration and taxation into the centralized system and a drastic reduction of their territories.⁴⁹

However, kings continued to enjoy considerable privileges, especially with regard to imperial gifts and sumptuary rules, which defined their economic roles as consumers.⁵⁰ These privileges are particularly evident in kings' tombs. Other than those of Han emperors, dozens of Former Han kings' tombs have been excavated during recent decades. Instead of the formerly common assemblages of bronze ritual vessels known from Warring States elite burials, Han kings' tombs increasingly exhibit finely decorated items of daily use, particularly exquisite banquet equipment (including tables and tableware, typically lacquered), lamps, incense burners, and (at times immense amounts of) coins, but also horses, chariots, weapons, and ceramic or wooden miniature figurines, including those of different kinds of servants. One example of the highly exclusive components of the kings' burials are the jade suits holding the kings' and their consorts' bodies, which consisted of thousands of jade plaques sewn together with silk or gold threads.⁵¹ Reportedly, their mausoleums were each accompanied by an adjacent tomb settlement, albeit on a much smaller scale than those of the emperors.⁵²

Interestingly, rather than showing signs of redistribution from the center of imperial power, many of the lacquer objects found in kings' tombs bear inscriptions that suggest they were produced locally, possibly in workshops that stood under the control of individual kings themselves.⁵³ Apart from their role as consumers and in the redirection of resources from the center to the east, some kings may thus have been actively promoting local luxury production as well.

What the tombs also reveal is some of their occupants' appreciation of foreign products, including both actual steppe imports and objects adopting steppe-style forms or elements. Typical examples are imported gold or gilt bronze belt plaques and locally produced jade plaques.⁵⁴ Obviously, this appreciation for foreign products and styles was something that they shared with at least some of the Han emperors. In the context of local production, the adoption of 'exotic' styles and motives may have promoted the creation of new product niches and specialization opportunities, even if the items were produced only for high elite consumers. Furthermore,

⁴⁹ On the changing role of the kings, see also Leese-Messing, vol. 1, ch. 4, 153.

⁵⁰ Apart from the archaeological evidence from tombs, on which see below, transmitted historical texts frequently mention certain kings' extreme wealth and extravagant consumption habits. Loewe 2010, 306–307.

⁵¹ On the kings' tombs and tomb inventories, see Rawson 1998, 1999.

⁵² *Hanshu* 63.2748 gives the number of 300 families as the standard population of a king's tomb settlement.

⁵³ Y. Liu 2019a, esp. 50–56.

⁵⁴ Kost 2017, also providing a map and a list of the royal tombs including such objects (352 and 356). See also Rawson 2012.

extended demand for such products in these high elite circles is likely to have fostered the import of actual foreign goods. This raises the question of whether foreign products were imported via market structures and long-distance trade or whether their influx was related to the central governments' diplomatic exchanges. The latter would imply that their distribution was mostly confined to the network of the emperor and his closest family members. Although future research and new archaeological evidence may provide new clues on this matter, so far foreign products, and even the adoption of foreign styles, have almost exclusively been found in royal tombs, favoring the diplomatic exchange model.

II.2.2 Empresses, Empresses Dowager, Queens, and Princesses

Empresses and empresses dowager were often among the most powerful political actors at court, with some of them even superseding the emperor's influence. But apart from their undoubtable wealth, which included landholding, we do not know many details about the economic roles of female members of the imperial family. Individual passages in transmitted texts suggest, however, that their potential with regard to decision-making in economic matters was quite substantial. Reportedly, for instance, the powerful Empress Dowager Dou 竇 (d. 135 BCE)⁵⁵ bequeathed all the monetary and material belongings from her palace to her daughter instead of a male heir.⁵⁶ In a similar vein, a Former Han princess successfully fended off a government official's attempt to compel her deceased husband's (i.e., the former king of Changshan's 常山) sons to share their inheritance with a dispossessed sibling.⁵⁷ And under Emperor Jing 景 (r. 157–141 BCE), an imperial princess, probably the latter's elder sister Liu Piao 劉嫖, personally decided to financially aid her late father's (i.e., Emperor Wen's 文, r. 180–157 BCE) former courtier Deng Tong 鄧通 after the latter had been dismissed from court and deprived of his gigantic holdings.⁵⁸ All these instances show that female members of the imperial family likely played a much more active role in various economic distribution processes than a first impression might suggest.

III Local Elites

III.1 Generation of Wealth and Agriculturalist Self-Presentation

Han society and its local elites in particular evolved on the basis of what might be termed a phase of 'creative destruction' during several war-intensive centuries be-

⁵⁵ She had been the wife of Emperor Wen 文 (r. 180–157 BCE).

⁵⁶ *Shiji* 49.1975. On this and the following case, see also Hinsch 1998, 17; Z. Liu 1980, 146.

⁵⁷ *Shiji* 59.2102–3.

⁵⁸ *Shiji* 125.3193, trans. Nienhauser 2019, 137.

fore the Qin unification. By the end of the Warring States period, the old hereditary aristocratic system had been largely dissolved, and it was finally brought to naught during the early Han period.⁵⁹ Along with the simultaneous development of a market in land, this bore the potential for new local elites to arise whose power was largely built on wealth.⁶⁰ It is known especially with regard to the early Former Han period that some people became tremendously rich as entrepreneurs, particularly in the lucrative, pre-monopoly salt and iron industries.⁶¹ But in general, the economic, social, and ultimately also political power of local elites in Han China mostly rested upon landholding. Landholders may have profited further from the introduction of certain new agricultural tools and technologies, which are likely to have been disproportionately advantageous to elite landowners who could provide sufficient capital for the required investments.⁶²

Creating wealth on an agricultural basis was necessarily connected to a certain degree of commercial enterprise. But generally speaking, agriculture was viewed as a much more honorable way of making a living than any kind of commercial, especially mercantile activity. In a way similar to other ancient societies, this mindset certainly promoted wealthy people's investment in land, on the one hand, and delegation (and thus, concealment) of fundamental commercial tasks, on the other.⁶³ In early imperial China, it likely further contributed to elite members' tendency to present themselves in rural-agricultural rather than urban-mercantile contexts, with the latter probably being underrepresented in our source material. As explicated in further detail elsewhere, urbanity was not at the core of local elites' identities.⁶⁴

III.2 Local Elites and the State

The Former Han dynasty saw the formation of large estates with sizes not necessarily dependent on the owner's position in the official state hierarchy. In the early period, many of the new local magnates may not have played any role in the state

⁵⁹ That the length and intensity of wars were the central crucial factor for the downfall of the old nobility and for the establishment of efficient bureaucratic institutions, has been most strongly put forward by Kiser and Cai 2003. On these pre-imperial developments, see also Leese-Messing, vol. 1, ch. 4, 133–138.

⁶⁰ The development of a new elite during the Former Han dynasty shows up in the *Scribe's Records* (*Shiji* 史記) as one of the phenomena that the historian Sima Qian was most interested in (and concerned about). See van Ess 2014.

⁶¹ See the examples that Sima Qian mentions in *Shiji* 129, trans. Watson 1993, 433–454; Nienhauser 2019, 261–309.

⁶² Ebrey 1986, 618. On these technological novelties, see further Leese-Messing, ch. 11, VII, this volume. On landlords, see further sections V.1 and VI below.

⁶³ For parallels in other ancient societies, see, e.g., Fabian and Weaverdyck, ch. 3.A, VI.1, this volume.

⁶⁴ See Leese-Messing, ch. 15, III.3, this volume.

administration at all. For several decades, these people's accumulation of land and other property was not a central concern of the central government, which was still very much occupied with the consolidation of its own administrative structures and curtailing the power of the kingdoms in the eastern part of the empire. Under Emperor Wu, however, the wealthy – and those relying on commercial activities in particular – came under attack because their wealth was both recognized as a threat to central authority and as a potential source for the huge expenditure underpinning new expansionist policies. Short-term measures like certain tax increases, reprisals against tax evaders, intimidation of local magnates, and expropriations of property accompanied the long-term reintroduction of state monopolies on iron and salt production, as well as on coin casting, which indeed deprived many entrepreneurial magnates of their economic base. In the long run, these restrictions regarding some of the most profitable means of private capital accumulation must have made investment into land even more attractive.⁶⁵

Over the course of the Former Han period, local elites increasingly integrated themselves into the bureaucratic system. The state needed increasing numbers of officials, and the local elites wanted to be part of the decision-making processes on local, regional, and court levels, all of which could at times have important impact on their local power bases.⁶⁶ Being connected to the emperor by marital ties was a particularly effective means for a local magnate's family and its extended social network to dominate court politics.⁶⁷ Local networks' deputies at court successfully fought against certain measures of economic interventionism and attempts at legally limiting sizes of estates or numbers of slaves, among others. On a local level, it meant that elite families came to be deeply intertwined with local government institutions (see sec. IV below). The economic and political power of local elites, and of certain regional networks in particular, is believed to have grown even more during the Later Han period, which is typically described as a period during which increasing numbers of the farming population became tenants of large landowners and were largely wrested from the state's control.⁶⁸

III.3 Local Elites' Ideals, Conspicuous Consumption, and Distribution Practices

The most esteemed qualities of local elites' self-definition included officeholding, climbing up the bureaucratic ladder, and acquiring official honorific titles. This

⁶⁵ Hsu 1980, 36–43.

⁶⁶ For the role of local government institutions and their interlocking with local elites, see sec. IV below.

⁶⁷ On consort families, see, for instance, Ch'ü 1972, 168–174, 210–221; Wilbur 1943, 38–40.

⁶⁸ On tenancy, see further sec. V.1 below. For some critical remarks with regard to generalizing views in this context, however, see Leese-Messing, ch. 15, I.2, this volume.

view only waned to a certain degree toward the end of the Han dynasty. Scholarly education and familiarity with certain texts were not yet as central to a man's honor as they would become in later centuries, but their importance increased at least for the higher echelons of local elites, as these values were increasingly promoted by the state.⁶⁹ An individual's educational opportunity depended largely on his monetary and social capital. Obviously, the latter considerably superimposed the meritocratic principles that formed the core idea of the bureaucratic recruitment system.⁷⁰

More generally, local elites defined themselves through the knowledge and practice of certain ritual codes and moral values, in which hierarchical relations played a central role. One virtue that local elites increasingly emphasized was 'filial piety' (*xiao* 孝). This development was significantly fueled by the state's introduction of a system of local recommendations for future officials, in which an aspirant had to be recommended by a patron as 'filial and incorrupt' (*xiaolian* 孝廉). The most significant demonstration of filial piety in public was to throw a lavish, costly burial for one's parents. Funerary customs demanded expenditure on tomb structure building, coffins, tomb inventory, and feasting guests from near and far. Depending on the decedent's social status, these could add up to hundreds and thousands of people.⁷¹ Quite accordingly, the dynastic histories often refer to local elite members spending all their possessions on these funerals. Furthermore, according to a passage of the canonical *Book of Etiquette and Ceremonial* (*Yili* 儀禮), funerary lists, including gifts from funerary guests, were supposed to be read out loud during the ceremony. Assuming that similar procedures were indeed followed during elite burials during Han times, they offered an opportunity for both the hosts and the donors to display their spending capacity, their cultural knowledge, and their social capital in the form of their membership in a reciprocal exchange network.⁷²

The public display aspect is also indicated by some funerary stele inscriptions that mention how many workers' labor and how much money was spent on their erection.⁷³ The intimate interdigitation between moral virtue, public display, and wealth is illuminated by the Later Han thinker Wang Fu's 王符 (ca. 82–ca. 167 CE) sarcastic remark on contemporary funerary practice:

[People] these days disregard [their parents'] wishes and spend little to take care of them, being parsimonious during their lifetime and just waiting for them to die. After their parents

⁶⁹ For some typical aspects of (male) elite self-consciousness as 'cultured gentlemen' (*shi* 士), see Ebrey 1986, 643–646.

⁷⁰ On education, see also sec. VI.3 below.

⁷¹ Selbitschka 2018b, 192–198, convincingly argues that in contrast to some earlier suggestions, funerary feasts are unlikely to have been held inside the tomb structure, while not denying the probability of large banquets outside the tomb structure having been typical elements of the larger context of elite burials. That banquets indeed were elements of burial rites is also suggested by the passage quoted in the following paragraph.

⁷² *Yili zhushu*, 39.755–56; Cook 2006, 47; Nylan 2005, 35; Korolkov 2012, 318–319.

⁷³ Zheng 2008. On the elites' culture of public display more generally, see also Nylan 2005, 23–37.

have passed away, they then squander the money thus saved on sumptuous funerals in order to show off their filial piety, inviting guests to exuberant banquets in order to acquire fame.

今多違志儉養，約生以待終，終沒之後，乃崇饒喪紀以言孝，盛饗賓旅以求名。⁷⁴

Commemorative steles and funerary inscriptions, some of which bear extensive lists of sponsors and their donations in cash, have provided further evidence for what constituted laudatory behavior among their peers and their practices of distributing capital. Many of the commemorated people were local officials who are praised for their public engagement, e.g., with regard to road or dike repairs, or the building of local shrines. Even holders of minor local posts are at times lauded for making huge private investments worth hundreds of thousands in cash. Some monuments also commemorate people of no official rank for their generosity, e.g., for giving out loans without pressing for repayment, for helping their community, and for collecting food for orphans.⁷⁵ Many of these distribution practices are reminiscent of what is commonly referred to as *euergetism* in the Graeco-Roman world.⁷⁶ One obvious and important difference to the typically Graeco-Roman practice was, however, that neither emperors' nor elite's benefactions were strongly associated with the funding of public urban buildings. Even though source biases may underrepresent some of their urban aspects, hitherto known charity practices indicate a focus on the rural sphere and the building of networks rooted in the countryside.⁷⁷

Of course, elite consumption patterns were not restricted to festivities, funerals, and other extraordinary occasions that lent themselves to displays of piety and generosity. Countless transmitted passages of criticism indicate many other fields of consumption that enhanced investment opportunities, private convenience, and occasions for public display on a more permanent basis. Things that are typically included in enumerations of very wealthy people's favorite investments and status symbols are large and luxurious mansions, huge agricultural estates, innumerable farm animals, and hundreds or more slaves, as well as carts and carriages roaming about in all directions for the sake of their lords' mercantile interests.⁷⁸

Tomb inventories offer further valuable clues on the regular consumption habits of local elites.⁷⁹ Some types of products are typically found in these tombs, includ-

⁷⁴ *Qianfu lun jian jiaozheng* 2.20, trans. Zheng 2008, 97 (with modifications).

⁷⁵ Ebrey 1980, 335. On steles and memory practices in ancient China, see further Brashier 2011, 2014.

⁷⁶ See Fabian and Weaverdyck, ch. 3.A, VI.1, this volume.

⁷⁷ Lewis 2009. See also Leese-Messing, ch. 15, III.3, this volume.

⁷⁸ See, for instance, an according passage in *Hou Hanshu* 49.1648, which mentions all of these aspects (among others).

⁷⁹ The evidence from tomb inventories has a considerable bias toward the Former Han period. This is mainly because the construction style of tombs from the Later Han period, which typically lay directly beneath the surface, had less favorable conditions for the preservation of inventories and especially of organic materials than Former Han tombs, many of which (especially in Hubei, Hunan, Anhui, and Jiangsu) were surrounded by groundwater.

ing lacquer tableware and cosmetic boxes, jade items, incense burners, and miniature figurines. In some nonroyal tombs, partial body (e.g., face) coverings made out of jade plaques have been found, which speaks of elite emulation processes in mortuary consumption from highest to median elite circles.⁸⁰ The typical finds of exquisite lacquer tableware sets, meant for the deceased to sup upon in the afterlife, indicate the important role of dining and feasting in elite circles. The same is true for the sometimes immense variety of both actually buried and inventoried foodstuffs. The Former Han tombs found at Mawangdui are the most comprehensive and illustrative example in this regard.⁸¹

To a certain extent, elite consumption of processed food and related elite emulation processes in this field likely promoted artisanal food production. Quite accordingly, transmitted historical texts suggest that one lucrative way of making money as a private entrepreneur was to sell large quantities of processed foodstuffs such as alcoholic beverages, pickles, sauces, and syrups.⁸² Even though future research may bring forth new insights, existing evidence provides little indication that large-scale and long-distance import of foodstuffs or spices was involved in local elites' food consumption.⁸³

IV Local Government Institutions

Local government institutions on commandery (*jun* 郡) and county (*xian* 縣) levels were the nodal points connecting commoners and their households with the centralized imperial bureaucracy. The empire-wide network of government agencies and the substantial mobility of officials between them were central to processes such as supraregional elite network building, as well as standardization processes in elite values, tastes, and consumption preferences.⁸⁴ The local institutions were, of course, dependent on the bureaucracy's higher levels in many ways, including the obvious fact that they were compelled to execute imperial laws and directions, and that their leading officials, i.e., commandery governors (*shou* 守 or *taishou* 太守) and county magistrates (*ling* 令), were centrally appointed nonlocals. But the large majority of people employed in the institutions were locally appointed members of the resident population, including part-time employees fulfilling their corvée du-

⁸⁰ For instance, Xu and Qiu 2014, 48; Shangqiu diqu wenhua ju and Yongcheng xian wenhua guan 1990, 11.

⁸¹ Yü 1977 offers many examples of foodstuffs from the Mawangdui finds.

⁸² E.g., *Shiji* 129.3274, trans. Watson 1993, 449.

⁸³ For evidence for individual kinds of foodstuffs, spices, as well as food processing methods in ancient China, see Huang 2000.

⁸⁴ On standardization, see Leese-Messing, ch. 11, V, this volume.

ties.⁸⁵ On the one hand, the officials in these offices were part of the state's sophisticated system of surveillance and accounting, but on the other, they were strongly dependent on collaboration with local residents, especially local elites.⁸⁶ Of the approximately 130,000 officials in the empire-wide apparatus, about 100,000 are assumed to have been employed in local government agencies. Their wages, paid partly in grain and partly in money, therefore consumed a considerable portion of the state's fiscal revenue.⁸⁷ On the other side of the spectrum, these people brought what might be termed infrastructural state power deep into the lives of people, even though the sheer size of the empire and the ratio between state agents and commoners inevitably set certain limits in this regard.⁸⁸

Local government offices were dealing with a large variety of economic matters including tax collection, land and property evaluation, observance of marketplaces, price regulation, public construction projects, management of conscript, convict, and other forms of labor, and acquisition, storage, transport, and sale of goods, as well as government lending, all of which had enormous practical impact on the local residents' economic activities. Finds of legal texts and administrative documents stemming from local Qin and Han government offices have provided intriguing new evidence for all these aspects. Several of these aspects are dealt with in other chapters of this volume.⁸⁹ One general trend that stands out from the evidence is that the official tasks of local government agencies increasingly involved interactions with private markets.⁹⁰ But apart from the agencies' direct interactions with markets, and their potential to stimulate them, their power also had important, more indirect ramifications on economic processes. Two particularly clear examples thereof are government lending and the related aspect of debt and labor management.

Whereas systematic moneylending does not seem to have been typically involved in the agency's tasks,⁹¹ local government agencies regularly lent out stored state-owned goods such as grain, tools, carts, and oxen to commoners.⁹² In this

85 On the latter, see Miyake 2013.

86 Xie and Brown 2015.

87 See further Leese-Messing, ch. 11, II, this volume.

88 See, for instance, Su 2010; Korolkov 2016. On infrastructural power, see von Reden, ch. 2, II.2, this volume.

89 For tax collection, see Leese-Messing, ch. 11, II; for construction projects, ch. 11, VI; for observance of marketplaces and price regulation, ch. 15, IV.2, to give just a few examples.

90 Korolkov 2020 provides ample evidence for the rising importance of these interactions in various tasks of local government institutions during the early phase of the imperial period.

91 Transmitted texts do occasionally refer to credits given out, e.g., to sick and widowed people. A more comprehensive approach seems to have been restricted to Wang Mang's reign, when a broadly based system of governmental credits under the control of market officials was introduced. For more details on the lending practices of state institutions, see Leese-Messing, ch. 11, III.4.2, this volume.

92 E.g., Korolkov 2020, 373, with further references.

regard, state institutions took on a role that in the Roman context, for instance, was typically performed by local elites. In comparison to the latter, the more systematic lending practices by local state agencies are likely to have facilitated access to these goods among the common populace.

But the system of government lending also points toward another important economic aspect of local government institutions, which lay in people's indebtedness to them. The blending of debt and labor management in Qin era local government institutions has been amply demonstrated by Korolkov.⁹³ Both commoners and officials could incur debts to government agencies if they were unable to return the lent items or provide compensation for them, and also if they were unable to pay monetary fees or penalties for legal offenses. Yet in both cases debtors could work off their debt by performing labor for the state at the fixed rate of eight coins per day.⁹⁴ Upon the debtors' request, debt labor could be commuted into cash payments rendered in installments, and debtors had the opportunity to hire an adequate substitute to perform the services in their stead.⁹⁵ We know that during Han times the practice of paying a fixed amount of money to local government offices instead of personally performing military service was well established, and there are several indications that a similar option existed with regard to conscript labor duties.⁹⁶ Obviously, the commodification and monetization of labor levies that had been initiated by the practices of Qin institutions was carried forward under the Han.

On a more abstract level, these practices of local government institutions fostered the concept of labor as a quantifiable and tradable commodity. Even though the momentum created by the expansion of private employment itself most likely evolved into the most important factor for labor market development eventually, the wide promotion and consolidation of this mindset by local government institutions is likely to have facilitated the growing wage labor market during the Han period.

⁹³ The following discussion of debt and labor management rests largely on what Korolkov examines in great detail in Korolkov 2021 and Korolkov 2020, esp. ch. 4, sec. 2.4.

⁹⁴ Shuihudi Qin mu zhujian zhengli xiaozu 1990, 51; Hulsewé 1985, 67–69 (A68). This meant a cost for the state that was four times as high as that for convict laborers, who were provided with a mere subsistence (the daily ration of which was fixed at two coins per day), but lower than that for conscript laborers. Korolkov 2020, 414–415. Obviously, an 'agreement' (*yue* 約) needed to be entered between the government officials and the debtor to work off the owed amount. Korolkov 2020, 403–404. The concrete labor tasks depended on both local demand and on the debtor's skill. Attested options include minor administrative tasks, construction work, and (extension of) frontier service. In the case of a debtor's change of residence, debts were transferred between different local government offices on the basis of an elaborate accounting system. Korolkov 2020, 376–380. The practice of working off a fine was also sanctioned by Han law. See no. 11 of the "Statutes on Agriculture" (*Tian lü* 田律) in Barbieri-Low and Yates 2015, 700–701.

⁹⁵ Shuihudi Qin mu zhujian zhengli xiaozu 1990, 51; Hulsewé 1985, 68.

⁹⁶ Hsing 2014, 172–175; Korolkov 2021. On the commutation of conscript duties into monetary payments, see also Leese-Messing, ch. 11, III.3.

Furthermore, the systematic suppression of directly dependent forms of labor by the strong impact that local government institutions exerted on the labor market might be considered a factor for the apparently lesser importance of slavery in early imperial China in comparison to ancient Greece and Rome. In both cases, therefore, the practices of local government institutions had important effects on the labor market, even though via ideological and political rather than economic means.⁹⁷

V Primary Producers

V.1 Agriculturalists

Like in the literature of other agrarian societies, transmitted texts of early imperial China tend to stress the importance of the farming population (*nongmin* 農民). High elite writers at court, many of whom were also speaking as members of kinship or regional networks that defined themselves as primarily land based, often refer to farming activities as the ‘root occupation’ (*ben ye* 本業), typically declaring them superior to and more worth supporting than the ‘branch occupations’ of craftsmanship and trade. This ideal of honorable treatment had little to do with a common farmer’s reality, however, as most of them were indeed “poor and despised” (*pin jian* 貧賤) and furthermore “disrespected by local state officials” (*li zhi suo bei* 吏之所卑),⁹⁸ and ancient writers were very much aware of this fact.

Pre-imperial evidence for private land ownership is scarce, and scholars keep debating exactly when private landownership and trade of land developed. It is clear, however, that by Former Han times, private ownership and alienation of land had evolved into common phenomena. But at the same time, early Han laws still contain regulations regarding land plots of certain sizes to be allocated by the state to both commoners and rank holders.⁹⁹ Independent farmers needed to pay land taxes (mostly grain, but also hay), poll taxes, and corvée dues in the form of military and labor service, as well as property taxes during certain times.¹⁰⁰ With parts of their taxes having to be paid in monetary form, independent farmers were systematically required to engage in marketing part of their own produce or selling their labor in order to acquire the required amount of cash. According to one estimate, roughly 25 percent of the income of a typical farming household needed to be monetary in order to meet fiscal and other basic expenses.¹⁰¹

⁹⁷ Korolkov 2020, 424–425; Scheidel 2017, 143. See also Leese-Messing, ch. 15, II, this volume.

⁹⁸ Chao Cuo 晁錯 (ca. 200–154 BCE) as recorded in *Hanshu* 24A.1133.

⁹⁹ On property regulations, see Leese-Messing, ch. 11, IV.2, this volume.

¹⁰⁰ For more details on the different forms of taxation, see Leese-Messing, ch. 11, II, this volume.

¹⁰¹ Hsu 1980, 79.

Throughout the early imperial period, millet appears to be the crop produced most.¹⁰² Nevertheless, cultivation of wheat – which depended more heavily on irrigation but yielded twice as much grain – and barley increased considerably in the northern parts of the empire. The typical repertoire also included hemp, vegetables, and legumes such as soybeans, which increasingly changed from consumption as a staple food to condiments such as bean paste or soy sauce. It appears this kind of processing was a common activity of farming households next to their fieldwork.¹⁰³ For some, they may have been a typical source of monetary income as well. Rice was cultivated in permanent, irrigated fields and in increasing amounts, particularly in the wetter southern regions. Transplantation of rice seedlings was practiced by the second century CE at the latest. Typical cash crops included mulberry, hemp, sesame, indigo, and gourd. Sesame, along with cucumber, watermelons, grapes, garlic and pepper, as well as alfalfa (especially for horse fodder), belonged to a number of new crops introduced via the increasing contacts to Central Asia.¹⁰⁴ Imperial expansion further increased the variety of landscapes used for agricultural activity. For instance, in the northwestern frontier region including the Hexi corridor and the Tarim Basin, the establishment of ‘agricultural garrisons’ (*tuntian* 屯田) involved the reclamation of land in dry regions that had not been used for intensive agricultural production before, and therefore depended on the creation of wide-reaching and investment-heavy irrigation networks.¹⁰⁵

As a legacy of the Warring States period, early imperial farmers largely engaged in comparably intensive agriculture. A common farming household could likely achieve relatively high yields from rather small plots of land by relying on fertilizers, knowledge about efficient soil and seed preparation, and the proper timing of the steps in agricultural production. Being taxed a fixed amount (instead of a variable one depending on output) may have been an additional incentive for farmers to invest in intensive agricultural techniques that increased the output of their land. Arguably, the widespread use of intensive, high-skill, partly state-promoted cultivation methods was a major reason for the relative scarcity of large estates worked by unfree labor in early imperial China. In comparison to inde-

102 For details on millet production in ancient China, see Bray 1981.

103 The agricultural handbook *Monthly Instructions for the Four Classes of People* (*Simin yueling* 四民月令) mentions various processing procedures as typical activities of farming households during certain months. See, for instance, Hsu 1980, 217 (A 11). On the *Simin yueling* and other ancient manuals, see Leese-Messing, vol. 1, ch. 12.A, 521–524.

104 Hsu 1980, 81–91; von Glahn 2016, 130–132.

105 An analysis of satellite imagery suggests that the irrigation network at the site of Miran/Milan 米兰 (southeastern corner of the Tarim Basin, in modern Xinjiang) covered an area of more than 2,800 ha, which on estimate would have demanded the moving of over four million sq. m of earth. Luo et al. 2017; Y. Li et al. 2017, 3. On irrigation systems in the Tarim Basin, see also, for instance, Bertrand 2010.

pendent farmers and tenants, slaves and servile laborers would have had lesser incentives to increase their productivity either by pure exertion or the acquisition of special skills.¹⁰⁶

The ideal of a nuclear farming household working their own plot of land, which had developed during the Warring States period, appears to have been implemented to a considerable degree during Qin and early Han times.¹⁰⁷ Throughout the Han period, however, critics complain about large numbers of formerly independent farmers becoming large landowners' tenants, hired laborers, or slaves. Certain structural factors certainly could have facilitated developments toward larger estates and peasant dependency. In addition to the technological advances that may have advantaged wealthy landowners, common crops like wheat and millet, which were harvested once a year around roughly the same time, were by trend more profitable to richer farming households, who could make themselves independent from the fluctuating seasonal crop prices by investing in storage facilities. Accordingly, hoarding is frequently mentioned in transmitted texts as a serious socio-economic problem, and some governmental measures targeted hoarding practices among the wealthy. Nevertheless, the real scale of these developments toward large estates and tenancy are hard to fathom, and regional differences, e.g., between different landscapes, climates, and crops, are likely to have played an important role.¹⁰⁸

The nature of the Han tenancy system is still shrouded in many uncertainties. While transmitted texts mention rents as high as 50 percent (and sometimes more), it is unclear who paid the common state taxes – land and poll tax plus corvée duties – or if they were paid at all. Some scholars suggest that tenants were removed from the state registers and thus did not pay taxes. Others suggest that the landlord was expected to pay the taxes for each tenant, even though this obligation could at times be illegally bypassed with the connivance of local authorities. It has also been argued that tenants payed some of the taxes, especially their corvée dues, themselves.¹⁰⁹ Different practices are again likely to have been prevalent in different regions, so that any explanations of the advantages of the tenancy system remain problematic. It should be noted, however, that even the largest estates of the Han period seem to have been much smaller than the *latifundia* of the Roman Empire.¹¹⁰

106 Lewis 2015a, 284–285; Hsu 1980, 3–15, 57, 33–66, 91–128; Wilbur 1943, 215–216.

107 On households, see further sec. VI below.

108 Hsu 1980 (65–66) suggests that the proportion of tenants among the total population at the time of Emperor Wu was in the range of 4 to 20 percent. On evidence for tenancy during the Former Han and Wang Mang periods, Wilbur 1943, 210–215; see further Leese-Messing, ch. 15, I.2, this volume.

109 For examples of such differing assumptions, see Lewis 2007, 111; Bielenstein 1979, 148–149; Hsu 1980, 54; 16, respectively.

110 Lewis 2007, 115, 2006, 218 with n. 218, and 225.

V.2 Pastoralists and Animal Economies

The supposed contrast and allegedly clear division between ‘interior’ settled farmers and ‘exterior’ mobile pastoralists is a *topos* in ancient elite discourse. Pastoralists were typically – and often disrespectfully – associated with northern and northwestern ‘barbarians’ that the Han referred to as Xiongnu and Qiang 羌. The contrast gained currency among proponents of Han expansion toward regions that facilitated pastoralist economic strategies.¹¹¹ The dividing lines between agricultural and pastoral lifestyles and regions in the early Han Empire’s north, northwest, and beyond seems to have been less clear-cut than some simplistic phrasings in transmitted sources suggest. The Qiang people that ancient Chinese texts mention in the context of several areas of the empire’s northwest, for instance, seem to have practiced a mixed economy combining animal husbandry, agriculture, and fishing.¹¹² The idea that the Han Empire’s pastoralist neighbors and frontier inhabitants were dependent on Chinese agricultural products has also been called into question.¹¹³

It is not easy to fathom the scale and forms of animal husbandry in the interior regions of the Han Empire that largely relied on cereal agriculture. It is commonly assumed that in the early Chinese empires, pasture lands were not extensively integrated into the rural economy.¹¹⁴ Especially for the densely populated lowland regions characterized by intensive agriculture and scarcity of land, this assumption is certainly not far-fetched. With regard to animal husbandry, texts regularly mention chickens, pigs, sheep/goats, dogs, horses, and cattle/oxen (especially as draft animals). The most typical case seems to have been small-scale rearing of chickens and pigs as a supplementary occupation of farming households. Pigs were especially important as providers of manure, and, according to an agricultural handbook, were to be slaughtered only once a year.¹¹⁵

Transmitted texts provide clear evidence for large-scale, specialized, and commercial breeding of sheep/goat, pigs, cattle, and horses, all of which Sima Qian 司馬遷 (145 or 135–ca. 87 BCE) acknowledges as reliable sources of considerable income.¹¹⁶ Herding is also often mentioned in the context of providing jobs for poor people and minors.¹¹⁷ Outer frontier zones apart, our sources are likely to underrepresent various forms of pastoralism and animal economies, for instance in moun-

111 Different views toward imperial expansion often went along with different assessment of pastoralists, as exemplified by the different views expressed by the two historians Sima Qian and Ban Gu. See Chin 2010.

112 See further Weaverdyck et al., ch. 7, VI, 321–327, this volume.

113 Di Cosmo 1994.

114 Bray 1979, 3.

115 Hsu 1980, 131–132; Yü 1977, 74–75.

116 *Shiji* 129.3260; 3272; 3280, trans. Watson 1993, 440, 448, 452; *Shiji* 30.1431, trans. Watson 1993, 73.

117 Hsu 1980, 132, 312–314.

tainous regions. They may have been less integrated into the administrative and fiscal system, which by tradition was based on cereal-producing farming households. The economic implications of pastoralism, both on the frontiers and in the inner parts of the empire, are in need of further research.¹¹⁸

VI Households

VI.1 Household Registration and Household Composition

The household (*hu* 戶) served as the main unit for taxation and conscription of military and labor service for the early imperial state. Its system of civil registration included records of household members, their age and gender, their landed property, productive assets, dwellings, gardens, and tax obligations, privileged exemptions, and infirmities, as well as inheritances and other transfers of property. By making its population and resources ‘legible’ through household registers, the state possessed the capacity to exercise control over this basic economic unit to a degree and on a geographic scale that stands out among ancient societies.¹¹⁹

The concept of the household had evolved during the Warring States period when several competing states tried to intensify control over their economic and human resources, which implied an attempt to maximize the acreage under cultivation. Accordingly, the ‘ideal’ household – from an imperial state perspective – consisted of a slightly extended nuclear family independently cultivating a plot of land according to their members’ labor capacity. These would normally include husband, wife, children, and the husband’s mother, if still alive. Transmitted and excavated household data from the Qin and Han periods suggest that typical households consisted of nuclear families that sometimes extended to include elderly parents or unmarried siblings, as well as sometimes slaves and servants.¹²⁰ On average, however, realities do not seem to have deviated too much from the ideals, and households comprising around five people do seem to be the norm.¹²¹ As for urban house-

118 I shall discuss other producers in sec. VIII below.

119 Von Glahn 2020, 11–12.

120 While some excavated Qin household data do incorporate slaves, this is not clear with regard to many other reported household figures. In excavated Han documents from Juyan, for instance, slaves are listed in property (rather than household) registers. Often, therefore, some uncertainty remains with regard to both composition and size of the reported households. For the question of slaves as household members, see Yates 2014, 215; Hsing 2014, 164–165. Further uncertainties exist, for instance with regard to the registration of local residents in frontier zones. See, e.g., W. Wang 2014.

121 No individual household registers from the Han period have been published yet. Barbieri-Low and Yates 2015, 785. For some examples of excavated Han summary reports, see Hsing 2014. The figures suggested by excavated summary reports and by the “Treatise on Geography” in the *Hanshu* (each giving numbers of inhabitants and of households) are pretty compatible. For instance, exca-

holds, figures from the Former Han capital Chang'an suggest that they tended to be smaller than common rural households.¹²²

VI.2 Consumption and Distribution

Estimates based on transmitted figures of empire-wide totals of cultivated land and people suggest that the farm of an average household in 2 CE would have measured 78.7 *mu* of land (i.e., about 3.63 ha), which in normal years would likely produce grain yields sufficient to cover subsistence costs for its approximately five members and obligatory in-kind tax payments.¹²³ But as has been mentioned, the monetary share of taxes systematically required households to produce a certain surplus (e.g., additional grain, cash crops, or textiles beyond subsistence needs) and engage in market transactions. This aspect is even clearer in the case of moderately well-to-do farming households, for whom both the regular selling and buying of certain goods – ranging from agricultural crops to textiles – appear to have been routine activities.¹²⁴

The state was interested in keeping as many tax-paying households on its registers as possible. Legal regulations, therefore, offered a good deal of flexibility with regard to inheritance. Making a legally binding will for the division of a household's possession was possible, conceivably without restrictions regarding primogeniture or gender.¹²⁵ The same state concern is further reflected in inheritance regulations that provided for slaves to become householders, either after manumission or after their masters' death without heir.¹²⁶ In the model household, the husband would take over the role of 'householder' (*hu ren* 戶人). Under the state's allocation scheme still covered by early Han legal regulations, the eldest son would inherit the father's status upon his death, along with his land, or parts of it, if the father

vated household register summaries for Dongyang county (in modern Anhui Province) suggest an average household size of 4.46 persons, while the *Hanshu* figures for the superordinate commandery of Linhuai suggest 4.61 persons per household. See Hsing 2014, 172. For the figures for the county of Yinwan 尹灣 and its superordinate commandery of Donghai 東海, see Loewe 2004, 60.

122 For instance, *Hanshu* 28 (1543, 1545, and 1547) suggests the average ratio of households to persons to have been 1:3 in Chang'an and its surrounding area, 1:3.5 in Changling, and 4.5 in Mao-ling. See also Nylan 2015, 26; Loewe 2015, 213.

123 Bielenstein 1979, 147–148. Probably depending on time period regional variety, plots could also be much smaller, as suggested by some excavated household data. See, e.g., Lewis 2006, 90–91.

124 This is demonstrated most clearly by the transmitted fragments of Han-era agricultural handbooks, on which see Leese-Messing, vol. 1, ch. 12.A, IV.

125 The Han statute does not refer to any such restrictions. Barbieri-Low and Yates 2015, 800–801 (latter part of no. 17, slips 333–336). Tang administrative forms for the declaration of wills include places explicitly left for various classes of relatives, including younger sons and daughters. Barbieri-Low 2011b, 143.

126 Barbieri-Low 2017; Yates 2014, 215–216.

had a higher rank than his son. Younger brothers would have been eligible to form their own households on pieces of land according to their official rank, which could – depending on rank and number of brothers – also involve the allocation of additional land. Population growth and the resulting scarcity of land in populous regions must have put this system under pressure early on, and it was increasingly replaced by a system of alienable land and private ownership.¹²⁷ Consequently, many estates would have to be broken up over time, and eventually ‘supernumerary’ descendants of independent farmers would have had to migrate to less densely populated areas, sell their labor as hired workers, or become tenants.

Patrilineal orientation of families was likely not as strong during Han times as has often been claimed. From excavated legal texts from the early Han period, it is clear that women who were not “somebody’s wife” (*ren qi zhe* 人妻者) could become householders when no male heir existed. As such, they would also inherit the former householder’s (i.e., their father’s, husband’s, or son’s) honorific rank and possessions. A female householder who eventually got married was entitled to take back her former possessions and land in case of divorce or her husband’s death.¹²⁸ Even though the large majority of householders were male, households led by women appear to have been a common phenomenon rather than a rare exception.¹²⁹ This may have been particularly true for times of frequent warfare, when many male householders died in battle.¹³⁰ Furthermore, there is evidence for cases of uxorilocal marriage and of widows returning to their natal family along with their children rather than living with their deceased husband’s parents. Widow remarriage was yet another common phenomenon. The passionate discouragement of this practice in elite texts is best understood as a reaction to its ubiquity and the fear that widows diminished the wealth of the patrilineal household by taking back their dowries.¹³¹

VI.3 Households and Labor Organization

VI.3.1 Labor Division along the Lines of Age and Gender

Some excavated documents of household registration include information on how many household members were regarded as ‘capable of engaging in field work’

¹²⁷ See M. Gao 2003 and the early Han “Statutes on Households” (*Hu lü* 戶律) with the according subsumptions by the translators in Barbieri-Low and Yates 2015, 783–822. For inheritance regulations in early Han law, see, for instance, X. Liu 2007.

¹²⁸ Barbieri-Low and Yates 2015, 860–881 (no. 13 of the “Statutes on Establishment of Heirs”); K. Gao 2008, 89.

¹²⁹ A Qin board found at Liye listing numbers of households of various ranks, including households led by adult women, which probably made up 3 out of the 25 listed households (i.e., 12 percent). Yates 2014, 216. See also Nylan 2010, 269, 271.

¹³⁰ K. Gao 2008.

¹³¹ Hinsch 1998. On the relative importance of dowries during Han times in comparison to later times, see Hinsch 2011, 65.

(*neng tian* 能田). In the documents from Fenghuangshan 鳳凰山, in which the average size of a household is 4.6 people, the majority of households are reported to have had either three or four people in this category. This suggests that women as well as elderly and minors were counted as standard contributors to the households' agricultural labor.¹³² Furthermore, elderly and minors that were no longer or not yet physically capable of heavy work could still be effectively used for lighter but indispensable tasks such as infant care or animal keeping.

A widespread and oft-cited ancient Chinese paradigm of gendered labor division in agricultural households was that of the farming man and the mulberry-plucking, spinning, and weaving woman. Both transmitted and archaeological evidence suggest, however, that the ideal of strict gendered labor division was, above all, an elitist expression of wishful thinking that was thwarted by the majority of people's social and economic realities. While many women in farming households likely engaged in textile production, it is clear that most of them would mainly have worked in the fields alongside the male household members, at least during the seasons of intensive agricultural work.¹³³ Even in some of the idealized models of gendered labor division, women's engagement in domestic textile production appears to have been seen as a vespertine addition to their daytime work. The historian Ban Gu, for instance, envisioned "female labor of one month" to be "equivalent to forty-five days," counting each evening spent on textile production as an extra half of a productive working day.¹³⁴ The seasonality of agricultural work in particular left excess labor time for spinning and weaving during the winter season. Estimates based on transmitted reports on average productivity, subsistence consumption, and price levels suggest that a household's textile production could easily compete with that of food crops, and bore considerable potential for creating a marketable surplus.¹³⁵

Because older children were also important contributors of labor within households, education rarely went beyond learning from and adopting the parents' routine work, and thus gave little opportunity for social mobility. For households who had acquired moderate or even great wealth, however, children's literacy, as well as training in legal and scholarly texts during agricultural slack seasons, or even beyond them, seems to have been an important and promising investment, as it provided a chance for careers in the bureaucracy and therefore social mobility. Education of a household's (mostly male) offspring could be provided either by household or other family members, private teachers, in state-run scribal schools,¹³⁶ or in

¹³² Lewis 2006, 91.

¹³³ Hinsch 2011, 67–78; Nylan 2010, 280–282.

¹³⁴ *Hanshu* 24A.1121, trans. Hsu 1980, 310; Swann 1950, 129.

¹³⁵ Hsu 1980, 79; 130–131.

¹³⁶ The scribal profession was originally hereditary, but was opened during the beginning phase of the imperial era to members of non-scribal families, who could enter local government agencies

occasionally mentioned local schools, which, however, do not seem to have been of great importance.¹³⁷ If promising children were born into relatively poor households, kinship ties between households of unequal wealth would have been essential to their educational prospects.¹³⁸ However, even for families with a scholarly background or history of officeholding, losing a child's manpower for the sake of its education could be a serious challenge during times of economic or political turmoil. This indicates that for most households these investments, which may further have involved tuition fees, must have been beyond reach.¹³⁹

VI.3.2 Slaves in Private Households

Male and female slaves (*nu* 奴 and *bi* 婢)¹⁴⁰ frequently contributed labor to Qin and Han households, though this was not standard practice.¹⁴¹ The households in the excavated Qin registers mentioned above had at most one slave each, while some Han property registers mention several slaves.¹⁴² But transmitted texts suggest that wealthy households easily contained tens and hundreds of domestic slaves. Individual owners are even associated with thousands and ten thousand slaves, even though exaggeration may be at play in many hostile remarks.¹⁴³ The proportion of slaves among the overall population is difficult to estimate but is commonly assumed to have been considerably lower than in the Roman Empire.¹⁴⁴

as so-called scribal 'assistants' (*zuo* 佐). The according education of the latter, however, apparently did not start before adulthood. Ma 2017.

137 Ch'ü 1972, 29–30; Bielenstein 1979, 184–185. Education of minor household members (in this case, in schools) during agricultural slack seasons is also mentioned in the agricultural handbook *Simin yueling*. See Hsu 1980, 216, 224.

138 For some examples of support for education among family members within and beyond households, see Ch'ü 1972, 27–29. For other economic functions of kinship networks, see further Leese-Messing, ch. 15, IV.3, this volume.

139 See, for instance, the example of the Sunshu family in Ebrey 1986, 627–628, as well as 635–637.

140 These are the terms used by Han laws, which seem to have changed or refined the legal nomenclature of slaves that had been used during Qin times. See Yates 2014, 212, 221–222.

141 Apart from privately owned slaves, there were also government slaves. See Wilbur 1943, 221–236; Yates 2014, 211–212.

142 For instance, see the example from Juyan given in Loewe 1967, 1:72.

143 Under Emperor Ai (r. 7–1 BCE), high statesmen proposed to legally limit slave holdings of all kinds of nobles, honorific rank-holders, and commoners, with the highest limit being 200 slaves for kings, and the lowest being 30 slaves for commoners. This suggests that actual numbers must often have been considerably higher. Neither was the proposal put into effect. See *Hanshu* 24A.1142, trans. Wilbur 1943, 435–437. For references to higher numbers, see Wilbur 1943, 170; Ch'ü 1972, 146–148.

144 Scheidel 2017, 137–138.

After the discovery of legal texts, our knowledge about the social role and legal status of slaves has increased considerably during recent decades, but surprisingly little is known about the specific activities of private slaves. Occasional references in transmitted texts do associate them with a large variety of tasks, including domestic services, accounting, manufacturing, farming, herding, bodyguarding, tomb-guarding, escorting, courier service, entertainment, sexual services, financial management, and trading.¹⁴⁵ But the texts do not suggest which occupation was the most common. Evidence for private slaves being engaged in agriculture does exist, and finds of tomb figurines identified as agricultural slaves suggest that they may have been more common than had been assumed in earlier scholarship on the topic.¹⁴⁶ But on the whole, the evidence is still relatively scarce and largely presumptive. A demographically induced abundance of free agricultural labor coupled with the widespread concept of labor time as a quantifiable commodity and a corresponding awareness of the expensiveness of slack time may have contributed to the relative unattractiveness of slavery in agricultural contexts.¹⁴⁷ There is some evidence for slaves being used as their masters' agents in both small-scale and large-scale mercantile activities.¹⁴⁸ Nevertheless, it is again hard to say how important slavery was in relation to paid agents who are associated with similar tasks. Furthermore, it is obvious that the possession of slaves was not only regarded as a productive economic resource but also – and maybe even primarily – a wealth-consuming manifestation of status.¹⁴⁹

145 Wilbur 1943, 178–220; Ch'ü 1972, 146–151.

146 For the classic standpoint, see Wilbur 1943, 195–216, with the main conclusion being that slave labor was “relatively unimportant” in agricultural production, and that “an important proportion of all slaves was employed most of the time in nonproductive activities” (216–217). Cf. Scheidel 2017, 138–142, who thinks it “legitimate to consider a more expansive scenario of agrarian slavery, where 100,000s of slaves might have worked the fields and tended livestock” (141). For summaries of the evidence from finds of figurines which, according to the inventory lists, represented private agricultural slaves at Fenghuangshan, see Barbieri-Low 2007, 252–253; von Glahn 2016, 111–112.

147 On the concept of labor (time) as a quantifiable commodity, see sec. IV above and Leese-Messing, ch. 11, II.2, this volume.

148 A famous mock slave contract listing all conceivable types of slave labor, for instance, contains a rather lengthy passage describing the slave's duties in the trading business. These duties include both petty peddling activities and businesses requiring extensive travel, and further comprise both merchandizing the households' own produce and retailing external craft products. Slaves could also be used for types of labor that required a considerable amount of skill and autonomy. There is frequent mention of ‘supervising slaves’ (*jian nu* 監奴), which might indicate a ranking within a household's slave labor force. The historian Sima Qian also gives the example of a successful entrepreneur who chose his slaves according to their cleverness in order to make profitable use of them in trading activities, while enabling the best of them to considerably enrich themselves. Sima Qian also says, however, that other than Diao Xian, many people would rather regard a slave's cleverness as something worrisome, suggesting that the way Diao Xian made use of slaves was not a standard behavior.

149 Wilbur 1943, 195; Scheidel 2017, 140. It is very clear that slaves also functioned as a status symbol. For instance, slaves of wealthy households are frequently depicted as wearing fancy silk

VII Traders

VII.1 Designated Merchants and other Traders

The most common ancient Chinese terms for ‘merchants’ are *shang* 商 (or *shangren* 商人), *gu* 賈 (or *guren* 賈人), or the composite, *shanggu* 商賈. The terms could be used both for large-scale, highly mobile merchants as well as for small-scale peddlers or market stall keepers, with *shang* showing a tendency toward the former and *gu* toward the latter.¹⁵⁰ Several other, slightly more specific terms also appear in texts, such as ‘marketeers’ (*shiren* 市人), which typically referred to traders renting official marketplace stalls. Texts also mention people engaged in ‘peddling’ (*fan* 販), a term that appears to have been used especially for relatively small-scale commercial activities that were legally tolerated without registration in a market register up to a certain time period.¹⁵¹ Beyond the clear case of market stall renters, the exact conditions under which merchants or other sorts of trading actors required registration and were subject to corresponding legal regulations and taxes are not yet fully understood. At least for a modern reader, the seeming absence of clear-cut distinctions creates some ambiguity in the interpretation of many ancient passages, as these do not always leave a clue about what kind of trading actors exactly a certain depiction, accusation, or legal measure applied to.

Not only those actually designated as ‘merchants’ were involved in trading activities. The aforementioned terms mostly refer to people that specialized in buying and selling other people’s products. Both small and large landowners, some of whom would certainly qualify as ‘businessmen’ in the modern sense with regard to their substantial mercantile activity, were therefore not commonly implied when people spoke of ‘merchants.’¹⁵² In practice, then, the boundaries between traders

dresses and eating good food, and making one’s slaves wear coarse clothes could be interpreted as a sign of modesty. Wilbur 1943, 186.

150 A Later Han commentator (i.e., Zheng Xuan 鄭玄, 127–200 CE), referencing the *Zhouli* 周禮, suggested that “mobile [traders] were called *shang*, and settled [traders] were called *gu*” 行曰商，處曰賈 (*Shiji* 85.2505), but the two terms’ usage in Han texts does not suggest such a clear distinction. That Zheng Xuan felt the need to explain their difference as a contemporary only purports this impression. By trend, *shang* appears to have implied large-scale trading activities more typically than *gu* did, but in this regard, too, no clear distinction is perceivable. There are, for example, also references to ‘wealthy *gu*’ (*fu gu* 富賈) and ‘big *gu*’ (*da gu* 大賈), and to both ‘the big’ and ‘the petty’ among the *shanggu* (e.g., *Hanshu* 24A.1132).

151 S. Chen 2015, 109 (slips 124–126); Korolkov 2020, 570–571.

152 Cf. Ch’ü 1972, 113, who argues that “the term ‘merchant’ ... also included persons engaged in mining (particularly iron and cinnabar), salt manufacturing, cattle and pig breeding, raising fish, manufacturing, and moneylending.” He does not mention the Chinese term for ‘merchants’ he is referring to. As a reference, he gives the whole chapters of *Shiji* 129 and *Hanshu* 91, which are, however, not entitled “merchants” (*shanggu*), but “those whose goods increased” (*huo zhi* 貨殖), which is a much more general term coming close to the meaning of ‘businesspeople,’ under which the historians further also counted mercantilist landowners.

and landowners must have been fuzzy, also because merchants tended to invest heavily in land. On a more general note, it would be wrong to assume that all trading activities – or even all those that involved reselling other people’s produce – were undertaken by people who were actually termed ‘merchants.’ Landowners, artisans, local officials, envoys, and dependent laborers certainly played substantial roles in the trade and movement of goods without being designated ‘merchants.’

Despite certain legal restrictions that applied at least during certain phases (on which see below), the option of becoming an actual ‘merchant’ was not strictly limited to specific social groups. This is quite clearly suggested by prognostic texts that offer a great variety of future ‘career paths’ for newborns that depended on their date of birth, but not on the occupational group that they were born into. To give just one telling example, a prognostic text from the Qin period also considers female infants as potential future merchants, predicting that “if one gives birth on a *geng-yin* day: if a girl, she will become a merchant” 庚寅生子，女為賈 (*gu*).¹⁵³ Women are, in fact, mentioned quite frequently with regard to trading activities in early imperial texts.¹⁵⁴ More generally, becoming a merchant was clearly an alternative path to subsistence and success for the otherwise socioeconomically marginalized. Sima Qian expressed this very clearly when he stated that engaging oneself as a “merchant” (*shang*) was the very best means to “work one’s way up from poverty to riches” (*yong qiong qiu fu* 用貧求富).¹⁵⁵

The means through which ancient Chinese merchants managed their work concretely, especially with regard to risks in large-scale and long-distance trading operations, are a difficult scholarly issue. Occasionally, texts refer to larger groups of merchants traveling together. For instance, a historical account mentions a caravan of merchants traveling near the northern frontier (in today’s Inner Mongolia), which reportedly consisted of over a thousand ox-drawn carriages.¹⁵⁶ Merchants’ means of collaboration are, however, largely unclear. For instance, there is no evidence for the existence of guilds in early imperial times, though eventually they became important organizations from the Tang period onward.¹⁵⁷ Neither do our sources indicate the existence of anything that would come close to the ‘voluntary associations’ of the Graeco-Roman world in which traders banded together with each other or with other economic actors on the grounds of their shared profession or shared

153 Shuihudi Qin mu zhujian zhengli xiaozu 1990, 203; Barbieri-Low 2007, 58.

154 Hinsch 2011, 77–78.

155 *Shiji* 129.3274, trans. Watson 1993, 449 (with modifications).

156 *Hou Hanshu* 90.2983. Assumedly, the caravan merchants, whom the passage reports to have been raided by Wuhuan 烏桓 people, were themselves residents of Han territory, even though it cannot be ruled out that they were merchants from a foreign country. Yü Ying-shih refers to them as a “Chinese caravan.” Yü 1967, 108.

157 On this issue, see further sec. VIII.1 below.

range of traded goods.¹⁵⁸ Furthermore, except for artisans who traded their own products in city market stalls (see sec. VIII below), little is known about the relationships and means of cooperation between traders and producers. With the apparent absence of formal private organizations, merchants' arrangements for collective timing, financing, and risk management are likely to have involved higher transaction costs, as they must have rested largely on more informal and partly more inflexible interpersonal relationships based on kinship and extended private networks.¹⁵⁹

There is some scarce evidence for foreign merchants being active not only in frontier regions and designated 'border markets' (*guanshi* 關市), but also in more central regions of the empire. Wang Zijin has dedicated a whole article to what he calls an "internationalization" (*guojihua* 国际化) of the market (and marketplaces) in and around the Later Han capital Luoyang.¹⁶⁰ But in fact, next to references to foreign diplomatic missions to the court that involved the exchange of goods,¹⁶¹ only very few of his collected passages indeed can be considered as evidence for the presence of foreign traders. One anecdote mentions a group of "Hu merchants from the Western Regions" (*Xiyu gu Hu* 西域賈胡) being executed for unwittingly breaking a restriction by killing a powerful official's rabbit outside the city walls, but it does not give any further detail about their mercantile activities or the general circumstances of their stay. Another passage, albeit referring to the third century CE, speaks of the region around Luoyang attracting all kinds of people in their striving for profit, among them "Hu and Mo (i.e., various northern foreign) merchants" 商賈胡貊.¹⁶² On the basis of such scattered references, one is left to speculate on the broader relevance of foreign traders in the Han Empire's central regions and on their potential role in border-crossing trade networks in particular. In this regard, it is worth remembering the first-century CE case of the historian Ban Gu mentioned in section II.1 above. When he felt like procuring exquisite Central Asian products, he did not consult either Han or foreign merchants at Luoyang, but rather placed the order with his far-travelling brother.

VII.2 Attitudes toward Merchants and their Official Treatment

Disdain for merchants in ancient China is a common *topos* in Sinological scholarship. And indeed, transmitted Han sources are full of people's criticism against mer-

¹⁵⁸ See Fabian and Weaverdyck, ch. 3.A, IX.1.2, this volume. However, the fact that our available sources are largely silent on merchants' organization practices does not mean that they did not exist.

¹⁵⁹ On this issue, see further Leese-Messing, ch. 15, IV.3, this volume.

¹⁶⁰ Z. Wang 2018.

¹⁶¹ On the role of foreign delegations, see sec. X below.

¹⁶² *Hou Hanshu* 34.1182 (memoirs section); *Sanguo zhi* 21.624 (commentary no. 1), both quoted in Z. Wang 2018, 18.

chants, scorning them for acting selfishly, hoarding goods, fleecing people, breaking sumptuary rules, engaging in criminal activities, and causing a lack of labor capacity in the ‘root occupation’ (*ben ye* 本業) of farming.¹⁶³ In addition to their trading of goods, merchants frequently get associated with moneylending for interest – an activity that was sneered at even more vigorously than trading goods in general. Reportedly, members of middling families acted as their “guarantors” and “serve[d] them as diligently as if being their subjects and servants” 為之保役，趨走與臣僕等勤， while even ennobled people “bowed their heads in their dependence” 低首仰給 on the wealthy merchants.¹⁶⁴ The economic power of merchants, therefore, was considered a threat to hierarchical social norms among certain layers of society.

In this respect, the seemingly unambiguous picture of the ‘dishonorable merchant’ needs to be clarified. First of all, the sources in which we find such disdain are strongly biased toward opinions expressed by the highest members of the elite. Their critical stance is not surprising since wealthy merchants could easily evolve into a threat to central state power and to those groups of local elites whose social standing was based on a more traditional foundation, such as landholding, official titles, and honorific ranks, as well as observance of ritual codes and sumptuary rules. It has been suggested that harsh antimerchant sentiments evolved into a common view only from the early Han period onward, when the growing commercialization of the land market enabled an expanding merchant class to accumulate private land.¹⁶⁵

Members of lower social strata, who actually dealt with different types of merchants in their daily lives, likely took a different view than what is reflected in the available evidence. The deviation of social reality from the ideal of the lowly merchants was also seen by members of the highest elites themselves. The high statesman and political advisor Chao Cuo 晁錯 (ca. 200–154 BCE) complained that “even though legal statutes despise merchants, they have become rich and cherished ... So those that are cherished among the common people are those that the ruler despises” 今法律賤商人，商人已富貴矣 [...]；故俗之所貴，主之所賤也。¹⁶⁶ And even the standpoints toward merchants expressed by high elite members do reveal quite a variety on closer inspection. Whereas the historian Sima Qian’s promotion of wealthy entrepreneurs as promising candidates for replacing the old hereditary aris-

163 The latter is a frequent point of criticism against merchants, but one may wonder if it was based on a real problem. Hsu 1980, 39, suggests that a looming food shortage during the mid-second century BCE, which was “in all likelihood related to the increase in population” was “misunderstood ... and attributed to the outflow of the farming population to commerce.” For a classic case of Han-era criticism in this regard, see Chao Cuo’s famous 178 BCE memorial quoted in *Hanshu* 24A.1130–34, trans. Swann 1950, 158–169; Hsu 1980, 160–163.

164 *Hou Hanshu* 28A.958, trans. Hsu 1980, 196–197; *Shiji* 30.1425, trans. Watson 1993, 68.

165 Sterckx 2015, esp. 212, 242.

166 *Hanshu* 24A.1133, trans. Hsu 1980, 162; Swann 1950, 166 (with modifications).

tocracy may have constituted a rather rare position,¹⁶⁷ we know of other people voicing positive attitudes regarding the role of merchants in society. They stress the indispensability of traders for moving goods where they are needed, and a decrease in merchants gets associated with an undesirable rise in prices.¹⁶⁸ They also point out that the livelihood of certain primary producers, especially people living in natural surroundings of lesser or no agricultural suitability, such as mountain dwellers, essentially depended on mobile traders buying and reselling their products.¹⁶⁹

The relationship between merchants and the state, too, was not constant or unambiguous. Evidence for the Qin period indicates that during the early years of the imperial period, merchants were indeed legally segregated from other social groups. Marriage between merchants and members of other groups was punishable, and merchants were counted as one of several underprivileged groups that were mobilized for certain military endeavors.¹⁷⁰ The latter practice is also known to have been applied in the case of some military undertakings under Emperor Wu of Han.¹⁷¹ Furthermore, one of the early Han legal statutes on labor service designates “unrespectful marketeers” (*shiren bu jing zhe* 市人不敬者) for tasks involving heavy labor (i.e., the repair of walls, roads, and bridges belonging to marketplaces).¹⁷² The founding emperor of the Han introduced sumptuary restrictions for merchants, forbidding them from wearing silk robes and riding in carriages. However, these restrictions were given up under his successors.¹⁷³ At least during certain phases, and possibly for the major part of the Han era, merchants and their descendants were officially excluded from office holding, which restricted the opportunities of turning economic power into political power to a certain extent. The rule was, however, either not continuously enforced or not consistently followed. A few members of merchant families even achieved higher official posts. Sang Hongyang 桑弘羊 (ca. 152–80 BCE), Emperor Wu’s central economic policy maker and son of a merchant, is the most prominent example. He had been promoted because of his calculation abilities and eventually gained one of the three highest government posts.¹⁷⁴ But even in the case of merchants’ exclusion from office holding, their ability to transform economic into political power was by no means eliminated. With regard to the relationship between merchants and state functionaries alongside or in defiance of the latter’s official tasks, transmitted texts provide ample indications of frequent collaboration between merchants and

167 See Leese-Messing, vol. 1, ch. 12.A, II.3.

168 In *Shiji* 30.1440 (trans. Watson 1993, 81), Sima Qian paraphrases Bu Shi’s 卜式 understanding of contemporary economic developments as follows: “because of the tax on boats, traders had diminished in number and the price of goods gone up” 船有算，商者少，物貴。

169 *Yantie lun jiaozhu* 3.43, trans. Gale 1967, 23.

170 W. Chen 2012, vol. 1, 161 (tablet 8–466); *Shiji* 6.253. See also Korolkov 2020, 601.

171 E.g., *Shiji* 113.2974–2975; 115.2987, trans. Watson 1993, 215–216, 226.

172 Barbieri-Low and Yates 2015, 902–3 (no. 4 of the “Statutes on Government Service,” slip 414).

173 *Shiji* 30.1418, trans. Watson 1993, 61.

174 *Shiji* 30.1418, trans. Watson 1993, 62; Ch’ü 1972, 118–122.

state functionaries at different levels of the bureaucracy. In one case, a central official was even accused of having given confidential information on planned government measures to a merchant, to which the latter could then attune his economic decisions by hoarding certain goods.¹⁷⁵ Even more so, underhanded dealings between local officials and merchant acquaintances are likely to have been the rule rather than the exception.

It was also under Emperor Wu's reign that a couple of rigid measures were introduced that ran counter to merchants' interest. Among others, he restricted the ownership of land by registered merchants and increased their taxes, including special taxes on merchants' possessions and their vehicles.¹⁷⁶ Apart from the information we get on such momentary changes in taxing policies, it is often hard to tell which merchants were taxed, which rates they paid, and how their taxes were collected, especially if they were not operating from official market stalls. For instance, we also hear of complaints such as the one of the statesman Gong Yu 貢禹 (124–44 BCE) from the year 44 BCE, in which he bemoaned that merchants (*shanggu* 商賈), even though collecting yearly profits of 20 percent, were not paying any taxes at all.¹⁷⁷ During the Later Han period, under Emperor Ming 明 (r. 57–75 CE), there was an attempt to prohibit people from combining mercantile and agricultural activities, but it does not seem to have been seriously enforced.¹⁷⁸

In general, both the evidence of pragmatic and illicit cooperation between merchants and officials and the ongoing references to powerful merchants certainly show that neither common sentiments nor short- or long-term state policies effectively suppressed them. It is to be assumed, however, that the combination and mutual reinforcement of both did create a noticeable dampening effect on the overall vigor of mercantile activity during the early imperial era.

VIII Craft Producers

VIII.1 Craftspeople and their Social Status

The word used in ancient China for various types of craftspeople and artisans is *gong* 工.¹⁷⁹ We also find it in all kinds of compound expressions, such as *shigong*

¹⁷⁵ The latter example refers to a case in which the accusations eventually turned out to be partially false, but it nevertheless indicates a plausible scenario, variants of which are highly likely to have happened frequently. Ch'ü 1972, 183–184.

¹⁷⁶ *Shiji* 30.1430; 1440, trans. Watson 1993, 72, 81.

¹⁷⁷ *Hanshu* 72.3075, trans. Hsu 1980, 167.

¹⁷⁸ Ebrey 1986, 615.

¹⁷⁹ Etymologically, the character (already appearing on Shang oracle-bone inscriptions) is most probably a simple pictographic logogram for a tool, possibly a carpenter's square. Barbieri-Low 2007, 32–36.

石工 ('mason,' 'stone carver'),¹⁸⁰ *xigong* 寫工 ('shoemaker'), or *huangtu gong* 黃塗工 ('amalgam-gilder'). In transmitted texts, handicraft professions are often treated as dishonorable, but disdain against them was less pronounced than in the case of merchants. The reason for this was certainly that craftspeople were less likely to become threateningly rich. Literary and epigraphic evidence suggests that most of them maintained little more than a subsistence-level standard of living, and that wealthy craftspeople were rather exceptional.¹⁸¹ Whereas there is some evidence for caste-bound artisans both in much earlier times and in the post-Han period, this was obviously not the case in the early imperial period. Qin and Han artisans could enter officialdom and even rise to high administrative posts.¹⁸² After trading, engagement in craft production was, according to Sima Qian, the second best opportunity for poor people to climb up the socioeconomic ladder.¹⁸³

A legal statute from the Han period indicates that the state identified craftspeople separately for specialized labor service in state workshops (see below). The statute states that all other members of the household were exempted from conscript duties and probably the poll tax for the period that one member was serving as an artisan. Since the text mentions probationary periods of two years, it is to be assumed that these artisans usually worked in the workshops for lengthy periods, possibly working one month per year as unpaid conscripts¹⁸⁴ and the rest of the year as paid workers.¹⁸⁵ The statute also prescribes that only the best three out of ten candidates were to be selected. This indicates that the very selection, which went along with the substantial benefit of tax exemption, meant a privileged distinction to the selected artisan and to his or her family.¹⁸⁶

The question of organizational grouping is as difficult to answer in the case of artisans as in the case of merchants. In the context of discussing craftspeople, Barbieri-Low suggests that "Qin and Han legal statutes show that a group responsibility system resembling incipient guilds already existed in early imperial China."¹⁸⁷ The expression used by the legal texts is the same as that of the state-imposed responsibility groupings of five people (*wu* 伍) that were also applied on all other commoners.¹⁸⁸ For marketplace vendors, including craftspeople, it meant that if one member

180 Alternatively called *jiang* 匠.

181 Barbieri-Low 2007, 36–56.

182 Barbieri-Low 2007, 56–63.

183 *Shiji* 129.3274, trans. Watson 1993, 449.

184 This was the usual time length of commoners' conscript labor each year.

185 The latter arrangement (one month of conscript labor, paid labor for the rest of the year) was common practice under the Tang, but we do not have concrete corresponding evidence with regard to Han times.

186 Barbieri-Low and Yates 2015, 753–761 ("Statutes on Exemption from Taxes"), with n. 10 on 760–761 discussing the question regarding the exemption of the poll tax.

187 Barbieri-Low 2011a, 384.

188 On the responsibility groups among commoners, see also Leese-Messing, vol. 1, ch. 12.A, 140, 166.

of the group violated rules (e.g., by avoiding fees or taxes), the other group members could be held responsible for not denouncing the former. Furthermore, vendors in official marketplaces – including craftspeople – seem to have been collocated on certain lanes (*lie* 列) based on their shared profession or product range. On each lane, a ‘chief of the market lane’ (*liezhang* 列長) was meant to supervise all other vendors of the same lane and denounce them, if applicable.¹⁸⁹ Under certain circumstances, both of these state-enforced groupings may have resulted in collaborative activities that went beyond and defied the original function of mutual surveillance. But since we know next to nothing about how these groupings affected Qin and Han artisans’ (as well as merchants’) collective economic behavior, I would tentatively refrain from associating them with guilds. In a similar vein, interpretations of the potential use of the word *hang* 行 on some early imperial craft products – with *hang* being a later term for marketplace lanes, and ultimately the Tang term for guilds – as evidence for ‘proto-guilds’ must also be regarded as speculative.¹⁹⁰

VIII.2 Craftswomen

Women constituted a substantial segment of the Qin and Han craft labor force. This went far beyond the much-idealized weaving work that women were supposed to contribute to self-sufficient farming households. Many wives of craftsmen certainly worked alongside or as assistants to their husbands, as is suggested by a pictorial stone showing a wheelwright being assisted in his professional work by a woman carrying a baby on her back.¹⁹¹ But there are also a number of references to women, especially widows, becoming independent artisans.¹⁹²

The available evidence shows much more clearly that female workers were massively employed in government workshops. If interpreted correctly, the Han statute mentioned above even prescribes a quota preferring conscripted adult females over male and minor artisans in a ratio of two to one. This mirrored the state’s demand for textile production and lacquer painting, both associated with female labor.¹⁹³ Indeed, the vast majority of artisans whose names are incised on a group of lacquer vessels produced partly in private, partly in government workshops of the Qin peri-

189 For the according Qin and Han legal statutes on ‘groups of five’ on marketplaces and the ‘chief of the market lane,’ see Shuihudi Qin mu zhujian zhengli xiaozu 1990, 36 (slip no. 68); Hulswé 1985, 53 (A45); Barbieri-Low and Yates 2015, 722–723 (no. 2 of the “Statutes on [Passes and] Markets”).

190 Cf. Barbieri-Low 2011a, 384–385; 2007, 129.

191 Barbieri-Low 2007, 93, 108.

192 Barbieri-Low 2007, 108–109; Ch’ü 1972, 54–55.

193 Barbieri-Low and Yates 2015, 758–759, including n. 9.

od are identified as females.¹⁹⁴ In Han lacquer inscriptions, many of which further mention each artisan's role in the production process, women's names also appear in relatively high-status positions, such as that of 'design painters' (*huagong* 畫工). On several inscribed vessels from an imperial workshop in Sichuan, one woman even appears as a 'scribe director' (*lingshi* 令史), a position entailing scribal and accounting functions and a substantial amount of responsibility to which she may have been promoted on the grounds of longtime experience as an artisan in the workshop.¹⁹⁵ The quantitative productivity of female work, especially with regard to weaving, was a prominent theme of mathematical calculations presented in Han era mathematical handbooks, which may be taken as an indication of their acknowledged economic importance.¹⁹⁶

VIII.3 Craft Workshops

The commonplace expressions for craft workshops during Qin and Han times were *zuoshi* 作室 ('fabrication chamber') and *gongshi* 工室 ('craft chamber'). Facilities ranged from small-scale private workshops operated by one or a few artisans to possibly factory-like, state-run production units employing hundreds or even thousands of workers. As for the highest reported staff numbers, the workshops of the government's 'Three [Seasons] Garments Office' in Qi reportedly employed thousands of workers each during the Former Han period.¹⁹⁷ It is, however, not quite clear if all these (probably largely female) workers actually worked together in factory-like facilities or from home.¹⁹⁸ Some text passages indicate that a state workshop for textile production in Shu (Sichuan) may have taken the form of a walled industrial village.¹⁹⁹ Different forms of labor management and corresponding facilities, of course, may have existed side by side, depending on regional traditions and technological demand for certain products.

State-run workshops, usually referred to as 'craft offices' (*gongguan* 工官), produced a variety of products, including iron tools, weapons, luxury textiles, and exquisite tableware. Some of the state-produced products unearthed from tombs both inside and outside of China feature detailed quality control inscriptions, including not only dates and places of production, but also craftspeople's and supervisors' names

¹⁹⁴ Barbieri-Low 2007, 110–114.

¹⁹⁵ For these inscriptions (including English translations), see Y. Liu 2019b, 152–153. For certain jobs in the production of lacquer objects, such as gilding or core-carving, women's names have not been found at all. On many other (usually later) Han lacquer inscriptions, gender identification is impossible because of more rigid naming conventions. Barbieri-Low 2007, 113–114.

¹⁹⁶ Chin 2014, 194–195.

¹⁹⁷ See Gong Yu's memorial, translated in Barbieri-Low 2001, 405–409, esp. 408.

¹⁹⁸ Barbieri-Low 2007, 110.

¹⁹⁹ Wagner 2001, 38; Shu jin shihua bianxie zu 1979, 13–4, 83–5.

along with the production step or management responsibilities. Some lacquer objects are inscribed with lists of more than ten people who were each involved in a specific task in the process of production and supervision. They thus testify to the high degree of labor division and vertical specialization in state-run workshops.²⁰⁰ Similar, albeit typically much shorter, inscriptions have also been found on products from other, presumably private, workshops.²⁰¹ Furthermore, craftspeople in private workshops frequently used systems of customizable prefabrication, enabling off-site construction and stock production, e.g., by using standardized modules for stone monuments.²⁰²

Evidence for private workshops as places of knowledge transfer and education are scarce. According to epigraphic evidence, the staff of small-scale private workshops often involved specialized ‘masters’ (*shi* 師), e.g., master masons and master draftsmen in stone carving workshops, as well as ‘apprentices’ (*di* 弟), who were expected to carry on their masters’ production traditions.²⁰³ A little more is known about the educational aspects of state workshops. Legal texts prescribe a probationary period of one year, after which the apprentice was supposed to produce half of the output of a full-fledged artisan, and a second year of training after which a full work quota was expected. Craftspeople achieving this goal earlier were supposed to be granted a monetary reward. Failing this goal after two years of training meant the apprentice was not accepted to work in a state workshop.²⁰⁴

By conscripting and hiring craftspeople from small-scale, private workshops to work in state workshops, and by training convict laborers as state artisans and leasing them out or selling them on the private labor market,²⁰⁵ a transfer of knowledge concerning production techniques and labor division could take place in both directions. These intersections between state and private production are likely to have facilitated wider spread and enhancement of sophisticated craft technologies during the early imperial era.²⁰⁶

VIII.4 Industrial Entrepreneurs

Transmitted texts indicate that craft production may not only have happened in state production facilities and smaller private workshops, but also under the leader-

200 For a collection of inscriptions on imperial lacquers, including English translations, see Y. Liu 2019b. On labor division, see Barbieri-Low 2001, especially ch. 4.III.

201 On the differentiation between government and private workshops, see the overview given in Leese-Messing, vol. 1, ch. 12.C.

202 Barbieri-Low 2007, 93–96.

203 Barbieri-Low 2007, 70–73.

204 The regulations did not differentiate between different types of craft with regards to their training needs. This was different from the later Tang regulations, which took into account differences in educational needs between individual crafts, for instance prescribing up to four years of training for the most difficult ones. Barbieri-Low 2007, 70–73.

205 On the latter, see Korolkov 2020, 364.

206 On technological developments, see further Leese-Messing, ch. 11, VII, this volume.

ship of private actors who managed to establish production centers of considerable scale. The clearest indication of the relevance of such actors is provided by Sima Qian's Former Han account of 'money makers,' several of whom accumulated their wealth on the basis of flourishing businesses they owned or built up. Next to the primary producers of the salt and iron industries, Sima Qian also mentions businesses involving processed products that lent themselves to wealth accumulation when they were sold on large scales. Among Sima Qian's examples are products such as alcoholic beverages, jars of pickles, sauces, bean relish, syrups, felt mats, different kinds of fine textiles, as well as wooden, iron, and lacquered vessels.²⁰⁷ Since the historian only mentions the selling aspect explicitly, it is not quite clear whether or which of these products were also produced by entrepreneurs on a grand scale or if the entrepreneurs in this case rather acted as whole-sale traders of items produced by small-scale producers. While this needs to be kept in mind, one also needs to acknowledge that larger production units in both private and state contexts (such as in salt, iron, lacquer, and textile production) were potential models for private craft producers, and that knowledge transfer with regard to labor management was facilitated by the state's system of recruiting its craft labor force. It seems not implausible, therefore, to assume that larger private production facilities played a certain role in the production of at least some of the craft products. Transmitted historical records indeed mention wealthy families employing up to seven hundred servile handicraft workers whose produce served to grow the family fortune.²⁰⁸

IX The Military

IX.1 Basic Economic Implications of Making War and Peace

Military prowess and territorial expansion were not as closely and generally connected to the idea of Han emperorship as they were to rulership ideals in other societies like in Southeast Asia, the Roman Empire, or Hellenistic monarchies. This is not because things developed more peacefully in ancient China, but because a considerable part of imperial expansion – including centuries of intensive wars – predated the early imperial period. During Han times, the interstate violence and destruction that had characterized the Warring States period was mostly a thing of the past. From an economic perspective, however, pre-imperial battles still had important ramifications: First, the fact that they had ultimately resulted in one side subjugating all others (first but temporarily the Qin, then lastingly the Han), was a major prerequisite for long-term peace and stability in the Han Empire's central

²⁰⁷ *Shiji* 129, trans. Watson 1993, 433–454; Nienhauser 2019, 261–309.

²⁰⁸ *Hanshu* 59.2652.

regions that promoted economic prosperity and population growth. And second, long-term wars had entailed the ‘creative destruction’ of the old nobility, which facilitated social mobility and the rise of a new, increasingly wealth-based elite during the Former Han period. The latter’s consumer behavior is in turn likely to have contributed to central economic processes such as the increasing importance of private markets and monetization.

That being said, even after the consolidation of the Han dynasty, troops were raised on the frontiers for both defensive and expansionist purposes. During certain times, such as the major expansionist phase under Emperor Wu, this also involved massive campaigns. The scale of military endeavors was, however, highly unsteady and depended on individual emperors’ priorities, as well as changing external and internal circumstances. The imperial wars were also of a different nature because they were now fought for regions that were much less densely populated and urbanized and partly used for pastoral rather than agricultural purposes. The motives for making war also varied from region to region and over time. While invasions into some regions promised economic profits through additional tribute or tax payments, acquisition of arable land for an increasing population, or by facilitating trade, other politically motivated deployments of troops (especially in the north and northwest) bore hardly any economic opportunities from a central fiscal point of view and could even evolve into a long-term economic burden on the state budget.²⁰⁹ Different frontier regions varied considerably with regard to their potential to become economically independent from or even fiscally beneficial to the core regions.

In any case, both expansionist campaigns and long-term military presence in frontier regions had important economic ramifications. Military consumption and redistribution of supplies were a challenge that required major structural changes, including new fiscal policies. Furthermore, expansionism resulted in the monetization of regions in which money had not played a role before. Military occupation further created new spaces of economic interaction and potential for increasing connectivity.

IX.2 Consumption, Redistribution, and Monetization

The military was essentially a large consumer of manpower and provisions. Members of the Han army were drawn from three main sources. They served as enlisted conscripts (with a service theoretically comprising two years, including one on the

²⁰⁹ For these aspects of expansionism, see Leese-Messing, vol. 1, ch. 4, IV.4.4, and vol. 1, ch. 12.A, II.5. As an example of economically burdensome undertakings, transmitted texts mention that during the period between 107 and 118 CE alone, the cost of defending Liang Region (Liangzhou), which comprised the northwestern commanderies including the Hexi corridor, cost the central government over 24,000 million coins. Yü 1967, 61.

frontier),²¹⁰ as voluntary and paid recruits, or as (partly amnestied) convicts. The proportions of these three sources are unclear, just as the whole system of Han conscription and other forms of recruitment are still poorly understood. At least during the early Han period, conscripts appear to have constituted the largest part of the forces, whereas their importance decreased during later periods when they were increasingly replaced by paid volunteers, many of whom were ethnic non-Chinese.²¹¹

Directly or indirectly supplying these people on the frontiers with food, textiles, cavalry horses, weapons, and other equipment demanded surplus production by other actors, especially agriculturalists. Since expansion moved toward regions like the northern steppe and desert regions with limited or untapped agricultural potential, campaigns and long-term stationing of border-guarding troops necessarily relied on surpluses produced in the inner regions of the empire and the redistribution of these surpluses to the frontiers.

In the early decades of Han rule, when the central government largely avoided larger military endeavors, such large-scale redistribution processes accordingly were not integrated into social, political, and economic structures. The eventual outbreak of massive frontier warfare under Emperor Wu, therefore, demanded drastic structural changes in supply mechanisms. New fiscal policies were introduced, including various ad hoc measures. These demanded contributions from wealthy actors especially, which ranged from provisioning of grain in exchange for official ranks and titles to sharply rising taxes for merchants to disappropriation of industrial entrepreneurs' and wealthy landowners' property.²¹² All of these measures provoked political resistance and partial economic disruption in those central commanderies whose spokesmen felt particularly burdened by them. Some of these new policies, especially the introduction of monopolies, yet developed into longer-term expansions of the fiscal budget that facilitated military expenditure on a more regular basis. Nevertheless, imperialism and concomitant large-scale redistribution mechanisms were never as firmly integrated into the political and economic structure of the empire as they were in the Roman Empire.

In order to shift the fiscal burden from the center to frontier regions and avoid costly long-distance transport of supplies, the Han government established settlements called 'agricultural garrisons' (*tuntian* 屯田) in the northwest as far as the Tarim Basin. Under this policy, which began under Emperor Wu and was continued

210 According to one of the interpretations of the transmitted source material, one of the two years was spent for training in the conscripts' home commandery, and a second one in active service, e.g., at the frontier. A different interpretation holds that conscripts spent two years in the interior and were additionally required to serve three days per year on the frontier, to be rendered cumulatively.

211 Loewe 1967, 1:77–82. See also Leese-Messing, vol. 1, ch. 4, IV.4.7.

212 Sima Qian describes the series of ever-new measures to secure revenues in *Shiji* 30, trans. Watson 1993, 61–85.

and extended under his successors, soldiers took over the double task of guarding the frontiers and supplying them with the produce of newly reclaimed and often intensively irrigated agricultural land.²¹³

Yet it is still rather uncertain how the soldiers and other military personnel were provisioned. Serving as a regular military conscript or convict was generally not associated with monetary remuneration, so that state supplies of clothing, food, weapons, etc. must have played a major role. This must have been especially true for ongoing campaigns, even though evidence in this regard is scarce. We have considerably more information about long-term garrison sites, especially from the northwestern frontier region including the Hexi corridor and Juyan in particular. Local centers of distribution and granaries in this area kept detailed notes on their stores. Records of food rations and recipients suggest that conscripted garrison soldiers and their families were provided with regular grain and salt supplies, as well as clothing. The recorded quantities suggest allowances sufficient for subsistence, and are therefore a further indication that this group of common soldiers did not receive monetary payment by the state.²¹⁴ It is hard to tell to what extent this changed with the state's increasing reliance on paid recruits, as we lack evidence of their precise role in the military and the form of their payment. At least one document refers to the monetary payment of recruits – of Xiongnu descent, in this case.²¹⁵ Moreover, even soldiers who did not enjoy monetary pay could find ways to participate in the monetary economy, as is shown by instances of soldiers selling their clothes, which they had probably received from the government.²¹⁶ Nevertheless, with their rather meager income and relatively short terms of service on the frontier,²¹⁷ the soldiery is likely to have played a much smaller economic role as consumer and driver of state-issued coinage than in the Hellenistic and Roman empires.²¹⁸ They were, however, not the only frontier inhabitants. The documents show very clearly that both civilian officials and military officers, many of whom are likely to have spent longer periods of time in the regions, were largely paid in cash.²¹⁹ Their salaries were reckoned by the month, but cumulative pay (e.g., three months)

213 For evidence on agricultural garrisons from excavated texts, as well as according scholarship on the broader topic, which is also based on evidence from transmitted texts, see Ma, vol. 1, ch. 12.B, 533–534.

214 Rations varied according to status, sex, and age of the individual, as well as to the type of grain. They ranged between 1.16 and 3.3 *shi* (22 and 65.6 liters) per month. Issues of animal fodder are also recorded on some documents. E.g., Loewe 1967, 1:92–94; Scheidel 2009, 183.

215 H. Wang 2004, 52.

216 See, for instance, the example given in Ma, vol. 1, ch. 12.B, 535–537.

217 See, e.g., Sanft 2019, 34–35.

218 Cf. Fabian and Weaverdyck, ch. 3.A, IV, this volume.

219 Much lesser references refer to payment in textiles, and few others in grain, and one in salt. H. Wang 2004, 48–51.

was very common.²²⁰ Documents recording arrears of salary payment identify the sources of money in these cases as the treasuries of the capital city or a certain local government in the inner regions of the empire. This may indicate that, in cases of local monetary shortage, the central government was prepared to send coins to the northwest for their servicemen. Other documents show, however, that at least during certain periods, border officials were allowed to cast standard Han *wuzhu* coins locally.²²¹

Monetization processes in frontier regions were often tightly connected to Han military and administrative presence. The northwestern region is again a particularly clear example of this. In the Hexi corridor, for instance, there is no evidence for coinage from the time before the Qin Empire, whereas Han *wuzhu* coins abound in the region. It is clear that under Han rule the use of money in this frontier zone came to be well established. Excavated texts sometimes refer to transactions involving hundreds of thousands and even millions of coins.²²² They mention monetary transactions among private individuals (with commodities ranging from items of everyday use to irrigated fields and hired labor)²²³ as well as monetary purchases of goods by government institutions. For example, administrative documents from the state-run postal station at Xuanquan 懸泉 near Dunhuang 敦煌 record the purchase of chickens that were used for meals provided for traveling state officials and diplomatic delegations.²²⁴ The use of Han coinage spread with Han military presence beyond the Hexi corridor into the Tarim Basin, where it further served as an inspiration for the famous Sino-Kharoṣṭhī coins of Khotan.²²⁵ The commonplace use of money likely had stimulating effects on exchange in these and other frontier regions.

IX.3 Connectivity

In some frontier regions of the empire, Han military and administrative presence radically changed the landscape and infrastructure, as well as the demographic and ethnic composition. The Hexi corridor changed from a sparsely populated area of mainly pastoralist use with barely any settlements to a region with hundreds of thousands of settled inhabitants. Most of them came from central parts of the Han Empire to the frontier, where they built settlements, initiated large-scale irrigation projects and land reclamation for intensive agricultural use, and built roads and border fortifications. Changes in other frontier regions, such as in the south, were

220 H. Wang 2004, 49. Individual soldiers' officially submitted complaints regarding outstanding salary payments and food rations have also been found (Loewe 93–94, 97).

221 H. Wang 2004, 49–50; 2007, 67–68.

222 H. Wang 2007, 64.

223 See, for instance, the examples given in H. Wang 2007, 74–75.

224 Lee Kim 2016, 578–579.

225 H. Wang 2004, 24–27, 37–38.

definitely less dramatic in some of these respects, but the increase of infrastructural investments and connectivity over large distances that went along with military campaigns and the stationing of military and administrative personnel applied to frontier regions in all directions. Parts of the road network that the Qin and Han Empires' core regions inherited from the Warring States period must already be seen as a byproduct of pre-imperial warfare and its infrastructural demands to enable troop movement and provisioning. These had lasting effects on interregional mobility. Extensions of this large inner road network in all directions during the early imperial era was again largely initiated in the context of military advance.

Military presence in frontier regions brought inhabitants of widely separated regions together in one place. Excavated documents have highlighted the broad range of geographic origins among soldiers, who were recruited in the central parts of the empire in order to serve on the frontiers. This diversity can also be seen in the higher echelons of frontier societies, whose members came there as officials or higher military personnel by means of an empire-wide recruitment system. All of these people now lived and worked together in places far away from their home commanderies and were furthermore brought into direct contact with native people of yet other cultural and economic backgrounds (e.g., former or current pastoralists).²²⁶ The constellation of challenges posed by both unfamiliar landscapes and the diverse population may have borne a considerable potential for innovation and mutual knowledge transfer, even though concrete manifestations of such are hard to pin down. One suggested field of knowledge transfer is the spread of basic literacy, or at least increased familiarity with textual culture among common garrison personnel. They may have been confronted with texts like written instructions more intensively than at home, where many of them would ultimately return with the experiences they gained on the frontier.²²⁷ Yet taking into account the relative short terms of service in the case of conscripts, it remains questionable to what extent this exposure indeed fostered an overall increase in literacy rates and potential for socioeconomic mobility among the empire's common people.

One frequently mentioned economic aspect of military and subsequent administrative presence in frontier regions is their supposed protection of trade routes. Again, this function has been associated particularly with the Hexi region and its role as a passageway to Central Asia.²²⁸ Some differentiation is due in this context. Certainly, the new presence of settlements and masses of people, as well as their defense against external invaders through military fortifications, created unprecedented spaces for economic interactions in the region, including private trade between settlers and native locals. The newly established settlements and marketplaces probably facilitated travel by offering good opportunities to acquire lodging

226 On the northwestern frontier society, see Giele 2018; Li 2003.

227 Sanft 2019.

228 For more details on this matter, see Weaverdyck et al., ch. 7, VI, this volume.

and food. But the generalizing statements about the alleged trade route protection of state institutions in the form of garrisons, fortifications, and relay stations in the region gives the wrong impression that the state's establishment of these institutions was aimed at the particular purpose of enabling private long-distance trade with Central Asian polities. As extensive finds of administrative documents have shown, the state-run relay stations like the one at Xuanquan provided lodging, food, fodder, and postal services to traveling officials and large diplomatic delegations,²²⁹ but there is no indication whatsoever that private merchants could use these services. These institutions provided opportunities for goods to be exchanged over large distances in the context of diplomacy under the direction of the court, which was largely politically motivated. Certainly, traveling officials making use of these facilities could also have used these trips for private trading activities to a certain extent. But these particular forms of exchange included only very special groups of actors while excluding most others. The fundamental purposes of the military and infrastructural institutions were, after all, political rather than commercial. Their role in supporting private, long-distance trade must, therefore, not be overrated.

X Diplomatic Delegations

In comparison to other groups of actors discussed in this chapter, foreign delegations sent by the Han court involved relatively few people and were acting sporadically rather than constantly. Nevertheless, their activities are crucial when it comes to long-distance exchange and, more concretely, the question of how luxury products of the Han Empire ended up in distant places.

The history of envoys (*shi* 使 or *shizhe* 使者) goes back to pre-imperial times. They already played an important role in the interactions between the individual polities of the Spring and Autumn and Warring States periods. However, the geographic reach and size of delegations did increase sharply during the Han period, and their role changed accordingly. From the beginning of the Han period, envoys were sent to the Xiongnu *chanyus* in order to negotiate peace treaties that involved the presentation of lavish gifts, hostages, and princesses for marriage alliances.²³⁰ Subsequently, foreign diplomatic relations were widely extended during the reign of Emperor Wu, especially toward polities of the Tarim Basin and Central Asia. For Emperor Wu's time, Sima Qian's *The Scribe's Records* (*Shiji* 史記) informs us that:

The largest of the delegations to foreign states numbered several hundred persons, while even the smaller parties included over 100 members ... Later, as the envoys became more accus-

²²⁹ On these, see the following section.

²³⁰ See Leese-Messing, vol. 1, ch. 4, 174–175.

tomed to the route, the number was gradually reduced. In the course of one year anywhere from five or six to over ten delegations would be sent out.

諸使外國一輩大者數百，少者百餘人 [...]。其后益習而衰少焉。漢率一歲中使多者十餘，少者五六輩。²³¹

The selection of envoys probably rested on individual decisions, as the Han court did not provide for specialized diplomats.²³² Sima Qian's sarcastic remark about Emperor Wu's envoys to distant lands all being sons of poor families who were primarily interested in embezzling the entrusted diplomatic gifts and selling them along the way²³³ is neither to be discarded as an individual piece of evidence nor to be hastily generalized as indicating a standard phenomenon. In most cases, we simply do not know much about a delegation's composition. More specialized members of delegations also included translators and connoisseurs of local customs such as subject foreigners. Apart from being sent from the central court directly, envoys (other than large delegations) could also be sent off by governors of frontier commanderies on imperial permission.²³⁴

It has been amply demonstrated that, neither for the Han nor for their diplomatic partners, were diplomatic missions just a 'cloak for trade.'²³⁵ In fact, diplomatic relations and motivations on all sides were much more complex. For the Han court, delegations to foreign countries were primarily seen as political. High-value gifts such as exquisite silks were not necessarily exported in the hope of material reciprocity but rather with the hope for peaceful relations, military alliance, and ideally, the other side's recognition of Han superiority. Indeed, the historical accounts suggest that the value of goods exported via diplomatic channels was typically considerably larger than what came back as 'tribute.'²³⁶ Nevertheless, transmitted sources suggest that an interest in particular goods, both on the part of the Han emperors and on the part of the envoys themselves, did accompany at least some of these missions. In some missions they even played a central role, as was the case in Emperor Wu's approaches to Dayuan and the Wusun from whom he sought to acquire good horses for restocking his cavalry forces.²³⁷

²³¹ *Shiji* 123.3170, trans. Watson 1993, 240–241 (with modifications). See also Nienhauser 2019, 78–79.

²³² Selbitschka 2015a, 70–71.

²³³ *Shiji* 123.3171. Cf. *Hanshu* 61.2695, where Ban Gu left out the remark on the envoys' poor family background. On this passage, see also Leese-Messing, vol. 1, ch. 12.A, 509–510.

²³⁴ See the instance of the governor of Wuwei Commandery (in the Hexi corridor) sending an envoy (or several envoys) to the Northern Xiongnu to invite them to the court, as presented in Yü 1967, 103.

²³⁵ According arguments, especially with regard to foreign delegations, had been proposed by Yü 1967, esp. 59, 144.

²³⁶ Van Ess 2012; Selbitschka 2015a.

²³⁷ *Shiji* 123.3170, trans. Watson 1993, 240; Nienhauser 2019, 78.

From an economic viewpoint, various functions can be associated with the Han envoys. First, they were trusted agents in the transmission of often enormous amounts of valuable gifts from and to the Han court. Many of the most exclusive luxury goods left the Han Empire through the bottleneck of Han delegations and their foreign counterparts rather than through private trade. Second, envoys do at times appear as people that engaged in private trade themselves alongside their diplomatic tasks, and sometimes thwarted them.²³⁸ The extent of this private business is hard to fathom, but it was most likely limited and dependent on the socio-economic composition of individual delegations and their expected official remuneration, both of which are likely to have varied from case to case. Third, envoys can be considered as long-distance transmitters of market information. At the Han court, diplomatic gifts sent by and to foreign rulers were not always discussed solely with regard to their ‘appropriateness’ for diplomatic purposes but also with regard to their economic value as commodities.²³⁹ For the governments on both ends of a long-distance journey, envoys must have been a very valuable, if not the only, source of knowledge about supply and demand. Quite a few passages in the dynastic histories mention Han envoys informing the emperor about the products of, and goods in demand in, other countries.²⁴⁰ It can hardly be doubted that such information had practical implications for the choice of goods exchanged as diplomatic gifts, thereby dissolving, to a certain extent, the strict boundary between political gift-giving and market-based trade.

XI Conclusion

This chapter has introduced a range of major economic actors in the early Chinese empires, including types of individual actors as well as organizations of actors. It has described some of the major roles that each of them played in society and how these roles shaped their economic behavior in the fields of consumption, production, distribution, and coordination. All these groups intersected each other: Local elites included both primary producers and traders, and some of them were also acting as members of local government institutions. Farmers were often part of the military, and members of all actor groups were typically also household members. Members of the imperial court, along with other types of actors, could eventually

²³⁸ See Leese-Messing, vol. 1, ch. 12.A, 508–511.

²³⁹ On this point, see Leese-Messing, ch. 12.A, vol. 1., 515–516.

²⁴⁰ For instance, according to *Shiji* 123.3168 (trans. Watson 1993, 238; Nienhauser 2019, 75), Zhang Qian 張騫 (195–114 BCE) told Emperor Wu that foreign peoples such as the Wusun were “greedy for Han wealth and goods,” and according to *Shiji*.123.3174 (trans. Watson 1993, 245; Nienhauser 2019, 86), members of later delegations told him about the wonderful horses that the Dayuan possessed. The delegation reports, on which the depictions of foreign states in dynastic histories are largely based, offer many more examples of concrete products of certain countries or regions.

find themselves in delegations of envoys to foreign countries. In this discussion, the impact of state institutions has crystallized in various ways, but has been shown to have shaped the behavior of economic actors across the whole spectrum to a considerable degree. The impact of these institutions and of other ‘tools’ on the complex interplay between actors, and therefore on larger economic processes, will be examined in chapter 15.

References

- Barbieri-Low, A. J. 2001. “The organization of imperial workshops during the Han dynasty.” PhD diss., Princeton University.
- . 2007. *Artisans in early imperial China*. Seattle, WA: University of Washington Press.
- . 2011a. “Craftsman’s literacy: Uses of writing by male and female artisans in Qin and Han China.” In L. Feng and D. P. Branner (eds.), *Writing and literacy in early China: Studies from the Columbia Early China Seminar*, 370–400. Seattle, WA: University of Washington Press.
- . 2011b. “Model legal and administrative forms from the Qin, Han, and Tang and their role in the facilitation of bureaucracy and literacy.” *Oriens Extremus* 50, 125–156.
- . 2017. “Becoming almost somebody: Manumission and its complications in the early Han Empire.” In J. Bodell and W. Scheidel (eds.), *On human bondage: After slavery and social death*, 122–135. Malden, MA: Wiley Blackwell.
- Barbieri-Low, A. J. and R. D. S. Yates. 2015. *Law, state, and society in early imperial China: A study with critical edition and translation of the legal texts from Zhangjiashan tomb no. 247*. 2 vols. Leiden: Brill.
- Bertrand, A. 2010. “The hydraulic systems in Turfan (Xinjiang).” *The Silk Road Newsletter* 8, 27–41.
- Bielenstein, H. 1979. “The restoration of the Han dynasty, volume IV: The government.” *Bulletin of the Museum for Far Eastern Antiquities* 51, 1–300.
- . 1980. *The bureaucracy of Han times*. Cambridge: Cambridge University Press.
- Brashier, K. E. 2011. *Ancestral memory in Early China*. Cambridge, MA: Harvard University Asia Center.
- . 2014. *Public memory in Early China*. Cambridge, MA: Harvard University Asia Center.
- Bray, F. 1979. “Agricultural technology and agrarian change in Han China.” *Early China* 5, 3–13.
- . 1981. “Millet cultivation in China: A historical survey.” *Journal d’agriculture traditionnelle et de botanique appliquée* 28.3, 291–307.
- Chen Songchang 陳松長, ed. 2015. *Yuelu shuyuan cang Qin jian* 岳麓書院藏秦簡 [Qin bamboo slips from the Yuelu Academy collection]. Vol. 4. Shanghai: Shanghai cishu chubanshe.
- Chen Wei 陳偉, ed. 2012. *Liye Qin jiandu jiaoshi* 里耶秦簡牘校釋 [A critical and annotated edition of the Qin bamboo and wooden slips from Liye]. Vol. 1. Wuhan: Wuhan daxue chubanshe.
- Chin, T. T. 2010. “Defamiliarizing the foreigner: Sima Qian’s ethnography and Han-Xiongnu marriage diplomacy.” *Harvard Journal of Asiatic Studies* 70.2, 311–354.
- . 2014. *Savage exchange: Han imperialism, Chinese literary style, and the economic imagination*. Cambridge, MA: Harvard University Asia Center.
- Ch’ü, T. 1972. *Han social structure*. J. L. Dull (ed.). Seattle, WA: University of Washington Press.
- Cook, C. 2006. *Death in ancient China: The tale of one man’s journey*. Leiden: Brill.
- Di Cosmo, N. 1994. “Ancient Inner Asian nomads: Their economic basis and its significance in Chinese history.” *Journal of Asian Studies* 53.4, 1092–1126.

- Ebrey, P. 1980. "Later Han stone inscriptions." *Harvard Journal of Asiatic Studies* 40.2, 325–353.
- . 1986. "The economic and social history of Later Han." In D. Twitchett and M. Loewe (eds.), *The Cambridge history of China*. Vol. 1, 608–648. Cambridge: Cambridge University Press.
- Gale, E. M., trans. 1967. *Discourses on salt and iron: A debate on state control of commerce and industry in ancient China, Chapters I–XXVIII*. Taipei: Ch'eng Wen.
- Gao Kai 高凯. 2008. "Cong Juyan Han jian kan Han dai de 'nü hu' wenti" 从居延汉简看汉代的'女户'问题 [The question of 'female households' from the perspective of the Han slips from Juyan]. *Shixue yuekan* 史学月刊 9, 82–92.
- Gao Min 高敏. 2003. "Cong Zhangjiashan Han jian 'Ernian lüling' kan Xi-Han qianqi de tudi zhidu: Du 'Zhangjiashan Han mu zhujian' zhaji zhi san" 从张家山汉简《二年律令》看西汉前期的土地制度: 读《张家山汉墓竹简》札记之三 [The land tenure system of the early Western Han period based on the 'Ernian lüling' from the Zhangjiashan bamboo slips]. *Zhongguo jingji shi yanjiu* 中国经济史研究, no. 3, 143–147.
- Giele, E. 2018. "Kandai seihoku henkyō hōbigun no shakai kōzō: Shutsudo shiryō no bunseki ni motozuku hōhōronteki kōsatsu" 汉代西北边境防備軍の社会構造: 出土史料の分析に基づく方法論的考察 [The composition of the northwestern border society during Han times: Methodological considerations based on the analysis of excavated documents]. In Miyake Kiyoshi 宮宅潔 (ed.), *Taminzoku shakai no gunji tōchi: shutsudo shiryō ga kataru chūgoku kodai* 多民族社会の軍事統治: 出土史料が語る中国古代, 1–27. Kyoto: Kyōto Daigaku Gakujutsu Shuppankai.
- Hanshu* 漢書 [Documents of the Han]. 1962. Composed by Ban Gu 班固 (32–92 CE). Beijing: Zhonghua shuju.
- Hinsch, B. 1998. "Women, kinship, and property as seen in a Han dynasty will." *T'oung Pao* 84.1, 1–20.
- . 2011. *Women in early imperial China*. 2nd ed. Lanham, MD: Rowman & Littlefield.
- Hou Hanshu* 後漢書 [Documents of the Later Han]. 1965. Composed by Fan Ye 范曄 (398–445 CE). Beijing: Zhonghua shuju.
- Hsing, I-tian. 2014. "Qin-Han census and tax and corvée administration: Notes on newly discovered materials." In Y. Pines, G. Shelach, L. Falkenhausen, and R. D. S. Yates (eds.), *Birth of an empire: The state of Qin revisited*. Berkeley, CA: University of California Press.
- Hsu, C. 1980. *Han agriculture: The formation of the early Chinese agrarian economy (206 BC–AD 220)*. J. L. Dull (ed.). Seattle, WA: University of Washington Press.
- Huang, H. T. 2000. *Science and civilisation in China*. Vol. 6, *Biology and biological technology*. Part V, *Fermentations and food science*. Cambridge: Cambridge University Press.
- Hulsewé, A. F. P. 1985. *Remnants of Ch'in law: An annotated translation of the Ch'in legal and administrative rules of the 3rd century BC discovered in Yün-Meng Prefecture, Hu-Pei Province, in 1975*. Leiden: Brill.
- Hung, W. 1995. *Monumentality in early Chinese art and architecture*. Stanford, CA: Stanford University Press.
- Kiser, E. and Y. Cai. 2003. "War and bureaucratization in Qin China: Exploring an anomalous case." *American Sociological Review* 68.4, 511–539.
- Korolkov, M. 2012. "Greeting tablets' in early China: Some traits of the communicative etiquette of officialdom in light of newly excavated inscriptions." *T'oung Pao* 98.4/5, 295–348.
- . 2016. "Calculating crime and punishment: Unofficial law enforcement, quantification, and legitimacy in early imperial China." In "The New Ancient Legal History." Special issue, *Critical Analysis of Law* 3.1, 70–86.
- . 2020. "Empire-building and market-making at the Qin frontier: Imperial expansion and economic change, 221–207 BCE." PhD diss., Columbia University.
- . 2021. "Between command and market: Credit, labour, and accounting in the Qin Empire (221–207 BCE)." In E. Sabattini and C. Schwermann (eds.), *Between command and market: Economic thought and practice in Early China*, 160–241. Leiden: Brill.

- Korolkov, M. and A. Hein. 2020. "State-induced migration and the creation of state spaces in early Chinese empires: Perspectives from history and archaeology." *Journal of Chinese History*, 1–23. <https://doi.org/10.1017/jch.2020.45>.
- Kost, C. 2017. "Heightened receptivity: Steppe objects and steppe influences in royal tombs of the Western Han dynasty." *Journal of the American Oriental Society* 137.2, 349–381.
- Kuhn, D. 1995. "Silk weaving in ancient China: From geometric figures to patterns of pictorial likeness." *Chinese Science* 12, 77–114.
- Leederose, L. 2000. *Ten thousand things: Module and mass production in Chinese art*. Princeton, NJ: Princeton University Press.
- Lee Kim, M. 2016. "Discrepancy between laws and their implementation: An analysis of granaries, statutes, and rations during China's Qin and Han periods." *Journal of the Economic and Social History of the Orient* 59.4, 555–589.
- Lewis, M. E. 2006. *The construction of space in early China*. Albany, NY: State University of New York Press.
- . 2007. *The early Chinese empires: Qin and Han*. Cambridge, MA: Belknap Press of Harvard University Press.
- . 2009. "Gift circulation and charity in the Han and Roman empires." In W. Scheidel (ed.), *Rome and China: Comparative studies in ancient world empires*, 121–136. Oxford: Oxford University Press.
- . 2015a. "Early imperial China, from the Qin and Han through Tang." In A. Monson and W. Scheidel (eds.), *Fiscal regimes and the political economy of premodern states*, 282–307. Cambridge: Cambridge University Press.
- . 2015b. "Public spaces in cities in the Roman and Han Empires." In W. Scheidel (ed.), *State power in ancient China and Rome*, 204–229. Oxford: Oxford University Press.
- Li, Y., M. J. Storzum, X. Wang, and W. Guo. 2017. "Early irrigation and agropastoralism at Mohuchahangoukou (MGK), Xinjiang, China." *Archaeological Research in Asia* 12, 23–32.
- Li Zhenhong 李振宏. 2003. *Juyan Han jian yu Han dai shehui* 居延漢簡與漢代社會 [The Han documents from Juyan and the Han society]. Beijing: Zhonghua shuju.
- Liu Xinning 劉欣寧. 2007. *You Zhangjiashan Han jian 'Ernian lüling' lun Han chu de jicheng zhidu* 由張家山漢簡《二年律令》論漢初的繼承制度 [A study of the inheritance system during the early Han period based on the "Statutes and Ordinances of the Second Year" on bamboo slips from Zhangjiashan]. Taipei: Guoli Taiwan daxue.
- Liu, Y. 2019a. "Emblems of power and glory: The Han-period Chinese lacquer wares discovered in the borderlands." In P. Frick and A. Kieser (eds.), *Production, distribution and appreciation: New aspects of East Asian lacquer ware*, 30–63. Leiden: Brill.
- . 2019b. "Han-period official lacquers excavated from archaeological sites." In P. Frick and A. Kieser (eds.), *Production, distribution and appreciation: New aspects of East Asian lacquerware*, 152–195. Leiden: Brill.
- Liu Zenggui 劉增貴. 1980. *Han dai hunyin zhidu* 漢代婚姻制度 [The marriage system of the Han era]. Taipei: Huashi chubanshe.
- Loewe, M. 1967. *Records of Han administration*. 2 vols. Cambridge: Cambridge University Press.
- . 1974. *Crisis and conflict in Han China, 104 BC to AD 9*. London: Allen & Unwin.
- . 1985. "Attempts at economic co-ordination during the Western Han dynasty." In S. R. Schram (ed.), *The scope of state power in China*, 237–267. London: School of Oriental and African Studies.
- . 1992. "The imperial tombs of the Former Han dynasty and their shrines." *T'oung Pao* 78.4/5, 302–340.
- . 1999. "The imperial way of death in Han China." In J. P. McDermott (ed.), *State and court ritual in China*, 81–111. Cambridge: Cambridge University Press.
- . 2004. *The men who governed Han China: Companion to a biographical dictionary of the Qin, Former Han and Xin periods*. Leiden: Brill.

- . 2010. “Social distinctions, groups and privileges.” In M. Nylan and M. Loewe (eds.), *China’s early empires: A re-appraisal*, 296–307. Cambridge: Cambridge University Press.
- . 2015. “The tombs built for Han Chengdi and migrations of the population.” In M. Nylan, G. Vankeerberghen, and M. Loewe (eds.), *Chang’an 26 BCE: An Augustan age in China*, 201–217. Seattle, WA: University of Washington Press.
- . 2017. “Displaced persons in Han China and the so-called ‘Mausoleum Towns.’” In T. O. Höllmann, S. Müller, and A. Selbitschka (eds.), *Über den Alltag hinaus: Festschrift für Thomas O. Höllmann zum 65. Geburtstag*, 107–120. Wiesbaden: Harrassowitz.
- Luo, L., X. Wang, J. Liu, H. Guo, R. Lasaponara, W. Ji and C. Liu. 2017. “Uncovering the ancient canal-based *tuntian* agricultural landscape at China’s northwestern frontiers.” *Journal of Cultural Heritage* 23, 79–88.
- Ma, T. W. 2017. “Scribes, assistants, and the materiality of administrative documents in Qin-Early Han China: Excavated evidence from Liye, Shuihudi, and Zhangjiashan.” *T’oung Pao* 103.4–5, 297–333.
- Miyake Kiyoshi 宮宅潔. 2013. “Han dai guanliao zuzhi de zuixia ceng: ‘guan’ yu ‘min’ zhijian” 漢代官僚組織的最下層: “官” 與 “民” 之間 [The lowest tier of the Han bureaucratic organization: Between ‘officials’ and ‘people’]. *Zhongguo gudai falü wenxian yanjiu* 中國古代法律文獻研究, no. 7, 127–161.
- Nienhauser, W. H., ed. 1994. *The Grand Scribe’s records*. Vol. 1, *The basic annals of Pre-Han China*. Bloomington, IN: Indiana University Press.
- . 2019. *The Grand Scribe’s records*. Vol. 11, *The memoirs of Han China*, Part 4. Bloomington, IN: Indiana University Press.
- Nylan, M. 2005. “Toward an archaeology of writing: Text, ritual, and the culture of public display in the classical period (475 BCE–220 CE).” In M. Kern (ed.), *Text and ritual in Early China*, 3–49. Seattle, WA: University of Washington Press.
- . 2010. “Administration of the family (*Qihuai bisi* 齊懷必死).” In M. Nylan and M. Loewe (eds.), *China’s early empires: A re-appraisal*, vol. 67, 266–295. Cambridge: Cambridge University Press.
- Pirazzoli-t’Serstevens, M. 2010. “Urbanism.” In M. Nylan and M. Loewe (eds.), *China’s early empires: A re-appraisal*, 169–185. Cambridge: Cambridge University Press.
- Qianfu lun jian jiaozheng* 潛夫論箋校正 [*Comments of a Recluse with collated commentaries*]. Composed by Wang Fu 王符 (ca. 85–163 CE). Collation of commentaries by Wang Jipei 汪繼培 and Peng Duo 彭鐸. Beijing: Zhonghua shuju, 1997.
- Quan Hou Han wen* 全後漢文 [*Complete Later Han prose*]. Compiled by Yan Kejun 嚴可均 (1762–1843). Vol. 2 of *Quan shanggu sandai Qin Han Sanguo Liuchao wen* 全上古三代秦漢三國六朝文. 9 vols. Taipei: Shijie shuju, 1969.
- Rawson, J. 1998. “Ewige Wohnstätten: Die Gräber des Königs von Nan Yue und der kaiserlichen Prinzen in Ostchina.” In M. Prüch (ed.), *Schätze für König Zhao Mo: Das Grab von Nan Yue*, 80–95. Heidelberg: Umschau/Braus.
- . 1999. “The eternal palaces of the Western Han: A new view of the universe.” *Artibus Asiae* 59.1/2, 5–58.
- . 2012. “The Han Empire and its northern neighbours: The fascination of the exotic.” In J. C. S. Lin (ed.), *The search for immortality: Tomb treasures of Han China*, 23–36. New Haven: Yale University Press.
- Sanft, C. 2019. *Literate community in early imperial China: The northwestern frontier in Han times*. Albany NY: State University of New York Press.
- Scheidel, W. 2009. “The monetary systems of the Han and Roman Empires.” In W. Scheidel (ed.), *Rome and China: Comparative studies in ancient world empires*, 137–207. Oxford: Oxford University Press.
- . 2017. “Slavery and forced labour in Early China and the Roman world.” In H. J. Kim, F. Vervaet, and S. Adalı (eds.), *Eurasian empires in antiquity and the early Middle Ages: Contact and*

- exchange between the Graeco-Roman World, Inner Asia and China*, 133–150. Cambridge: Cambridge University Press.
- Selbitschka, A. 2015a. “Early Chinese diplomacy: ‘Realpolitik’ versus the so-called tributary system.” *Asia Major* 28.1, 61–114.
- . 2015b. “Miniature tomb figurines and models in pre-imperial and early imperial China: Origins, development and significance.” *World Archaeology* 47.1, 20–44.
- . 2018a. “Genuine prestige goods in mortuary contexts: Emulation in polychrome silk and Byzantine *solidi* from northern China.” *Asian Perspectives* 57.1, 2–50.
- . 2018b. “Sacrifice vs. sustenance: Food as a burial good in late pre-imperial and early imperial Chinese tombs and its relation to funerary rites.” *Early China* 41, 179–243.
- Shangqiu diqu wenhua ju 商丘地区文化局 and Yongcheng xian wenhua guan 永城县文化馆. 1990. “Henan Yongcheng Qian Yao Handai shishi mu” 河南永城前窑汉代石室墓 [A Han-era stone-chamber tomb from Qian Yao, Yongcheng, Henan]. *Zhongyuan wenwu* 中原文物, no. 1, 7–12.
- Shiji 史記 [The Scribe’s Records]. 1959. Composed by Sima Qian 司馬遷 (145 or 135–ca. 87 BCE). Beijing: Zhonghua shuju.
- Shu jin shihua bianxie zu 蜀锦史话编写组. 1979. *Shu jin shihua* 蜀锦史话 [A history of Shu brocade]. Chengdu: Sichuan renmin chubanshe.
- Shuihudi Qin mu zhujian zhengli xiaozu 睡虎地秦墓竹简整理小组. 1990. *Shuihudi Qin mu zhujian* 睡虎地秦墓竹简 [Bamboo slips from a Qin tomb at Shuihudi]. Beijing: Wenwu chubanshe.
- Sterckx, R. 2015. “Ideologies of the peasant and merchant in Warring States China.” In Y. Pines and M. Kern (eds.), *Ideology of power and power of ideology in early China*, 211–248. Leiden: Brill.
- Su Weiguo 苏卫国. 2010. *Qin Han xiangting zhidu yanjiu: Yi xiangting geju de zhongshi wei zhongxin* 秦汉乡亭制度研究: 以乡亭格局的重释为中心 [A study on the Qin and Han system of districts and guard posts: With a focus on the spatial distribution of districts and guard posts]. Harbin: Heilongjiang renmin chubanshe.
- Swann, N. L., 1950. *Food and money in ancient China: The earliest economic history of China to AD 25: Han Shu 24 with related texts, Han Shu 91 and Shih-Chi 129*. Princeton, NJ: Princeton University Press.
- Thote, A. 2003. “Lacquer craftsmanship in the Qin and Chu kingdoms: Two contrasting traditions (late 4th to late 3rd century BC).” *Journal of East Asian Archaeology* 5.1, 337–374.
- van Ess, H. 1993. *Politik und Gelehrsamkeit in der Zeit der Han (202 v. Chr.–220 n. Chr.): Die Alttext/Neutext-Kontroverse*. Wiesbaden: Harrassowitz.
- . 2012. “The ethos of the envoy and his treatment by the enemy in Han history.” *Crossroads* 5, 27–43.
- . 2014. *Politik und Geschichtsschreibung im alten China: Pan-Ma i-t’ung* 班馬異同. 2 vols. Wiesbaden: Harrassowitz.
- von Glahn, R. 2016. *The economic history of China: From antiquity to the nineteenth century*. Cambridge: Cambridge University Press.
- . 2020. “Modalities of the fiscal state in imperial China.” *Journal of Chinese History* 中國歷史學刊 4.1, 1–29.
- Wagner, D. B. 2001. *The state and the iron industry in Han China*. Copenhagen: Nordic Institute of Asian Studies.
- Wang, H. 2004. *Money on the Silk Road: The evidence from eastern Central Asia to c. AD 800, including a catalogue of the coins collected by Sir Aurel Stein*. London: British Museum Press.
- . 2007. “Official salaries and local wages at Juyan, north-west China, first century BCE to first century CE.” In J. Lucassen (ed.), *Wages and currency: Global comparisons from antiquity to the twentieth century*, 59–76. Bern: Peter Lang.

- Wang Wei 王偉. 2014. “‘Jihu’ yu ‘jianhu’: Liye Qin jian suojian Qianling bianhu shuliang” “積戶”與“見戶”: 里耶秦簡所見遷陵編戶數量 [‘Collected Households’ and ‘Actual Households’: Household Numbers in the Qin Documents from Liye]. *Sichuan wenwu* 四川文物, no. 2, 62–67.
- Wang Zijin 王子今. 2018. “Dong Han Luoyang de guojihua shichang” 东汉洛阳的国际化市场 [The internationalization of the market in Luoyang during Later Han times]. *Zhongyuan wenhua yanjiu* 中原文化研究, no. 1, 15–21.
- Watson, B. 1993. *Records of the Grand Historian: Han dynasty II*. Revised ed. New York, NY: Columbia University Press.
- Wilbur, C. M. 1943. *Slavery in China during the Former Han dynasty, 206 BC–AD 25*. Chicago, IL: Field Museum of Natural History.
- Xie, Y. and M. Brown. 2015. “Between heaven and earth: Dual accountability in Han China.” *Chinese Journal of Sociology* 1.1, 56–87.
- Xu Jianchang 许建强 and Qiu Xuefeng 邱雪峰. 2014. “Anhui Shouxian Shouchun zhen jisheng fuwu zhan Dong Han mu yiwu ji xiangguan wenti” 安徽寿县寿春镇计生服务站东汉墓遗物及相关问题. [On the finds from a Later Han tomb found at the childbirth service station site in Shouchunzhen, Shouxian, Anhui, and related questions]. *Dongnan wenhua* 东南文化, no. 3, 46–52.
- Yamada, Katsuyoshi 山田勝芳. 1993. *Shin Kan zaisei shūnyū no kenkyū* 秦漢財政收入の研究 [A study on Qin and Han fiscal revenue]. Tokyo: Kyūko shoin.
- Yantie lun jiaozhu 鹽鐵論校注 [The Discourses on Salt and Iron with collated commentaries]. 1992. Composed by Huan Kuan 桓寬 (first century BCE). Commentaries compiled by Wang Liqi 王利器. Beijing: Zhonghua shuju.
- Yang, L. S. 1957. “Economic justification for spending: An uncommon idea in traditional China.” *Harvard Journal of Asiatic Studies* 20.1/2, 36–52.
- Yates, R. D. S. 2014. “The changing status of slaves in the Qin-Han transition.” In Y. Pines, G. Shelach, L. Falkenhausen, and R. D. S. Yates (eds.), *Birth of an empire: The state of Qin revisited*, 206–223. Berkeley, CA: University of California Press.
- Yili zhushu 仪礼注疏 [Annotated edition of the Book of Etiquette and Ceremonial]. 1999. Composed by Zheng Xuan 鄭玄 (127–200 CE). Edited by Li Xueqin 李学勤. Beijing: Beijing daxue chubanshe.
- Yu Xi 喻曦 and Li Lingfu 李令福. 2012. “Xi Han Changling yi de shezhi ji qi yingxiang” 西汉长陵邑的设置及其影响 [The foundation of the town of Changling and its impact]. *Shaanxi Shifan Daxue xuebao* 陕西师范大学学报 41.2, 86–91.
- Yü, Y. 1967. *Trade and expansion in Han China: A study in the structure of Sino-barbarian economic relations*. Berkeley CA: University of California Press.
- . 1977. “Han China.” In K. C. Chang (ed.), *Food in Chinese culture: Anthropological and historical perspectives*, 53–83. New Haven, CT: Yale University Press.
- Zheng, Y. 2008. “Concerning the viewers of Han mortuary art.” In N. N. Richard (ed.), *Rethinking re-carving: Ideals, practices, and problems of the “Wu family shrines” and Han China*, 92–109. Princeton, NJ: Princeton University Art Museum.
- Zhongguo shehui kexueyuan kaogu yanjiusuo Hancheng dui 中国社会科学院考古研究所汉城对, ed. 1994. “Han Chang’an cheng yaozhi fajue baogao” 汉长安城窯址发掘报告 [Excavation report of the kiln sites of Han Chang’an]. *Kaogu xuebao* 考古学报, no. 1, 99–129.
- Zhou Supin 周苏平 and Wang Zijin 王子今. 1985. “Han Chang’an cheng xibeiqu taoyong zuofang yizhi” 漢長安城西北區陶俑作坊遺址 [Finds from a production site of ceramic figurines in the northwestern part of the Han-era city of Chang’an]. *Wenbo* 文博, no. 3, 1–4.

Excursus

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7 Constituting Local and Imperial Landscapes

I Introduction

The economic actors discussed in the previous section inhabited diverse physical geographies, from the riverine central plains of China and the forests of South Asia to the desert-steppe of northern Mesopotamia. Delimited by mountain ranges, coastlines, rivers, and deserts, these landscapes are often conceptualized as the backdrops or contexts for human activity – the spaces inside of which humans lived and the barriers that they had to cross in order to interact. Descriptions of the physical geography of Afro-Eurasia are helpful in imagining the space and are therefore a valuable component of historical inquiry.¹ Landscape, however, is more than just physical geography. According to the definition of Tim Ingold, “the landscape is the world as it is known to those who dwell therein, who inhabit its places and journey along the paths connecting them.”² Landscapes are at once objective (physical) and subjective (experiential). They are not simply the backdrop for human ingenuity; they are participants in complex systems of human-environment interaction.

Human-environment interaction lies at the heart of a wide range of economic processes. Land used for agricultural production is entwined with the development of centralized power, while the extraction and mobilization of other natural resources expands this process beyond primary production.³ Control of movement through territories and across oceans plays a critical role in the development of pathways of connectivity that shape distribution as well as consumption. Representational narratives of landscapes turn physical places into symbols – transforming physical geography and the built environment into markers of territorial control and political power.⁴

Landscapes are constituted, in part, by nonhuman agents.⁵ Geological formations like mountains or ecological zones like deserts exert pressure on humans and other animals, and as such, have a hand in shaping behavior patterns. This idea of nonhuman agency, which grew out of the material turn in archaeology, pushes back against the perception that the physical environment was simply a container for historical processes and instead recognizes that the physical world can ‘act’ rather than just be ‘acted upon.’⁶ This ability to act, however, does not imply unbounded

1 Cunliffe 2015, ch. 1 for a recent example of a broad overview of Eurasian geographies.

2 Ingold 1993, 156.

3 Marston 2017.

4 Rosenzweig and Marston 2018, 91.

5 Walsh 2008.

6 Latour 2005; Jones and Cloke 2008.



Map 1: Regions under discussion. Region 1 – Eastern Desert of Egypt; Region 2 – Desert-steppe of northern Mesopotamia; Region 3 – Piedmonts in Central Asia; Region 4 – Forests of South Asia; Region 5 – Hexi ‘corridor.’ (Map generated using Natural Earth datasets).

power, nor does it mean that the physical environment is deterministic.⁷ Quite the contrary, recent work on agency is predicated on the idea of relationality: that various agents exist and function within networks. Thus, the ability of a desert or forest to ‘act’ is constrained by the fact that other agents in the system have the ability to ‘re-act’ – and not all will necessarily react in the same way.⁸ A formulation of relational agency that has gained traction among landscape archaeologists is the concept of *affordance*. Affordances are the opportunities (positive or negative) that a given environment can offer to other agents, for example individuals or communities.⁹

One method for studying the differential affordances offered to various communities comes from the field of political ecology, which provides a framework for thinking about the intersection of political factors with human-environment systems.¹⁰ Although traditionally focused on the political dimensions of environmental change,¹¹ political ecology and related approaches offer methodologies for considering the intersection of social context and natural factors that influence human behavior.¹² Thinking in terms of political ecology is useful because it allows us to weigh both ‘natural’ and ‘cultural’ factors while highlighting the importance of political context. This methodology combines insights from social sciences and humanities and allows us to avoid blunt essentialist or deterministic approaches to the physical world while still creating space for comparative analysis. It also creates space for discussing how factors like environmental change and political realignment can restructure human behavior without denying that humans are themselves engaged in a never-ending recursive process of reshaping their physical worlds.

We begin this chapter with three observations about human-environment interaction and economic history in the context of this project: (1) Although we reject totalizing models of long-distance trade, patterns of human mobility both within and between regions are critical to understanding economic developments in Afro-Eurasia, with local patterns of movement playing a significant role in these processes. (2) The contours of such mobilities come into high relief in ecological transition zones or along political frontiers, where particular – and particularly embedded – forms of exploitation played a significant role. (3) Despite the importance of

⁷ On landscape agency, usually approached through the question of affordances, see recently Heras-Escribano and de Pinedo-García 2018.

⁸ E.g., human modifications to landscapes stretch far back in history (Butzer 1990).

⁹ Developed first in the field of environmental psychology (Gibson 1977; 1979) applied more recently to landscape archaeology and particularly quantitative studies of landscapes (Gillings 2012; Llobera 1996).

¹⁰ For an anthropological-historical consideration of political ecology as it relates to imperial power, see Rosenzweig and Marston 2018.

¹¹ E.g., Vayda and Walters 1999.

¹² Brite 2016, 5–6.

mobility, these regions were never simply spaces to be crossed but instead afforded a variety of opportunities for exploitation.

Building from these observations, we have selected five regions that highlight different patterns of short- and medium-distance mobilities while also highlighting various exploitation schemes (Map 1). We begin in Egypt with a consideration of movement across both desert and ocean. Next, we move to two regions where mobile pastoralism shaped movement patterns: the desert-steppe of Northern Mesopotamia and the foothills of Central Asia's Pamir-Altay mountains. Then, we consider the role of movement in and through a specific ecological zone: South Asia's forests. We conclude with a discussion of one of Afro-Eurasia's classic terrestrial 'trade corridors' in northwestern China.

II The Eastern Desert of Egypt

At a global scale, the Eastern Desert of Egypt divides two great ocean systems: the Mediterranean via its Nile extension and the Indian Ocean via its Red Sea extension. It is a forbidding landscape. Annual precipitation ranges from three to 25 mm, and when it does come, the rain falls in torrents that cause violent flash floods.¹³ At the same time, rain and the Nile feed an aquifer close enough to the surface that it occasionally breaks through in springs (though these are rare), and wells can be dug to tap it. Furthermore, the Red Sea Hills, which run parallel to the coast, contain significant mineral wealth, including gold and decorative stones. The desert could not be ignored by the inhabitants of the Nile Valley, but they were never comfortable in it. To the Egyptians of the Pharaonic period, the desert was the 'Red Land,' a dangerous counterpoint to the comfortable 'Black Land' of the valley. To the Greeks and Romans, it was a wasteland of scorching sun, inhabited only by strange people who were barely human.¹⁴ But the desert inhabitants were human, and they played a variety of roles in the interoceanic trade that crossed their homeland.

We know little about the inhabitants of the Eastern Desert in our period.¹⁵ They left no archaeological trace datable to the Ptolemaic or early Roman periods, so we have to rely on literary and documentary records written by others and on ethnographic analogy with the modern inhabitants, the Beja.¹⁶ The latter have been de-

¹³ Climate: Sidebotham, Hense, and Nouwens 2008, 22–24; Sidebotham 2011, 7–13; Sidebotham and Gates-Foster 2019, 13–18.

¹⁴ Reger 2017.

¹⁵ Barnard 2019; Lassányi 2012.

¹⁶ Barnard (2019) summarizes these sources, gives further literature, and discusses the use of ethnographic analogy. For surveys of historical and documentary sources from the Hellenistic period, see Gates-Foster 2012b; for documentary sources from the Roman period, see Cuvigny 2014.

scribed as “multi-resource nomads,” shifting between settled and mobile life ways according to circumstance, and we should expect similar flexibility in the past.¹⁷ In addition to small-scale agriculture, mobile pastoralism would have played a significant role. In the modern period, the Beja moved seasonally from north to south following the rains, although the precise location and timing of the rain was unpredictable so movement patterns were flexible. They also went to work in the Nile Valley during harvest time.¹⁸ It would be reasonable to expect similar patterns of movement and close interconnection with settled communities in antiquity.

Fishing on the coast was also an important subsistence strategy. Greek writers describe *ichthyophagoi* (‘fish-eaters’) as exotic and uncivilized.¹⁹ Our longest description comes from Agatharchides, writing in the second century BCE, who describes the *ichthyophagoi* as a sort of ‘noble savage,’ happy because they have simple wants that are fulfilled with little effort. Intriguingly, he also describes a very particular relationship with the landscape.²⁰ Places where the water is deep by the shore and sandy beaches, that is, places where a Mediterranean sailor could anchor their ship or drag it onto shore, are “hostile to their way of life.”²¹ Instead, they live in places where the coast is rocky and interrupted by deep, jagged ravines that are flooded at high tide. By building porous weirs out of stones, they trap fish left stranded when the tide goes out.²² Agatharchides describes this method as primitive but also highly productive. By the second century CE, however, at least one self-identified *ichthyophagos* was using a small fishing boat. We only know this because he needed permission from a tax collector to move it from one harbor to another (a requirement probably meant to control smuggling) and submitted his request on an ostrakon.²³ Archaeological evidence from Myos Hormos and Berenike suggests that the part of the community engaged in fishing was distinct from and less ‘Graeco-Roman’ than the part engaged in shipping. At the same time, most of the fishing equipment was similar to that found in the Mediterranean.²⁴ If these remains do represent indigenous communities, their fishing methods were much more diverse than those described by Agatharchides. There might have been a shift from the second century BCE, or Agatharchides might simply have ignored the less exotic and sophisticated techniques to portray the *ichthyophagoi* as barbaric. What is clear is that the affordances offered by the Red Sea coast varied depending not only on one’s goals, fishing vs. shipping, but also on the technology and techniques available.

17 Barnard 2019, 399.

18 Barnard 2019, 399–400.

19 Ray 2003, 49–51 summarizes the literary evidence. See also Casson 1989, 97–100.

20 Agatharchides *De mari Erythraeo* (Agath. *De mari*) 5. 32–34.

21 Agath. *De mari* 5. 32a.

22 Agatharchides describes a similar technique used by the inhabitants of the Babylonian coast, with the difference that they build a barrier with one-way gates out of reeds (5. 50).

23 Cuvigny 2014, 171–173.

24 Thomas 2012.

For imperial societies, the Red Sea's most important affordance was shipping, although they happily ate the seafood as well. Berenike and Myos Hormos, both Ptolemaic foundations of the third and second centuries BCE respectively, were the main ports in our period.²⁵ The locations of ports along the coast are related both to local geomorphological conditions and to the larger wind and current regime of the Red Sea. Berenike, the southernmost, illustrates the relative importance of shipping affordances. It was sheltered from the strong, south-flowing along-shore current by Ras (cape) Benas, and the wadi mouth that formed its harbor disgorged sand that, while threatening to silt up the harbor, also prevented the growth of a coral reef that would otherwise have cut the harbor off from the open ocean. At the same time, it had few water sources nearby and its hinterland was not well-suited at all to agriculture.²⁶ Berenike was a port first and foremost.

The impact of the winds and currents of the Red Sea is more controversial. Strabo writes that the southern location of Berenike was a response to difficult sailing conditions in the northern part of the Red Sea,²⁷ but this has been challenged by scholars arguing that navigation in the Red Sea was not as difficult, and the Nile not as easy, as generally supposed.²⁸ In the northern part of the Red Sea, north of 18°–20°, the predominant winds blow from the north year-round, but the southern two-thirds of the sea are influenced by the monsoon. From May or June to September, when the monsoons in the Indian Ocean blow from the southwest, the winds throughout the Red Sea blow from the north and the current flows south, providing favorable conditions for outbound voyages throughout the sea. From November to March, when the monsoons blow from the northeast, the winds in the southern Red Sea blow from the south. Although these winds stop short of Berenike, surface currents also flow from south to north in the winter, reaching all the way to Myos Hormos, ca. 270 km to the north. Sailors setting out from India in December (as recommended by Pliny the Elder),²⁹ could ride the monsoons west to the Bab al-Mandab Strait and then the Red Sea winds and currents north until roughly the end of March. While Hellenistic and Roman sailors were capable of sailing against the wind, this would have been more difficult for the largest ships, such as those carrying elephants for the Ptolemaic army and pepper for the Roman market.³⁰ Again, the affordances offered by the sea depend not just on the environment but on the goals and technology of those who interact with it.

²⁵ Cobb 2018, 29–30, 52–56.

²⁶ Sidebotham 2011, 9–13; Kotarba-Morley 2019.

²⁷ Strabo 17. 1. 45.

²⁸ Cooper 2011 for the Red Sea and Nile; Whitewright 2007 for the Red Sea; for the Red Sea and Indian Ocean together, see Cobb 2018, 128–148; Seland 2011.

²⁹ Pliny the Elder *Naturalis historia* (Plin. *HN*) 6. 106.

³⁰ De Romanis (2015, 123–124) emphasizes the size of ships in navigability. For the difficulties faced by elephant carriers in the Red Sea, see Agath. *De mari* 5. 85. For the size of Indian Ocean ships, see Cobb 2018, 84–90.

This annual cycle would have imparted a distinct seasonal rhythm to movement across the Eastern Desert and to life in the Red Sea ports.³¹ Departures would have peaked in July and the surrounding months. Arrivals from East Africa would have peaked in November and December. Those from India peaked in December and January, possibly continuing through March. In September and May, the winds in the Red Sea were variable, so sailing would have been avoided.³² The port towns would have bustled during these arrival and departure seasons, attracting support workers, including porters and long-distance transporters but presumably others providing secondary goods and services as well. Sailors and merchants who had arrived in the winter might have stayed until summer, when they departed on their return journey. Not only would the size of the population have fluctuated seasonally, different people would be constantly coming and going. Without a stable core of inhabitants, these port towns would have been very different places from cities elsewhere in the Mediterranean. Early Roman Berenike, for example, never developed a base of economic support and remained reliant on Nile imports for basic goods such as food and textiles. Furthermore, no early Roman cemetery has been found, despite years of archaeological research. While many people lived in Berenike, few would have considered it home.³³

The Eastern Desert itself was important to imperial societies both as a space between the Nile and the Red Sea that had to be crossed and as a source of mineral wealth. The two were interconnected. Approximately 500 km upstream from the Delta the Nile bends to the east, shortening the distance between the valley and the coast by about 50 km. This is also the point where sailing upstream becomes more difficult since the northerly winds are no longer aligned with the direction of travel.³⁴ Between this curve and the Red Sea lies the northernmost concentration of gold deposits in the Red Sea Hills,³⁵ so mining and transit trade occupied roughly the same area. Epigraphic evidence from the second century BCE attests to Ptolemaic officials in charge of both mining and trade,³⁶ and in the first century CE, a single Roman official oversaw both the roads and the mines.³⁷

Koptos, on the easternmost part of the Nile bend and at the mouth of a wadi running east, was the primary interface between the desert and the Nile Valley.³⁸

31 We set aside the question of a geographic distinction between exports and imports. Some have argued that exports would have gone through northern ports and imports through southern ports. While this would be a logical response to the landscape, what evidence we have suggests that the southern ports were much more important than the northern ones in our period. For a summary of the debate, see Cobb 2018, 133–135.

32 Sidebotham and Gates-Foster 2019, 18–19.

33 Sidebotham 2011, 78.

34 Cooper 2011, 197–198.

35 Faucher 2018, 50–52; Harrell 2019 for mining in general.

36 Gates-Foster 2012b, 200–201.

37 Gates-Foster 2012a, 742.

38 Pantalacci 2018; Rathbone 2002.

The Egyptian god of Koptos, Min, was associated with desert nomads and the eastern trade, and Strabo describes the city as “shared by the Egyptians and Arabs (i.e., nomads).”³⁹ However, this was not inevitable. In the third century BCE, when the Ptolemies were establishing ports, mines, and fortified roads in the Eastern Desert, the most important route seems to have run between Berenike and Edfu, further south. The road to Edfu was abandoned, however, at the end of the century in favor of routes leading to Koptos, probably because a major rebellion threatened Ptolemaic control of the more southern route.⁴⁰ Subsequently, Koptos was the fiscal center of the Red Sea-Nile trade routes. In the Roman period, Berenike and Myos Hormos were officially designated ports with customs posts, and taxes on imports were assessed at Koptos.⁴¹ Koptos’s central position was certainly reinforced by its physical setting relative to the Nile and the Eastern Desert, but the geography of power, specifically Ptolemaic weakness farther south, also played an important role.

In the desert itself, the first mining settlements and roads were established under Ptolemy I but expanded considerably under Ptolemy II, who founded several ports along the Red Sea to gain access to war elephants.⁴² After the Roman conquest, probably in response to an increase in Indian Ocean trade, the Roman army built more wells and cisterns, but the major expansion of road infrastructure came in the late first and early second century CE, when a network of fortifications, wells, and cisterns was established.⁴³ These lined roads that were unpaved but marked by cairns and windrows of small stones cleared from the roadbed.⁴⁴ The roads followed wadis running east-west between the Nile and the sea, routes that were heavily constrained by the physical landscape. Only the Via Nova Hadriana, connecting the ports to the newly founded city of Antinoopolis, deviated from this pattern, and it was little used by merchants. In contrast to most Roman roads, those of the Eastern Desert were not marked by milestones. The roads themselves, therefore, seem not to have had the same ideological function as normal Roman roads. In other parts of the Empire, the straightness, paving, and milestones of Roman roads inscribed empire and dominion onto the landscape.⁴⁵ Not so in the Eastern Desert.⁴⁶ Nevertheless, by the second century CE, port, mine, and road infrastructure were scattered throughout a triangular-shaped portion of the Eastern desert measuring almost 400 km on the Red Sea coast, 160 km along the northern, shorter route from the Nile to the sea, and 380 km along the longer, southern route.⁴⁷ The density of

³⁹ Strabo, 17. 1. 44; Pantalacci 2018, 8–10.

⁴⁰ Brun 2018, 144–145; Redon 2018, 40–43.

⁴¹ Rathbone 2002, 183–186.

⁴² Redon 2018; Cobb 2018, 28–60; Sidebotham 2011, 32–54.

⁴³ Brun 2018.

⁴⁴ Sidebotham 2011, 125–174; Sidebotham and Gates-Foster 2019, 19–23.

⁴⁵ Purcell 1990.

⁴⁶ Gates (2006) describes these roads as “hidden passages.”

⁴⁷ Brun 2018, fig. 19.

infrastructure in this zone varied, and the imperial control that it enabled is best visualized as a series of ribbons stretching across the desert rather than as a block of territory.⁴⁸

The establishment of mines, ports, and road infrastructure shaped movement in the desert, both for members of the imperial states traveling east-west and for the desert inhabitants, who had more reason to travel north-south.⁴⁹ The inhabitants of these places all had to be supplied in large part from the Nile, so traffic along these roads was multifaceted, consisting of supplies, extracted mineral wealth, and trade goods. For nonlocals, who did not know the desert, the infrastructure would have eased navigation.⁵⁰ Strabo (a champion of Roman infrastructure) wrote that, in previous times, merchants crossed the desert at night, navigating by the stars and carrying their own water, but now wells and cisterns have been built.⁵¹ Graffiti and dedications to Pan “of the good road” (among other epithets) attest to the trepidation with which travelers crossed the desert. It might be significant, then, that Pan disappears from the epigraphic record in the late first century CE,⁵² around the same time as the Flavian construction program.

East-west traffic represented a resource that the desert-dwellers could exploit in several ways. Because they would have been familiar with the desert, they could have acted as guides and perhaps monitored and protected the traffic.⁵³ Direct evidence for this from the Ptolemaic period is sparse,⁵⁴ but there is a strong possibility that, after the revolt of the Thebaid in the early second century BCE, Ptolemaic officials made arrangements with the desert-dwellers to oversee east-west traffic rather than managing it themselves.⁵⁵ Raiding was another way to exploit this traffic. Documentary evidence for hostile encounters with ‘barbarians’ peaks in the second century CE.⁵⁶ This is probably related to the increased militarization of the infrastructure, but the nature of the connection is not clear.⁵⁷ In the third century, the situation

48 Reger 2017, 135.

49 By focusing on movement, we pass over certain interactions between state-based people and the indigenous desert-dwellers. These include the possible employment of desert inhabitants as guards in Ptolemaic mines (Gates-Foster 2012b, 198), an “Arab” selling fish, an account of an indigenous fishmonger who has been robbed circulating among the guard posts, “barbarians” buying oil, and one making pots for a water wheel (Cuvigny 2014).

50 Sidebotham 2011, 139–140; Sidebotham and Gates-Foster 2019.

51 Strabo 17. 1. 45. On the other hand, Pliny the Elder, writing decades after Strabo, reports that nocturnal travel was normal (Plin. *HN* 6. 26. 103).

52 Reger 2017, 132.

53 Inscriptions honoring caravan leaders in Palmyra document this type of activity in a similar context.

54 The term is found on a recently discovered ostrakon from the second half of the third century BCE (Sidebotham and Gates-Foster 2019, 7).

55 Gates-Foster 2012b.

56 Cuvigny 2014, 173–184.

57 Cobb (2018, 102–105) cites the high volume of commercial traffic as the primary cause. Sidebotham and Gates Foster (2019, 37–38) speculate about a fiscal motive, while Brun (2018, 150) wond-

changed again, and we see ‘barbarian’ groups operating within the Roman military structure (although banditry did not cease altogether).⁵⁸ The documents mainly concern supply, but assuming these barbarians were securing the roads and mines as the soldiers in the second century did, they were benefiting from the imperial demand for goods coming from and across the Eastern Desert. Thus, the landscape provided desirable transit and extraction affordances to those embedded in imperial systems, generating traffic that itself became a valuable affordance to those living in the desert. Furthermore, this complex dynamic between geography, imperial power, and local economies is not unique to Egypt’s Eastern Desert.

III The Desert-Steppe of Northern Mesopotamia

Northern Mesopotamia’s Jezirah Plain, the territory between the Tigris and Euphrates rivers stretching northward to the Zagros, is (and was) a rugged desert steppe with scarce water resources and challenging conditions for rainfed agriculture.⁵⁹ By the first century CE, the landscape was dotted with the so-called caravan cities – places like Palmyra, Hatra, Edessa, Nisibis, and Dura-Europos – whose presence looms large in studies of ancient Silk Road trade and connectivity.⁶⁰ The cities, however, were much more than links in a trade network. They developed out of interactions between various communities of local residents and their ecologically marginal landscape, and rose to prominence alongside the burgeoning empires in the Mediterranean and Iran. The sudden importance of these cities in regional interaction networks beginning in the late Hellenistic period typifies the role of both natural and social features in responding to changing geopolitical pressures.

As far back as the Bronze Age, the communities living in Northern Mesopotamia comprised both sedentary and nomadic elements existing in a state of intense interaction and entanglement.⁶¹ These communities included settled village or city dwellers practicing small-scale agriculture, as well as their ‘tribal’ or nomadic neighbors, who moved generally north-south across the same steppe territory fol-

ers if an influx of precious goods attracted more raids and points out that increased traffic would have put pressure on existing water supplies. Cuvigny (2014, 183–184) suggests the increased Roman presence took precious resources from the desert-dwellers, and was therefore a threat as well as a temptation to raid. A connection with increased quarrying is also possible (Maxfield 2000, 434).

⁵⁸ Cuvigny 2014, 185–197.

⁵⁹ Palermo 2019, ch. 1 for a discussion of environmental conditions in Northern Mesopotamia.

⁶⁰ See, e.g., Millar 1998; Rostovtzeff 1932.

⁶¹ On the flexibility of these relationships, see Porter 2012, 13–14. For the idea of ‘dimorphic’ societies including both mobile and sedentary elements, see Rowton 1977, although the binarism implicit in this model is now frequently rejected.

lowing seasonal rainfall, raising sheep and goats.⁶² This pattern of pastoralism is different from the wide-ranging movement in the Great Eurasian Steppe or the camel-dependent ‘Bedouin’-type of Southern Arabia, where territories exploited by the mobile pastoralists were more distinct from those of their sedentary neighbors, and where as a result, links between the communities were of less structural importance. The social linkages that developed in Northern Mesopotamia were contingent on the complementary presence of both types of communities in a single shared landscape and enabled the resultant collective to make the fullest use of available resources.⁶³

Hatra, a fortified urban site with access to fresh water, was located at a junctural point between the northern and southern parts of the Jezirah and was well-connected to both through a dense network of paths.⁶⁴ Near both the Tigris and Euphrates rivers, it offered an opportunity to control riverine traffic as well. The urban center of Hatra emerged surprisingly quickly, beginning to develop into its monumentalized form only in the first century BCE and reaching its apex in the second century CE.⁶⁵ Its fluorescence occurred in the period of maximum Arsakid and Roman interest in the region, with the city itself coming to serve as a dominant monument in the desert steppe. Hatra proved remarkably resistant to direct foreign control, a trait that classical sources attributed to the city’s desert environment, which deprived would-be conquerors of necessary resources for a siege. And indeed, the city repelled at least three Roman sieges beginning with Trajan’s campaign in Mesopotamia in 117 CE. Hatra’s endurance, however, involved political factors as well. After the first confrontation with the Romans, the local dynasty aligned itself more closely with the Arsakid Empire, with the kings of Hatra remaining in Arsakid fealty until the rise of the Sasanian dynasty.⁶⁶

The city was not well regarded by classical authors, with Dio commenting that it was neither large nor prosperous, surrounded by a bleak desert.⁶⁷ It fell into decline after the third century CE so that by the time Ammianus Marcellinus visited a century later, he called it an “old city, positioned in an empty landscape.”⁶⁸ These assessments are at odds with the monumental character of the fortified city, which had a distinct cultic quality, including a central temple to the sun god Shamash.⁶⁹

⁶² Palermo 2019, 98.

⁶³ This configuration is often referred to as enclosed nomadism, but see Alizadeh 2010.

⁶⁴ Altaweel and Hauser 2004.

⁶⁵ Palermo 2019, 98; Sommer 2005, 356–365. See Dirven 2013, ch. 1 for an overview of scholarly perspectives on the origin of Hatra. There are some debates about the presence of an earlier city on the site, but archaeological evidence suggests that previous settlement was certainly not as extensive as the Arsakid-Roman period site.

⁶⁶ Sommer 2013. On post-Trajanic alignment of the local kings, see Gregoratti 2013.

⁶⁷ Cassius Dio 68. 31. 1.

⁶⁸ Ammianus Marcellinus 25. 8. 5.

⁶⁹ Dirven 2013.

The development and monumentalizing of this urban center has been connected by some scholars to its role in facilitating long-distance trade and by others to its status as a religious pilgrimage center.⁷⁰ Archaeological research has revealed an active hinterland surrounding Hatra in the eastern Jezirah, with evidence for nomadic activity as well as the intensification of village settlements beginning in the Arsakid period, which suggests widespread regional changes.⁷¹

Rather than interpreting the city as either a caravan or cult center, it is better understood within the context of its hinterland, as a focal point for interaction between local constituencies. This is true on a physical level, with the built structures of the urban core and its massive walls anchoring a new spatial arrangement that redefined how the wider landscape functioned. It both monumentalized and formalized the nomadic-sedentary interactions that defined the region. The name of the city itself suggests this, seeming to derive from the Arabic term meaning ‘to camp near perennial water.’⁷² Several of the more than 400 Aramaic inscriptions from the site make explicit reference to the overlapping communities present in the area and elucidate their patterns of interaction. The two communities mentioned most often are the Hatrenes (*ḥtry*), or city-dwellers, and the Arabs (*ʿrb*) – with ‘Arab’ here taken to refer not just to pastoralists but rather to the wider dimorphic hinterland population.⁷³ The kings who ruled over both groups were referred to not as the kings of Hatra, despite their seat in the city, but rather as the kings of the Arabs, suggesting a blurry divide between the urban center and its hinterland in an ethnocultural sense. Two legal inscriptions erected near the city’s entrances and detailing criminal penalties, meanwhile, mark an explicit legal distinction between the space inside of the city walls and that outside and further distinguish four groups of stakeholders to whom different legal penalties could apply: (1) the Hatrenes themselves; (2) all the inhabitants of *ʿrb*, which presumably means those in the hinterland; (3) all those who come and leave from Hatra (but do not dwell there); and (4) all those who live in Hatra, but who were not included in the category of the Hatrenes, so presumably residents with other ethnic ties.⁷⁴

Hatra was well situated to facilitate movement north-south from the Mesopotamian lowlands to the Armenian plateau, and east-west from Ktesiphon to the Mediterranean.⁷⁵ There is evidence for such movement in ancient descriptions of routes like the Peutinger Tablet, while recent archaeological assessments of ‘hollow ways’

⁷⁰ Kaizer 2006, 140 for bibliography.

⁷¹ Tucker and Hauser 2006, Hauser 1998.

⁷² *al-ḥaḍr* < *ḥaḍara*. On this, see Macdonald et al. 2015, 34.

⁷³ Macdonald 2003.

⁷⁴ H336, see Macdonald et al. 2015, 39; Kaizer 2006, 143 on the categories. The nonlocal elements referenced in the gate inscriptions, both the temporary visitors and the residents, likely included both traders and soldiers.

⁷⁵ Palermo 2019, 103–105.

attest to the same.⁷⁶ However, unlike other of the so-called ‘caravan cities’ like Palmyra, where inscriptions provide detail about the control and financing of trade activity, the Hatrene epigraphic corpus provides few such clues. Whether this reflects the lower importance of trade or the different nature of the epigraphic record is, unfortunately, unclear. The movement of troops through and around the city is better attested. Despite its Parthian orientation, Roman soldiers were occasionally present in the city, as attested by three Latin dedicatory inscriptions found in religious structures.⁷⁷ There is also a single Roman milestone dated to the Trajanic period found at the site of Karsi, located to the northwest of Hatra and connected to it by a well-attested route.⁷⁸ Judging by the assessments of this region by Cassius Dio and Ammianus Marcellinus, the Romans found this space unfriendly and forbidding, so such milestones may have been an attempt to make the locally known desert routes legible to outsiders, allowing imperial actors to move more easily and expand their direct hold on the land.

As it turned out, however, neither the Romans nor the Arsakids were able to gain such a direct hold. Instead, according to the Islamic historian al-Ṭabarī, in the twilight of the Arsakid Empire and under renewed Roman pressure, the local kings in Hatra consolidated their power, expanding briefly to control a broad region of Northern Mesopotamia before their defeat at the hands of the Sasanians.⁷⁹ The tumultuous frontier politics of Mesopotamia made the territory important for imperial interests in both the Roman and Arsakid world, but the local Arab communities were able to capitalize on the underlying patterns of movement that bound their territory together, drawing on a power base that covered both sedentary and pastoralist landscapes.

IV Piedmonts in Central Asia

Among Central Asia’s diversity of landscapes, historical human exploitation is most archaeologically visible through the remains of settlements in river valleys and plains supported by irrigated agriculture.⁸⁰ However, this constitutes only one kind of subsistence system. Dry farming and especially pastoralism practiced along varying scales of mobility have also contributed considerably to the wider region’s economy throughout its history, the viability of these strategies being, however, strongly

⁷⁶ Altaweel and Hauser 2004. ‘Hollow ways’ are tracks visible in satellite imagery that are notoriously difficult to date, but which are suggestive of patterns of connectivity.

⁷⁷ Roman soldiers are attested by epigraphic evidence in the third century CE, Kaiser 2004.

⁷⁸ AE 1926 0087, see recently Palermo 2019, 29–30.

⁷⁹ Ṭabarī, 828.

⁸⁰ I thank Ladislav Stančo for kindly sharing some bibliography that was otherwise inaccessible to me (LM).

determined by the affordances of any particular landscape. Semidesert and steppe mountain piedmonts are a ubiquitous type of landscape in Central Asia which present intersecting possibilities for both pastoralism and limited agriculture. Taking also into account the availability of minerals in certain landforms, in addition to the manner in which mountains channel human movement, piedmonts are thus a locus in which the interests of historical mobile, settled, and imperial actors could intersect and even collide.

A relatively well-studied landscape of this kind, in terms of both geography and archaeology, is located in modern southern Uzbekistan (Surkhan Darya region), the eastern foothills of the Kugitangtau and Baysuntau. These are the western spurs of the Hissar range, itself part of the Pamir-Altay system. The eastern Kugitangtau and Baysuntau piedmonts have a cold, semiarid climate, with high seasonal and diurnal temperature variation. The majority of this undulating landscape is covered in various forms of scrubby plant cover which can be exploited as pastureland, and the numerous small and seasonal streams produce, in some places with favorable geomorphological and climatic conditions, the potential for pockets of dry and even irrigated agriculture. Thus the real affordances of this landscape for pastoral or agricultural exploitation are hardly homogenous and have been illuminated in detail foremost through Soviet-era geography, which divided landscapes into minor units of analysis defined by (among other qualities) their geology, soil, vegetation, and potential for human exploitation.⁸¹ Stride adapted and applied the major work of this discipline covering the Surkhan Darya province to its long-term settlement patterns, focusing on historical modes of exploitation prior to the advent of pumping systems for irrigation introduced in the Soviet period.⁸² Judging from the affordances of the relevant minor landscape units in Kugitangtau and Baysuntau piedmonts, and also from ethnographic sources pertaining to the end of the nineteenth century,⁸³ two main types of historical exploitation should be expected here: 1) settlement in villages supported by dry farming, perhaps small-scale irrigated agriculture, and limited pastoralism, and 2) transhumant seminomadic pastoralism.

Although it may appear deterministic, it is still useful to be aware of landscape units that illuminate affordances for forms of historical mobile pastoralism, as these leave limited traces in the archaeological record. Currently, our knowledge of mobile populations who utilized this landscape in antiquity is restricted to burials commonly typologically ascribed to mobile pastoralists. Those which date from the period of our concern include the connected Rabat I and II *necropoleis* in the Baysun district (still only partially published, with their surface remains destroyed by the

⁸¹ See Stride 2007, 102.

⁸² Stride 2005, 2:73. The main unit of interest here is the desert of the piedmont and lower mountains, Landscape IV/1, for which see Stride 2005, 2:89–99.

⁸³ See Stride 2007, 104

modern development of the landscape),⁸⁴ and the single Grave 3 cut into the site Tilla Bulak in Sherabad district.⁸⁵ That being said, the identity and primary modes of exploitation utilized by the populations represented in these burials remain far from certain. The Rabat burials explored thus far by different projects have been dated by their excavators to around the first century BCE–first century CE and connected with the Yuezhi nomadic confederacy,⁸⁶ at least part of which migrated into northern Bactria in the second century BCE. Others consider the spatial and typological group including these burials to be connected with the migration of a Saka population.⁸⁷

However, turning away from scholarly narratives concerned primarily with historical migrations of hostile foreign nomadic confederacies, it is particularly interesting that Rabat I and II were located in close proximity to the fortified settlement of Payon Kurgan,⁸⁸ and accordingly may host the burials of the settled population there rather than any nomadic group.⁸⁹ Likewise, the grave at Tilla Bulak was located near the main regional settlement of Dabil Kurgan.⁹⁰ At the very least, the difficulty of identifying the populations represented by these burials should reopen questions about the interaction between mobile and settled populations and how the interactions and the modes of subsistence of these groups (for example, through sedentarization processes) changed over time. Numerous other features usually associated with mobile pastoralists have been detected in this landscape, including kurgans or kurgan-like features (i.e., without burials) composed of earth or rock, being particularly ubiquitous in the eastern piedmonts of the Kugitangtau, but the dates of the majority of these features remain unconfirmed, pending excavation.⁹¹

In antiquity, permanent settlements were established in locations in this landscape that either supported agriculture and/or had strategic significance from imperial perspectives for controlling movement.⁹² Settlements of the first kind in particular could also act as loci for small-scale trade, where sedentary and mobile

84 Abdullaev 1999, 8–9; Abdullaev and Annaev 2001; Abdullaev 2007, 80–81.

85 Gruber, Il'yasov, and Kaniuth 2012.

86 Abdullaev 1999, 8–9; Abdullaev and Annaev 2001, 23–24; Abdullaev 2007, 80–81; Khasanov, Tang, and Xomidzhonova 2019, 54.

87 Lyonnet 1997, 165–169; Rapin 2007, 51.

88 Occupied at least from the Late Hellenistic to Early Kushan period, perhaps established as early as the time of Alexander's invasions (Sverchkov 2008, 165), though this remains unconfirmed by survey data (Stančo et al. 2019, 158).

89 Sverchkov 2005a, 15.

90 On the proximity of the sites, see Gruber, Il'yasov, and Kaniuth 2012, 372. For the history of settlement at Dabil Kurgan, thought to have been established in the Achaemenid period and occupied throughout antiquity, see Rtveldze 2013, 25–26.

91 Some excavated features date from the Early Iron Age (Yaz I). See Havlík et al. 2018; Havlík, Stančo, and Havlíková 2017; Havlík, Havlíková, and Stančo 2018.

92 For the Baysun district, see now the survey areas of Darband village and the Sairob-Rabat Steppe Zone in Stančo et al. 2019, 150–160.

populations may have exchanged, for example, agricultural produce, craft goods, and primary and secondary animal products. Kugitangtau and its piedmonts also were the locus of historically extracted mineral resources – salt at Khodzhaikan, and ores (including iron) at Tillokan and Chujankan – which are thought to have been extracted since around the first century CE.⁹³ It is possible that certain settlements were established or grew in response to imperial interests in these resources; for example, Sverchkov considers it likely that Dabil Kurgan was connected with the mining of rock salt, while Rtveladze envisages that intensive settlement at this site in the Kushan period is connected with increased export of iron to other regional cities.⁹⁴ It should be reiterated that settlements across this landscape were not simply a product of its affordances, but their lives were also shaped by imperial interests. For example, on the Kugitangtau piedmonts, certain micro-oases were settled in the Bronze Age and Early Iron Age, with apparently no settlement from the fourth century BCE, picking up again in the second century CE.⁹⁵ It is probable that this pattern is connected with the invasion of Alexander the Great and the resulting large-scale abandonment of settlements and depopulation of the wider region.⁹⁶ On the other hand, extensive settlement in the piedmont of the Baysun district appears to begin only in the Hellenistic period⁹⁷ and saw the construction of numerous fortresses before being largely abandoned by the late Kushan period,⁹⁸ reflecting the rise and fall of this region from an imperial strategic perspective.

Indeed, the stark relief of the Kugitangtau and Baysuntau produced clear affordances for mobility across these mountains, particularly a well-known major historical pass known as the ‘Iron Gates,’ which funneled movement from the two major agricultural plains of the Surkhan Darya (northern Bactria) and the Kashka Darya (Sogdiana). This pass came to be developed as a northwestern imperial frontier between northern Bactria and Sogdiana under the Graeco-Bactrians and Kushans. Archaeological remains located 3 km from modern Darband reveal a 1.5 km long wall (thus the Darband wall) built across the Shurob-say valley, which was constructed from mudbrick, stone, and pakhsa and preserved in some places to 3 m in height. The wall was strengthened with a number of towers and fortresses and shows evidence for phases of disrepair and reconstruction in the Hellenistic and Kushan periods.⁹⁹ This wall, in addition to the Hellenistic-period mountain fortress

⁹³ See further in Sverchkov 2009, 152–153.

⁹⁴ Sverchkov 2008, 181; Rtveladze 2013, 26.

⁹⁵ Augustinová et al. 2017, 129–130.

⁹⁶ Stančo and Tušlová 2019, 363.

⁹⁷ Stančo et al. 2019, 170.

⁹⁸ Sverchkov 2005b, 60.

⁹⁹ The full results of the French-Uzbek excavations are still forthcoming; see for now Rakhmanov and Rapin 2003 and further information in Rapin et al. 2006; Rapin 2007; 2013. Note, however, that a recent Czech-Uzbek survey has argued that the wall was built and used primarily in the Graeco-Bactrian period, according to surface pottery and coins they collected (Stančo et al. 2019, 148, 150).

of Uzundara¹⁰⁰ and the piedmont fortresses Kurganzol and Payon Kurgan,¹⁰¹ comprised a militarized frontier. However, although most scholarship concerning this frontier emphasizes its defensive role, putatively against the regular threat of raids, or invading hordes of nomads,¹⁰² we have seen that other mobile pastoralists very likely lived within this frontier during antiquity, and it is doubtful that their existence was dependent on the microstages of the Darband wall's disrepair. Instead, it seems likely that the wall served to control rather than stop large-scale, nonhostile movement – for example, of caravans – by perhaps performing a customs function, as encountered by Ruy Gonzalez de Clavijo during his fifteenth-century embassy to the court of Timur in Samarkand:

The lord Timur is sole master of these Iron Gates, and the revenue is considerable to the state from the customs imposed on all merchants who come from India going to the city of Samarkand and to the regions beyond.¹⁰³

Interestingly, ongoing research at Uzundara indicates the reality of other, more ancient economic activity along this militarized piedmont frontier. The existence of a (presumably) periodic market at the Hellenistic period fortress can be inferred from the distribution of numerous bronze coins in small denominations clustered in a space outside its eastern entrance. Here, through exchange, soldiers of the garrison could obtain food or crafts from local producers, who could then obtain the coinage necessary to pay taxes¹⁰⁴ – once again showing how the interests of different actors could intersect in piedmonts.

V The Forests of South Asia

Having discussed several classic 'transit corridors,' we turn now to a quite different type of ecological zone: the forest. Our case study for a forested zone that is nevertheless a central locus for movement and interaction comes from South Asia, where a major section of central India is thickly forested, even today. This is of course not the only forested area of the subcontinent – the northeastern regions and the Western Ghats are as well, and it is argued that even the Punjab region and areas near present Delhi, which are currently devoid of arboreal vegetation, may have had thick vegetation during the period of our concern.¹⁰⁵ Forests in the subcontinent are

100 With ongoing excavations, see an earlier summary of excavation data in Dvurechenskaya 2019.

101 See Sverchkov 2008; 2014.

102 See, e.g., Rapin 2007.

103 Trans. from Le Strange, Clavijo 1928, 205.

104 Dvurechenskaia 2018, 175. See also Morris, ch. 4, III and ch. 13, V.2.2, this volume.

105 For a discussion on the issue of forest cover and deforestation in the subcontinent, see Erdosy 1998. It is explained that even in Indo-Gangetic plains, after millennia of agricultural expansion

not homogenous spaces in terms of vegetation or level of human interactions. The vegetation type ranges from tropical deciduous of northern and central India, humid tropical forests of the Western Ghats to dry tropical and subtropical shrub forests further south, and tidal forest at the mouth of the Ganga basin in the east.¹⁰⁶

In South Asian historiography, questions of human interaction with forests are often associated with deforestation and the peasantization of the forest dwellers, which are seen in the context of political processes of state formation and expansion. This narrative is also associated with the 'Brahmanization' of the subcontinent. We often hear phrases like "agricultural expansion into economically peripheral zones,"¹⁰⁷ which is a result of the heavy bias favoring settled agriculture considered to be the core of economic activities. This viewpoint places settled agrarian societies at the evolutionary end of socioeconomic history, thus ignoring the vast amounts of economic activity that remain historically under-recorded, if not unrecorded, which have sustained the pastoralists and forest dwellers for millennia through the rise and fall of empires and polities. However, these communities have never lived in complete isolation or self-reliance, but have instead had sustained interactions with settled agriculture-dependent societies, socially, politically, and economically. This section regards forests as more than marginal spaces. We discuss the issues related to human and institutional participants interacting with, traversing through, and acquiring resources, while also considering the various claimants of the forest spaces based on the social imaginary.

While there are many Sanskrit terms denoting the space of forest, the *araṇya* and *vana* are two terms of particular importance.¹⁰⁸ These are generally the counterparts of the terms associated with settlement, *grāma* (village) and *kṣetra* (agricultural fields). The *araṇya* is compared to the *grāma*, where the latter is settled, organized, and with boundary, while the former, i.e., *araṇya* is flexible, unknown, and unorganized. It is the *araṇya* that represents the lack of any political and social boundaries. On the other hand, the *vana* is a counterpart of the *kṣetra* (agricultural fields), which like the latter is full of resources and does not stand in opposition to settled society. And it is the term *vana* that is used in the texts to indicate forests of resources, such as *hastivana* (forest of elephants) and *dravyavana* (forest of commodities) that will be discussed below.

As ecological zones, forests are not homogenous spaces in South Asia. The intensity and nature of human interaction and interventions in the zones are also not uniform. While some areas comprise heavily dense evergreen forests on plains; oth-

the deforestation and denudations, the actual loss of forest covers emerged only with the Industrial Revolution.

106 Morrison and Lycett 2014; Mani 1974, 171–176.

107 Sinha Kapur (2011, xvii) uses the phrase while introducing the recurring questions in the writings of environmental history of India. However, she misses the opportunity of pointing at the limitations of such agricultural-settlement centered approach.

108 For a discussion, see Thapar 2001.

ers may cover hilly areas relatively sparsely, but nevertheless impeding travel. Yet both types of forests were traversed. However, the frequency of movement may have varied and would have been dependent on various factors, such as the size of the group of travelers, the season of movement, and nature of movement, i.e., whether crossing the forested area or just moving to and fro within it. The forested regions also had many stakeholders, such as the pastoralists, forest dwellers, foragers, royal hunters, monks, merchants, and pilgrims, some making a living out of the space and some just passing through. Most of the studies of forested regions are based on the evidence left by those with whom the forest dwellers interacted, such as those living in more sedentary contexts, as well as on the opinions of those who traveled through forested regions.

One of the most noticeable examples of this particular view of forests comes from discussions of the forest that covers central India, which is considered the ‘crossroads’ of the two traditional routes, called the *uttarāpatha* (northward route) and *dakṣiṇāpatha* (southward route). As a result, the area is also called ‘corridor’ between the north and the Deccan.¹⁰⁹ On the other hand, the forested region in the Palaghat Ghat is perceived as a shortcut connecting the western coast across the hills (the Nilgiris and Anaimallai) channeling the movement to the eastern coast. The use of this corridor reduced the need for navigation around the southern tip of the subcontinent and the island of Sri Lanka.¹¹⁰ For those who traversed through the forests, the rainy season with heavy monsoon rainfall between July and September was to be avoided. This is very clear in the Buddhist texts, which repeatedly refer to travel restrictions and shelter for traveling monks during the rainy season.¹¹¹

Other than travelers passing through the forests, literary sources provide much information about what kind of resources were gathered in the forests. However, about the scale of that extraction, we can only speculate. The forests with resources have often been identified as *dravyvana* and *kupyavana* (forest of commodities), *hastivana* and *nāgavana* (forest of elephants), etc., and the extraction of these resources occurred as the result of a recurring process of interaction. These two types of forests seem to have attracted the nearby organized polities the most.

From the perspective of a state, resource management and extraction from the forests was a long-term process that required regular labor, water availability, and other relevant inputs. Much of the interaction of a state with the forested regions, in the period of our concern, is studied with respect to the Mauryan monarchical state – their expansion through the subcontinent and interaction with the forested regions in a limited manner.¹¹² Considering the demands of an administratively well-organized monarchical state, their interactions with the forested regions may

109 Basu Majumdar 2017.

110 Deloche 2010.

111 Schopen 2004, 32–34, 173, 228–238.

112 For further information and bibliographies, see Parasher-Sen 1998; Trautmann 2009; 2015.

have facilitated the emergence of an extraregional microeconomic system, which is visible in the extraction of two very important resources, a) elephants, and b) spices and medicinal plants. Both are forest products, required for different purposes and acquired through very different processes.

Although ivories were a very prized product from elephants, elephants themselves were perhaps more prized as war animals, beasts of burden, and symbols of royalty.¹¹³ The capture of wild elephants and their sale was not a single-step form of resource acquisition. Rather, the capture of wild elephants was possible with the aid of trained elephants, who may have been raised in a domestic/captive setting. Not only was it a high-risk job, it was also a long-term one. A captive calf or adult elephant needed to be trained. After the initial training, depending on the age and sex of the animal, their ongoing care required a number of people. For an elephant in royal stables, Kauṭilya recommends a retinue of 14 attendants, consisting of a veterinarian, a trainer, a groom, a guard, a feeder, etc.¹¹⁴

Beyond the forested regions in the northern plains, the upland and mountainous forests of the Himalayan foothills and Western Ghats saw a relatively different form of human-landscape interaction. Morrison and Lycett's work on the acquisition of spices, resins, and other nontimber forest products throws light on the active intervention of foragers and gatherers in selecting plants and doing selective cultivation within the forests, which were not wild natural growth.¹¹⁵ The foragers were noted to have practiced unconventional farming, swidden agriculture and shifting cultivation. The processes of acquiring and preparing the commodities were highly labor intensive. These included harvesting, drying, and other types of processing before the items were ready to meet the consumer demands both regionally and further afield.¹¹⁶

Since most of the forested regions discussed here were semiautonomous spaces, attempts at expansion into these regions by nearby state-like polities were common. The expansive ambitions of the imperializing polities are visible in literary and epigraphic sources. The forester and forest dweller are *āṭavika*, *āraṇyaka*, and *vanacara* who appear in the *Arthaśāstra*. The mention of the Aṭavi in the Aśokan edict and in particular the Aṭavikarājya, the kingdom of *āṭavikas* (foresters), at the time of the Guptas (fourth–fifth century CE) perhaps refers to a relatively more organized polity than is assumed in a 'tribal' setup.¹¹⁷ The contacts between state-like organizations and those dwelling in the forest are quite dynamic, including both conflict and cooperation. Since the borders of the forest zones are flexible, including areas of buff-

¹¹³ Trautmann 2009; 2015.

¹¹⁴ *Kauṭilya Arthaśāstra (KA)* 2. 32. 15–16.

¹¹⁵ Morrison and Lycett 2013.

¹¹⁶ Morrison 2002.

¹¹⁷ For the Rock Edict 13 of Aśoka, see Sircar 1971, 30–36. For the Gupta inscription, see Chhabra and Gai 1981, 203–220.

er zones around the forests and the agricultural societies in deforested areas, the question of ownership over the forest land and resources is a complex one. The complexity of such relations is visible in references to agricultural villages sending their cattle for grazing in areas around forests;¹¹⁸ in the use of forested regions as central spaces among hermits, where rituals are performed and where, perhaps, children of proper age were sent for education after their initiation (*samskāra*); in the status of the forest as a place of exile;¹¹⁹ finally, in the fact that the state could impose taxes on forest products.¹²⁰

The interactions that different groups have with the forest are both reflected in and get shaped by how they imagine the forested regions, and by doing so they claim the forests in their own manner. In the Hindu perception of life stages, the third stage of a human's life, out of the four prescribed stages,¹²¹ refers to the stage of retirement from all his social and economic duties. This stage is called the *vāna-prastha* which literally means retiring to forest. Even in the Buddhist understanding, the forest is an ideal place of dwelling, in that it is a place of peace and proximity to nature. In order to recreate such conditions, monastic premises had elaborate gardens around the monasteries. The importance of the forest in the expression of royalty is also worth noticing: it can be seen through, for example, the elaborate ceremonies of royal hunts, or the symbolic representation of certain wild animals as their royal emblems.¹²² Additionally, the urban population romanticized forests, both as places where wilderness hides many mysteries, monsters, and dangers, and as places of peace, spirituality, and meditation.¹²³ This is clearly visible in the presence of perhaps protected groves like Vṛndāvana and Jetavana near the cities and high-density settlements, which became sacred spaces because of their association with Kṛṣṇa and Buddha, respectively.

Studying forests in South Asia is a very good opportunity to examine the dynamic relationship of humans and landscapes. While the presence of forested spaces in the subcontinent provides for economic opportunities in terms of special

118 The classic example is that of the childhood stories of the deity Kṛṣṇa, who along with other kids of his community would take the cattle of the villages for grazing. This occurs in various texts such as the *Mahābhārata* and *paurāṇic* stories.

119 A fitting example would be the exile of Rāma in the *Rāmāvana*, and instances of the Pāṇḍava brothers being asked to serve a period of exile in the *Mahābhārata* and related texts.

120 The *Arthaśāstra* (2. 17. 1–17) mentions appointment of the *kupyādhyakṣa* (superintendent of forest produce), who along with other responsibilities have to ensure the supply of forest produce and maintain a monopoly on sale of certain forest produces and price regulations.

121 A man is expected to fulfil the following four stages in his life: a) student, b) householder, c) retired from his duties, d) renunciant in search of *mokṣa* (transcendence). For a detailed study of the *āśramas*, see Olivelle 1993.

122 For a discussion about the importance of wilderness and conquest in royal ideology, see Falk 1973; Singh 2017, 368–459.

123 This is expressed well in Parkhill's (1995) terms, "the liminal context for spiritual transformation." For a discussion, see Thapar 2001, 8–9.

animal and plant resources, it also creates travel limitations for people. However, how different social communities interact with these spaces reshapes the affordances of forest spaces themselves. To a long-distance traveler, a hilly forest may appear as the worst phase of his journey, on the other hand, to a community practicing foraging and shifting agriculture the forests on the hill are their agricultural field where they plant and tend pepper trees on a seasonal basis. To a forest dweller, the elephants could be their companions in the jungle, while for a state actor they were war machines to be captured, trained, and sometimes also gifted to other kings. We, therefore, learn that the affordances of a particular type of landscape are in fact not universal, but rather subjective. They are shaped by the experiences and aspirations of different individuals and communities, which could range from purely economic to purely spiritual, or more often a mixture of both.

VI The Hexi ‘Corridor’

The region commonly called the ‘Hexi corridor’ (*Hexi zoulang* 河西走廊),¹²⁴ roughly corresponding to the western part of present-day Gansu province, PR China, is a long and narrow strip of land pressed between two geographical zones characterized by harsh landscapes and climates: the Qilian 祁連 mountains of the northeastern Qinghai-Tibetan Plateau to its south, and the southwestern edge of the Gobi desert to its north. It is approximately 1,000 km long along a roughly (south-)east – (north-)west axis, with its width varying between a few km up to around 100 km. Its northwestern end, at the ancient site of the ‘Jade Gate’ (Yumen 玉門), is connected to the Tarim Basin (in today’s Xinjiang Uyghur Autonomous Region), while its southwestern end opens toward the northwestern part of central China. Its altitude rises from east to west and mostly ranges between 1,000 and 1,500 m. Average annual temperatures vary between 2 to 6 degrees Celsius. Annual precipitation rates decrease from east to west, ranging from 200 ml to a mere 40 ml. Its landscape is largely characterized by thin vegetation layers. Large parts are covered by desert shrubs, while some areas feature grasslands and forests.¹²⁵ Climatic conditions appear to have been somewhat warmer and wetter during ancient times. Accordingly, both transmitted ancient landscape descriptions and archaeobotanical evidence suggest that forest and grassland areas were more prevalent during the Han period than they are at present.¹²⁶ Whereas the region is generally characterized by scarce water resources, several inward-flowing rivers sourcing from glaciers of the Qilian

124 Alternatively called ‘Gansu corridor.’ ‘Gansu’ is the name of the province to which the region belongs today. ‘Hexi’ is an ancient designation for a broader region including the ‘corridor,’ and literally means ‘west of the Yellow River.’

125 Tse 2018, 27–28; Yang et al. 2019, 958.

126 With regard to the Juyan region, for instance, see Hu and Li 2014, 345.

mountains, most importantly the Shule 疏勒,¹²⁷ Shiyang 石羊¹²⁸ and Ruo 弱¹²⁹ Rivers, have been sustaining oases since ancient times. The Ruo River lends the region a northward-extending ‘arm’ through the Gobi Desert, famous for the relics of the Han frontier garrison of Juyan 居延 and numerous finds of associated wooden administrative documents.¹³⁰

The term ‘Hexi corridor’ (or ‘Gansu corridor’) is a modern expression without any parallel in ancient Chinese texts,¹³¹ and its modern use appears to be tightly connected to ‘Silk Road’ narratives. Historical and archaeological studies alike typically refer to the region as a “passageway” or a “key section of the ancient Silk Road connecting China and Central Asia.”¹³² The designation of the region as a ‘corridor,’ however, is in itself not an objective description of its physical geography, but already points to a subjective interpretation of its landscape that focuses on its potential for mobility and exchange between east and west, i.e., between the Tarim Basin and Central Asia, on the one hand, and central China on the other hand. At the same time, it disguises alternative perspectives on the space that focus on connectivities in other directions (e.g., between north and south, between the depression and the mountains to its south), as well as economic activities that utilized the landscape beyond its usage as a ‘transit zone.’

When the Han first seized the region in 121 BCE by subduing two Xiongnu 匈奴 kings who had been controlling the region,¹³³ the conquerors’ interpretation of the newly captured space as a ‘corridor’ enabling westward mobility appears to have played a secondary role at best. Quite the contrary, their military endeavor was primarily fueled by their concern over the region’s providing a connection between the areas to its north and south, which were inhabited by predominantly mobile pastoral groups of the Xiongnu and the so-called ‘Qiang’ 羌, respectively.¹³⁴ The

127 Also called Changma 昌馬 River.

128 Also called Gu 谷 River.

129 Also called Heihe 黑何, Etsin Gol, or Ejin River.

130 The classic study in English language on the Juyan documents is Loewe 1967.

131 A common designation of the region used during the Later Han period was ‘the four Hexi commanderies’ (‘the four commanderies west of the Yellow River’), which included all the ‘corridor’ commanderies, i.e., Wuwei, Zhangye, Jiuquan, and Dunhuang (from east to west). The term ‘four commanderies’ already turns up in the “Geographical Treatise” in *Hanshu* (28B.1644) with regard to the Hexi commanderies, but it is also used in other regional contexts by the same work. In other instances, one often finds the broader designation ‘Liang Region’ (Liangzhou 涼州, lit. ‘chilly region’), which, however, additionally included several more commanderies to the south and southeast of the ‘corridor.’

132 E.g., Tse 2018, 28, and similarly, 12; Yang et al. 2019, 958; Liu et al. 2019, 972.

133 Both kings had reportedly announced their submission to the Han. One of them, King Hunye, killed the other one, King Xiutu, and then surrendered to the Han along with 40,000 people, including both his own and Xiutu’s followers. *Shiji* 110.2909, trans. Watson 1993, 152–153.

134 This view appears to have been still predominant when the administrative units in the region were established in the region. *Shiji* 110.2913, for instance, states that “in the west, [the Han] established Jiuquan commandery in order to block the routes that connected the Hu [i.e., the Xiongnu]

latter, whom Chinese ancient sources describe as having been largely dwelling in and around the region of the Qilian mountains and Qinghai Lake (Koko Nor), had reportedly been acting as an ally of the Xiongnu, and may also have been important to these with regard to economic provisions.¹³⁵

For the first years after their successful conquest, the Han were not even interested in occupying and colonizing the region by themselves, but rather invited the Wusun 烏孫 people, who were at that time residing in the faraway Ili Valley, to move to the region and serve as a buffer between the Xiongnu and the Qiang, and to win over further allies in the northwest against the Xiongnu. It was only after the Wusun's rejection and a Qiang attack in 112 BCE that the Han finally aimed at direct military and administrative control over the region.¹³⁶ The knowledge that the envoy Zhang Qian and his aides had meanwhile brought back from their journeys to the states of the Tarim Basin and beyond definitely aroused the interest of certain actors at the Han court in the region as a 'passageway' to the west.¹³⁷ Viewing the space in its potential for providing a route to faraway polities now became a more relevant option. In some cases and for some actors, these new connections also came to be associated with the hope of acquiring particular goods, as was the case with Emperor Wu's interest in Wusun and Dayuan 大宛 horses.¹³⁸ Nevertheless, even with regard to the period thereafter, approaching the economic history of this space with a focus on the 'corridor' perspective can be misleading. It disguises the complexities involved in different human groups' various interests in and economic interactions with the region's landscape.

During the centuries predating the imperial period, the people inhabiting the region were prevalently using its landscape by means of mobile pastoralist subsistence strategies, which they supplemented by low-intensity agriculture including wheat and barley cultivation. Their major livestock animals were sheep or goat, cattle, horses, and camels.¹³⁹ Permanent dwellings structures seem to have played a marginal role at best. Ancient Chinese records suggest, for instance, that even those 'Qiang' people that practiced agriculture were using portable housing, and

and the Qiang" 西置酒泉郡以隔絕胡與羌通之路, even though another chapter of the same work also mentions "establishing a connection to countries of the northwest" 通西北國 as a motive for this move (*Shiji* 123.3170). *Hanshu* 28B.1645 (written more than 150 years later), combines both motives. **135** Di Cosmo (2002, 250), suggests that the provisions that the Xiongnu were supplied with by the 'corridor' and the Tarim Basin oases were "agricultural goods and the products of urban craftsmen." The latter, however, is only applicable to the Tarim Basin oases, not the 'corridor,' which did not have any urban centers before the Han conquest. On the 'Qiang' more generally, see M. Wang 1992; De Crespigny 1984, 54–172.

136 *Shiji* 30.1438, trans. Watson 1993, 80.

137 For ancient reports on Zhang Qian and his missions, see *Shiji* 123, trans. Watson 1993, 231–252; Nienhauser 2019, 55–104; *Hanshu* 61, trans. Hulsewé 1979, 205–238.

138 *Shiji* 123.3170–3177; trans. Watson 1993, 240–250.

139 Yang et al. 2019.

the only known fortified settlement of the pre-Han period, which may have existed right up to the Han conquest, also utilized yurts rather than permanent dwellings.¹⁴⁰ After occupying the region as part of a primarily military strategy, the Han drastically changed parts of its landscape by establishing ‘agricultural garrisons,’ building defensive walls, irrigation networks, and oasis towns, and colonizing it with hundreds of thousands of settlers.¹⁴¹ Whereas the dimension of agricultural and sedentary use that Han military presence brought to the region was doubtlessly unprecedented, the economic use of its landscape did have quite a multifaceted prehistoric past. As archaeological evidence has shown, both agriculture and sedentariness had played a much more important role in earlier periods, long before Han people first encountered it. For instance, the archaeological record testifies the common use of pigs, the cultivation of millet, and copper smelting during earlier times, all of which declined drastically during the first millennium BCE. Whether climatic or sociocultural factors were the key drivers for the changes in subsistence strategy toward mobility and pastoralism, is still a matter of debate.¹⁴² In any case, this historical variety illustrates the complexity of landscape affordances provided by the region.

Even after the Han conquest and colonization of the region, the forms of economic exploitation of its land varied widely. They did not suddenly shift toward an overall agrarian use and mobility along an east-west axis. Neither did its former inhabitants and resource users simply disappear. Even though ancient historical sources leave the impression that the region had been ‘void’ (*kong* 空) of people right after the Han conquest (which is unlikely to have been true),¹⁴³ the same and other sources clearly mention other than Han people lingering in the ‘corridor’ during the following decades and centuries. Unfortunately, archaeological evidence for the Han period is scarce in this space except for those finds that are directly related to Han military and administrative presence, such as the spectacular finds from the Juyan 居延-Etsin Gol area and from the Xuanquan 懸泉 postal station near Dunhuang 敦煌.¹⁴⁴ Chinese textual evidence from transmitted historical texts, and from the documents excavated from the sites just mentioned, therefore remain our primary

140 Liu et al. 2019, 982.

141 The transmitted 2 CE census gives a total registered population of approximately 280,000 people (in ca. 61,000 households, corresponding to an average quota of ca. 4.6 people per household) for the four ‘corridor’ commanderies. These figures may not have entailed most non-Han inhabitants of the region. See Tse 2018, 40.

142 Yang et al. 2019; M. Wang 1992, 14–57.

143 For instance, according to the “Account of the Xiongnu” in *Shiji* 110.2912, Han troops in 112 BCE “did not see a single Xiongnu” 不見匈奴一人 in the area, and the “Account of the Qiang” in *Hou Hanshu* 87.2877 states that the “land west of the Yellow River was void” 河西地空.

144 The tendency of non-Han people in the region toward mobile pastoralist lifestyles has been suggested as the main reason for their archaeological invisibility during the Han period. M. Wang 1992, 96. Hitherto archaeological preferences may, however, also play a role.

source of knowledge for non-Han people inhabiting, moving through, and making economic use of the region and its landscape in various ways.

Ancient Chinese texts suggest that many of the people that the Han called ‘Qiang’ were practicing a ‘mixed economy,’ including pastoralism, agriculture, and fishing. But because of the regional and ethnic imprecision of the oversimplifying exonym ‘Qiang,’ it is hard to say to what extent this also applied to those so-called ‘Qiang’ people that were dwelling in the ‘corridor’ (or only to those living further south).¹⁴⁵ In any case, Xiongnu and so-called ‘Qiang’ people reportedly regarded the area of what became the Han commanderies of Zhangye 張掖 and Jiuquan 酒泉¹⁴⁶ as “originally our land” (*ben wo di* 本我地) and worthwhile reconquering because it was “fertile and prosperous” (*fei mei* 肥美).¹⁴⁷ Eventually, the Han established ‘dependent states’ (*shuguo* 屬國) for ‘Qiang’ people in this area. Unfortunately, we know little about these *shuguo* other than that they existed.¹⁴⁸

One thing that all actors interacting with the landscape of the Hexi ‘corridor’ appear to have seen in it was the suitability of its grasslands for grazing. This potential was also recognized by the Han. The geographic treatise of the *Hanshu* (written in the first century CE) states that “in the region from Wuwei 武威 westward (i.e., in the ‘corridor’), [the availability of] water and grass suits livestock herding” 水中宜畜牧 and therefore, “the livestock of Liang Region (which included the ‘corridor’) is the most prosperous of all-under-heaven” 涼州之畜為天下饒.¹⁴⁹ Non-Han people, too, are mentioned occasionally in Chinese texts as grazing their livestock on the region’s grasslands.¹⁵⁰ Since the idea of ‘dependent states’ included the possibil-

145 M. Wang 1992, 58–97; Tse 2018, 99–105.

146 These were the two central commanderies of the four ‘corridor’ commanderies.

147 *Hanshu* 69.2973. This is what, according to a memorial by the Han general Zhao Chongguo 趙充國 (137–52 BCE), the Xiongnu had reportedly said to win the Qiang over for a new alliance against the Han around 90 BCE. Zhao Chongguo certainly had his own agenda when bringing forward this alleged communication between Xiongnu and Qiang, so his statements have to be taken with caution. But to the very least, they do reflect how plausible it was for people at the Han court to believe that Qiang and Xiongnu were regarding the area as their own territory that was worth fighting for because of its economic affordances. For a full translation of the memorial, see Dreyer 2008, 676–678.

148 The geographic treatise of the *Hou Hanshu* (treatise no. 23.3522) lists two ‘dependent states’ within the Hexi corridor for 140 CE, i.e., the ‘Zhangye dependent state’ with a population of 16,952, and the ‘Zhangye dependent state of Juyan’ with a population of 4,733 people. The former is associated with ‘Qiang’ people in Dou Rong’s 竇融 biography (*Hou Hanshu* 23.796), on which see also below. At least one other ‘dependent state’ of the ‘Qiang,’ i.e., the ‘Jincheng dependent state’ 金城屬國, existed further south from 60 BCE onward, but it is unknown for how long. Dreyer 2008, 705. On the institution of ‘dependent states’ in general, see Loewe 1967, 1:61–64; Bielenstein 1980, 109, esp. n. 139 on 189–190; De Crespigny 1984, 3, esp. n. 4 on 447–449; Yü 1967, 72–78.

149 *Hanshu* 28B.1645.

150 For instance, one fragmented Juyan document reporting on enemy activity mentions non-Han people “coming and going to graze [their livestock] at Biaoshi (in the ‘corridor’ commandery of Jiuquan) ...” 往來牧表是 [...]. Because of the fragmented nature of the document, the subject of the

ity for their officially subordinated inhabitants to largely maintain their former economic and social lifestyle, it can be assumed that the ‘Qiang’ of the corridor continued their pastoral activities in designated areas of the region, even though they were now officially controlled by the Han.

Yet, economic activities were not limited to a mere coexistence of Han and non-Han practices. After all, under Han rule the ‘corridor’ changed from a sparsely populated area bare of any known settlements to a heavily fortified region dotted by densely populated, urban oases within a few decades. Scattered evidence in the dynastic histories offers glimpses into the new economic possibilities and interactions between the different groups of people that went along with these fundamental changes. They show that the economic connections between Han settlers, Xiongnu, and ‘Qiang’ people may have been much more than marginal additions to the economic activities associated with the famous east-western exchange of goods between central China and Central Asia. Their interactions went beyond those that the sources indicate with relative frequency, such as mutual raids, mutual defections, military confrontations and collaborations, including in-cash or in-kind payment of non-Han soldiers.¹⁵¹ It is worth noting, for instance, that the region is associated several times with economic prosperity and stability, especially during times when the more central parts of the Han Empire were in turmoil, such as during the later phase of Wang Mang’s reign. A case in point is the example of the famous general Dou Rong 竇融 (15 BCE–62 CE), who purposefully asked to be appointed as commandant (*duwei* 都尉) of the ‘Qiang’ dependent state of Zhangye (Zhangye shuguo 張掖屬國). He reportedly did this in consideration not only of the area’s strategically favorable geography and availability of excellent cavalry, but also because of the region’s “abundance and wealth” (*yin fu* 殷富).¹⁵² Furthermore, a passage in the biography of the magistrate of Guzang 姑臧, the government seat of the southernmost ‘corridor’ commandery of Wuwei 武威, states that “Guzang came to be called a ‘wealthy town,’” 姑臧稱為富邑 and that “those settling down in the county all became rich and prosperous within less than four months” 每居縣者，不盈數月輒致豐積。¹⁵³ Most interestingly, this economic prosperity is not associated with the region’s westward ‘corridor’ connections, but rather with the “exchange of goods with the Qiang and Hu [i.e., the Xiongnu], with markets being open four times a day” 通貨羌胡，市日四合。¹⁵⁴

sentence cannot be determined with certainty. Giele’s reconstruction suggests them to most likely have been Xiongnu, possibly the Huhanye Khan and his followers. See Giele 2011, 59–60.

151 Administrative documents from Juyan mention, for instance, “cartloads of grain for the barbarian horsemen, 83.3 bushels” (Giele 2011, 69), and a group of one hundred Xiongnu people being paid 100,000 coins each for fighting against the Qiang (H. Wang 2004, 52).

152 *Hou Hanshu* 23.796.

153 Considering the context of this sentence, it is not entirely clear if ‘those settling down’ is supposed to generally refer to people settling down in the county, or particularly to bearers of higher administrative posts.

154 *Hou Hanshu* 31.109. On this passage, see also Z. Wang 2018, 16.

These examples show that in order to understand the economic history of the so-called ‘corridor,’ we need to see its landscape as more than just providing potentials for west-east connection. Future research, both historical and archaeological, would profit from putting more focus on what happened on the ground, i.e., the variety of local landscape affordances, the ways in which different groups of people used it for various economic activities, and how these groups and activities were interconnected. For this, taking a step back and seeing the ‘corridor’ interpretation as just one, at least partly anachronistic and misleading, interpretation of the region’s landscape seems like a good starting point.

VII Conclusion

In this chapter, we have approached the physical geographies and environments of a number of regions or zones as actors in their own right, able to shape human behavior through the opportunities they offer and the constraints they impose, looking at factors like landcover (the forests of South Asia), topography (Central Asia, China), and aridity (northern Mesopotamia, Egypt). These spaces existed not only as concrete physical spaces, but also lived in the various cultural imaginaries of the communities living in or near them. At the same time, we have pointed out that the landscapes that result from this human-environment interaction are neither static nor constant but are rather constantly produced through interaction with different groups of people or communities.¹⁵⁵

Thus, we find that the physical geography of the Red Sea coast created opportunities for specific types of fishing and port activities that were exploited by different populations, but also presented challenges that hindered agriculture among all communities. In China, the Hexi ‘corridor,’ well known for its role as a transit zone in long-distance, east-west exchange processes, also supported diverse communities practicing a range of subsistence strategies and could function both as a facilitator of and a barrier to north-south interaction. We see a similar pattern in the forested spaces of South Asia, which were at once an active space of long-distance mobility and also one of diverse resource extraction regimes. In the piedmonts of Central Asia, meanwhile, we find a space in which long-term patterns of human mobility appear to have interacted in intensified ways with settlement patterns based on resource extraction and control of movement. In Northern Mesopotamia long-standing hubs served as central places that acquired heightened importance in light of intense geopolitical pressures.

The balance of ‘continuity’ and ‘change’ within the context of the shifting pressures of Afro-Eurasian connectivity varied among the spaces discussed. In order to

¹⁵⁵ Human modifications to landscapes stretch far back in history, Butzer 1990.

tease out the reasons for this, we have paid particular attention to the discrepant human-environment relationships as felt by various communities within a given region. Our attention on such variation stems from the conviction that it is only through analysis at this scale that it is possible to build toward a larger discussion of how superstructures like empires participate in this story and the role that state power plays in shaping the interplay between ‘local’ communities, ‘regional’ interaction, ‘imperial’ agents, and physical spaces.

One relatively consistent dynamic is that state actors, who were often functioning at a larger and more coordinated scale than other groups, could create new pressures for the utilization of landscape resources, whether that meant the extraction of specific resources or the creation and stabilization of transportation infrastructure. The results of this concentrated and focused demand were then channeled through multiple local stakeholders, who often occupied different socioecological substance niches. In the course of this process, local relationships within a given space were often reconfigured. To see landscapes as actors in their own right, one must therefore keep in mind both the discrepant experiences of various communities and the recursive nature of local-regional-imperial relationships.

References

- Abdullaev, K. 1999. “Payonkurgan: New archaeological discoveries in northern Bactria.” *Circle of Inner Asian Art Newsletter* 10, 7–9.
- . 2007. “Nomad migration in Central Asia.” In J. Cribb and G. Hermann (eds.), *After Alexander: Central Asia before Islam*, 73–98. Oxford: Oxford University Press.
- Abdullaev, K. and T. D. Annaev. 2001. “Новый могильник кушанского времени на юге гиссарского хребта” [New Kushan burial ground in the southern Gissar range]. In *Древняя и средневековая культура Сурхандарьи*, 19–24. Ташкент: Государственное научное издательство «Узбекистан миллий энциклопедияси».
- Alizadeh, A. 2010. “The rise of the highland Elamite state in southwestern Iran: ‘Enclosed’ or enclosing nomadism?” *Current Anthropology* 51.3, 353–383.
- Altaweel, M. R. and S. R. Hauser. 2004. “Trade routes to Hatra according to evidence from ancient sources and modern satellite imagery.” *Baghdader Mitteilungen* 35, 59–86.
- Augustinová, A., L. Stančo, L. Damašek, M. Mrva, and S. Shaydullaev. 2017. “Archaeological survey of the oases of Zarabag, Karabag and Kampyrtepa in the piedmont of Kugitang mountains, South Uzbekistan – Preliminary report for the season 2016.” *Studia Hercynia* 21.1, 104–148.
- Barnard, H. 2019. “The native desert dwellers.” In S. E. Sidebotham and J. E. Gates-Foster (eds.), *The archaeological survey of the desert roads between Berenike and the Nile Valley: Expeditions by the University of Michigan and the University of Delaware to the Eastern Desert of Egypt, 1987–2015*, 389–413. Boston, MA: American Schools of Oriental Research.
- Basu Majumdar, S. 2017. “State formation and religious processes in the north-south corridor of Chhattisgarh (from first century BC to eight century AD).” *Studies in People’s History* 4.2, 119–129.
- Bielenstein, H. 1980. *The bureaucracy of Han times*. Cambridge: Cambridge University Press.
- Brite, E. B. 2016. “Irrigation in the Khorezm oasis, past and present: A political ecology perspective.” *Journal of Political Ecology* 23, 1–25.

- Brun, J. P. 2018. "Chronology of the forts of the routes to Myos Hormos and Berenike during the Graeco-Roman period." In J. P. Brun, T. Faucher, B. Redon, and S. Sidebotham (eds.), *The Eastern Desert of Egypt during the Greco-Roman period: Archaeological reports*, 141–181. Paris: Collège de France.
- Butzer, K. W. 1990. "The realm of cultural-human ecology: Adaptation and change in historical perspective." In B. L. Turner, W. Clark, R. Kates, J. Richards, J. Matthews, and W. Meyer (eds.), *The earth as transformed by human action: Global and regional changes in the biosphere over the past 300 years*, 685–701. Cambridge: Cambridge University Press.
- Casson, L. 1989. *The Periplus Maris Erythraei: Text with introduction, translation and commentary*. Princeton, NJ: Princeton University Press.
- Chhabra, B. C. and G. S. Gai, eds. 1981. *Corpus inscriptionum indicarum*. Vol. 3, *Inscriptions of the early Gupta kings*. New Delhi: Director General, Archaeological Survey of India.
- Clavijo, R. G. de. 1928. *Clavijo: Embassy to Tamerlane, 1403–1406*. G. Le Strange (trans.). London: George Routledge & Sons, Ltd.
- Cobb, M. A. 2018. *Rome and the Indian Ocean trade from Augustus to the early third century CE*. Leiden: Brill.
- Cooper, J. P. 2011. "No easy option: Nile versus Red Sea in ancient and medieval north-south navigation." In W. V. Harris, K. Iara, and P. Arnaud (eds.), *Maritime technology in the ancient economy: Ship-design and navigation*, 189–210. Portsmouth, RI: Journal of Roman Archaeology.
- Cunliffe, B. 2015. *By Steppe, desert, and ocean: The birth of Eurasia*. Oxford: Oxford University Press.
- Cuvigny, H. 2014. "Papyrological evidence on 'barbarians' in the Egyptian Eastern Desert." In J. H. F. Dijkstra and G. Fisher (eds.), *Inside and out: Interactions between Rome and the peoples on the Arabian and Egyptian frontiers in Late Antiquity*, 165–198. Leuven: Peeters.
- De Crespigny, R. 1984. *Northern frontier: The policies and strategies of the Later Han empire*. Canberra: Faculty of Asian Studies, Australian National University.
- De Romanis, F. 2015. "Trajan's canal and the logistics of Late Antiquity India trade." In V. Christides (ed.), *Interrelations between the peoples of the Near East and Byzantium in the pre-Islamic times*, 49–60. Córdoba: Oriens Academic – CNERU.
- Deloche, J. 2010. "Roman trade routes in South India: Geographical and technical factors (c. 1st cent. BC–5th cent. AD)." *Indian Journal of History of Science* 45.1, 33–46.
- Di Cosmo, N. 2002. *Ancient China and its enemies*. Cambridge: Cambridge University Press.
- Dirven, L., ed. 2013. *Hatra: Politics, culture and religion between Parthia and Rome*. Stuttgart: Franz Steiner.
- Dreyer, E. L. 2008. "Zhao Chongguo: A professional soldier of China's Former Han dynasty." *The Journal of Military History* 72.3, 665–725.
- Dvurechenskaya [Dvurechenskaia], N. D. 2018. "К методике полевых исследований в горной местности (на примере эллинистической крепости Узундара)" [Toward a methodology of field research in mountainous areas (using the example of the Hellenistic fortress of Uzundara)]. *Краткие сообщения Института археологии* 251, 168–180.
- . 2019. "The Hellenistic fortress of Uzundara." In C. Baumer and M. Novák (eds.) *Urban cultures of Central Asia from the Bronze Age to the Karakhanids: Learnings and conclusions from new archaeological investigations and discoveries. Proceedings of the First International Congress on Central Asian Archaeology held at the University of Bern, 4–6 February 2016*, 153–162. Harrassowitz: Wiesbaden.
- Erdosy, G. 1998. "Deforestation in pre- and protohistoric India." In R. H. Grove, V. Damodaran, and S. Sangwan (eds.), *Nature and the Orient: The environmental history of South and Southeast Asia*, 51–69. Delhi: Oxford University Press.
- Falk, N. E. 1973. "Wilderness and kingship in ancient South Asia." *History of Religions* 13.1, 1–15.

- Faucher, T. 2018. "Ptolemaic gold: The exploitation of gold in the Eastern Desert." In J. P. Brun, T. Faucher, B. Redon, and S. Sidebotham (eds.), *The Eastern Desert of Egypt during the Greco-Roman period: Archaeological reports*, 50–65. Paris: Collège de France.
- Gates, J. E. 2006. "Hidden passage: Graeco-Roman roads in Egypt's Eastern Desert." In E. C. Robertson, J. D. Seibert, D. C. Fernandez, and M. U. Zender (eds.), *Space and spatial analysis in archaeology*, 315–322. Calgary: University of Calgary Press.
- Gates-Foster, J. 2012a. "The Eastern Desert and the Red Sea ports." In C. Riggs (ed.), *The Oxford handbook of Roman Egypt*, 736–748. Oxford: Oxford University Press.
- . 2012b. "The Eastern Desert during the Ptolemaic period: An emerging picture." In H. Barnard and K. Duistermaat (eds.), *The history of the peoples of the Eastern Desert*, 190–203. Los Angeles, CA: UCLA Cotsen Institute of Archaeology Press.
- Gibson, J. J. 1977. "The theory of affordances." In R. Shaw and J. Bransford (eds.), *Perceiving, acting, and knowing: Toward an ecological psychology*, 67–82. Hillsdale, NJ: Lawrence Erlbaum.
- . 1979. *The ecological approach to visual perception*. Boston, MA: Houghton Mifflin.
- Giele, E. 2011. "Evidence for the Xiongnu in Chinese wooden documents from the Han period." In U. Brosseder and B. K. Miller (eds.), *Xiongnu archaeology: Multidisciplinary perspectives of the first steppe empire in Inner Asia*, 49–75. Bonn: Vor- und Frühgeschichtliche Archäologie, Rheinische Friedrich-Wilhelms-Universität.
- Gillings, M. 2012. "Landscape phenomenology, GIS and the role of affordance." *Journal of Archaeological Method and Theory* 19, 601–611.
- Gregoratti, L. 2013. "Hatra: On the west of the East." In L. Dirven (ed.), *Hatra: Politics, culture and religion between Parthia and Rome*, 45–54. Stuttgart: Franz Steiner.
- Gruber, M., J. Il'yasov, and K. Kaniuth. 2012. "A decorated ivory belt from Tilla Bulak, southern Uzbekistan." *Ancient Civilizations from Scythia to Siberia* 18, 339–375.
- Harrell, J. A. 2019. "Geology." In S. E. Sidebotham and J. Gates-Foster (eds.), *The archaeological survey of the desert roads between Berenike and the Nile Valley: Expeditions by the University of Michigan and the University of Delaware to the Eastern Desert of Egypt, 1987–2015*, 51–72. Boston, MA: American Schools of Oriental Research.
- Havlík, J., H. Havlíková, and L. Stančo. 2018. "Kurgans of the eastern Kugitang piedmonts: Preliminary report for season 2018." *Studia Hercynia* 22.2, 147–172.
- Havlík, J., L. Stančo and H. Havlíková. 2017. "Kurgans of the eastern Kugitang piedmonts: Preliminary report for season 2017." *Studia Hercynia* 21.2, 160–182.
- Havlík, J., L. Stančo, J. Kysela, P. Cejnarová, H. Havlíková, and T. Votroubeková. 2018. "Kurgans of the eastern Kugitang piedmonts. Preliminary report on excavations in seasons 2015–2017." *Studia Hercynia* 22.1, 183–206.
- Heras-Escribano, M. and M. de Pinedo-García. 2018. "Affordances and landscapes: Overcoming the nature–culture dichotomy through Niche Construction Theory." *Frontiers in Psychology* 8, 1–15.
- Hu, N. and X. Li. 2014. "Spatial distribution of an ancient agricultural oasis in Juyan, northwestern China." *Frontiers of Earth Science* 8, 338–350.
- Hulsewé, A. F. P. 1979. *China in Central Asia: The early stage, 125 BC–AD 23: An annotated translation of chapters 61 and 96 of the History of the Former Han Dynasty, with an introduction by M. A. N. Loewe*. Leiden: Brill.
- Ingold, T. 1993. "The temporality of the landscape." *World Archaeology* 25.2, 152–174.
- Jones, O. and P. Cloke. 2008. "Non-human agencies: Trees in place and time." In C. Knappett and L. Malafouris (eds.), *Material agency: Towards a non-anthropocentric approach*, 79–96. New York, NY: Springer.
- Kaizer, T. 2006. "Capital punishment at Hatra: Gods, magistrates and laws in the Roman-Parthian period." *Iraq* 68, 139–153.

- Khasanov, M., Y. Tang, and M. Xomidzhonova. 2019. “Шимолий Бақтриянинг давруга оид янги ёдгорликлари. Новые памятники кушанского периода северной Бактрии” [New monuments of the Kushan period of the northern Bactria]. *Scientific Journal of the Fergana State University* 3, 54–58.
- Kotarba-Morley, A. M. 2019. “Ancient ports of trade on the Red Sea coasts – The ‘parameters of attractiveness’ of site locations and human adaptations to fluctuating land- and sea-scapes. Case study *Berenike Troglodytica*, southeastern Egypt.” In N. M. A. Rasul and I. C. F. Stewart (eds.), *Geological setting, palaeoenvironment and archaeology of the Red Sea*. New York, NY: Springer.
- Lassányi, G. 2012. “On the archaeology of the native population of the Eastern Desert in the first-seventh centuries CE.” In H. Barnard and K. Duistermaat (eds.), *The history of the peoples of the Eastern Desert*. Los Angeles, CA: Cotsen Institute of Archaeology Press.
- Latour, B. 2005. *Reassembling the social: An introduction to actor-network-theory*. Oxford: Oxford University Press.
- Liu, F., H. Li, Y. Cui, Y. Yang, H. F. Lee, D. Ding, Y. Hou, and G. Dong. 2019. “Chronology and plant utilization from the earliest walled settlement in the Hexi corridor, northwestern China.” *Radiocarbon* 61.4, 971–989.
- Llobera, M. 1996. “Exploring the topography of mind: GIS, social space and archaeology.” *Antiquity* 70, 612–622.
- Loewe, M. 1967. *Records of Han administration*. 2 vols. Cambridge: Cambridge University Press.
- Lyonnet, B. 1997. *Prospections archéologiques en Bactriane orientale (1974–1978)*. Vol. 2, *Céramique et peuplement du Chalcolithique à la conquête arabe*. Paris: Éditions Recherche sur les Civilisations.
- Macdonald, M. C. A. 2003. “‘Les Arabes en Syrie’ or ‘La pénétration des Arabes en Syrie’. A question of perceptions?” *Topoi. Orient-Occident* 4.1, 303–318.
- Macdonald, M. C. A., A. Corcella, T. Daryaee, G. Fisher, M. Gibbs, A. Lewin, D. Violante, and C. Whately. 2015. “Arabs and empires before the sixth century.” In G. Fisher (ed.), *Arabs and Empires before Islam*, 11–89. Oxford: Oxford University Press.
- Mani, M. S. 1974. “The flora.” In M. S. Mani (ed.), *Ecology and biogeography in India*, 159–177. Dordrecht: Springer Netherlands.
- Marston, J. M. 2017. *Consequences of agriculture in Mesopotamia, Anatolia, and the Levant*. Oxford: Oxford University Press.
- Maxfield, V. A. 2000. “The deployment of the Roman auxilia in Upper Egypt and the Eastern Desert during the Principate.” In G. Alföldy, B. Dobson, and W. Eck (eds.), *Kaiser, Heer und Gesellschaft in der römischen Kaiserzeit: Gedenkschrift für Eric Birley*, 407–442. Stuttgart: Franz Steiner.
- Millar, F. 1998. “Caravan cities: the Roman Near East and long distance trade by land.” In M. Austin, J. Harries, and C. Smith (eds.), *Modus operandi: Essays in honour of Geoffrey Rickman*, 275–299. London: Institute of Classical Studies.
- Morrison, K. D. 2002. “Pepper in the hills: Upland-lowland exchange and the intensification of the spice trade.” In K. D. Morrison and L. L. Junker (eds.), *Forager-traders in South and Southeast Asia: Long-term histories*, 122–158. Cambridge: Cambridge University Press.
- Morrison, K. D. and M. T. Lycett. 2013. “Forest products in a wider world: Early historic connections across southern India.” In S. A. Abraham, P. Gullapalli, T. P. Raczek, and U. Z. Rizvi (eds.), *Connections and complexity: New approaches to the archaeology of South Asia*, 127–142. Walnut Creek, CA: Left Coast Press.
- . 2014. “Constructing nature: Socio-natural histories of an Indian forest.” In S. B. Hecht, K. D. Morrison, and C. Padoch (eds.), *The social lives of forests: Past, present, and future of woodland resurgence*, 148–160. Chicago, IL: University of Chicago Press.
- Nienhauser, W. H., ed. 2019. *The Grand Scribe’s records*. Vol. 11, *The memoirs of Han China*, Part 4. Bloomington, IN: Indiana University Press.

- Olivelle, P. 1993. *The Āśrama system: The history and hermeneutics of a religious institution*. Oxford: Oxford University Press.
- Palermo, R. 2019. *On the edge of empires: North Mesopotamia during the Roman period (2nd–4th c. CE)*. London: Routledge.
- Pantalacci, L. 2018. “Coptos: Gate to the Eastern Desert.” In J. P. Brun, T. Faucher, B. Redon, and S. Sidebotham (eds.), *The Eastern Desert of Egypt during the Greco-Roman period: Archaeological reports*, 8–28. Paris: Collège de France.
- Parasher-Sen, A. 1998. “Of tribes, hunters and barbarians: Forest dwellers in the Mauryan period.” *Studies in History* 14.2, 173–191.
- Parkhill, T. 1995. *The forest setting in Hindu epics: Princes, sages, demons*. Lewiston, NY: Mellen University Press.
- Porter, A. 2012. *Mobile pastoralism and the formation of Near Eastern civilizations: Weaving together society*. Cambridge: Cambridge University Press.
- Purcell, N. 1990. “The creation of provincial landscape: The Roman impact on Cisalpine Gaul.” In T. F. C. Blagg and M. Millett (eds.), *The early Roman Empire in the West*, 6–29. Oxford: Oxbow Books.
- Rakhmanov, S. and C. Rapin. 2003. “Железные ворота” [Iron gates]. In Труды Байсунской научной экспедиции. Vol. 1, 22–32. Ташкент: SMI-Asia.
- Rapin, C. 2007. “Nomads and the shaping of Central Asia.” In J. Cribb and G. Hermann (eds.), *After Alexander: Central Asia before Islam*, 29–72. Oxford: Oxford University Press.
- . 2013. “On the way to Roxane: The route of Alexander the Great in Bactria and Sogdiana (328–327 BC).” In S. Hansen, G. Lindström, A. Wiczorek, and M. Tellenbach (eds.), *Zwischen Ost und West. Neue Forschungen zum antiken Zentralasien*, 43–82. Darmstadt: Philipp von Zabern.
- Rapin, C., A. Baud, F. Grenet, and Sh. A. Rakhmanov. 2006. “Les recherches sur la région des Portes de Fer de Sogdiane: Bref état des questions en 2005.” *История материальной культуры Узбекистана* 35, 48–59.
- Rathbone, D. 2002. “Coptos the *emporion*: Economy and society, I–III AD” *Topoi: Orient-Occident* 3, 179–198.
- Ray, H. P. 2003. *The archaeology of seafaring in ancient South Asia*. Cambridge: Cambridge University Press.
- Redon, B. 2018. “The control of the Eastern Desert by the Ptolemies: New archaeological data.” In J. P. Brun, T. Faucher, B. Redon, and S. Sidebotham (eds.), *The Eastern Desert of Egypt during the Greco-Roman period: Archaeological reports*, 29–49. Paris: Collège de France.
- Reger, G. 2017. “Romans in the Egyptian desert: From desert space to Roman place.” In P. Derron and S. von Reden (eds.), *Économie et inégalité: Ressources, échanges et pouvoir dans l'antiquité classique*, 115–144. Vandoeuvres: Fondation Hardt.
- Rosenzweig, M. S. and J. M. Marston. 2018. “Archaeologies of empire and environment.” *Journal of Anthropological Archaeology* 52, 87–102.
- Rostovtzeff, M. I. 1932. *Caravan cities*. D. Talbot and T. Talbot (trans.). Oxford: Clarendon.
- Rowton, M. B. 1977. “Dimorphic structure and the parasocial element.” *Journal of Near Eastern Studies* 36.3, 181–198.
- Rtveladze, E. V. 2013. “Историко-географический и археологический обзор Пашхурдской долины. Географическое местоположение” [A historical-geographic and archaeological survey of the Pashkhurt Valley. The geographical position]” In Материалы Тохаристанской экспедиции. Vol. 9, 5–31. Елец: ЕдГУ им. И.А. Бунина.
- Schopen, G. 2004. “Art, beauty, and the business of running a Buddhist Monastery in early northwest India.” In G. Schopen, *Buddhist monks and business matters: Still more papers on monastic Buddhism in India*, 19–44. Honolulu, HI: University of Hawai’i Press.
- Seland, E. H. 2011. “The Persian Gulf or the Red Sea? Two axes in ancient Indian Ocean trade, where to go and why.” *World Archaeology* 43.3, 398–409.

- Sidebotham, S. E. 2011. *Berenike and the ancient maritime spice route*. Berkeley, CA: University of California Press.
- Sidebotham, S. E. and J. E. Gates-Foster. 2019. "Introduction." In S. E. Sidebotham and J. E. Gates-Foster (eds.), *The archaeological survey of the desert roads between Berenike and the Nile Valley: Expeditions by the University of Michigan and the University of Delaware to the Eastern Desert of Egypt, 1987–2015*, 1–49. Boston, MA: American Schools of Oriental Research.
- Sidebotham, S. E., M. Hense, and H. M. Nouwens. 2008. *The Red Land: The illustrated archaeology of Egypt's Eastern Desert*. Cairo: The American University in Cairo Press.
- Singh, U. 2017. *Political violence in ancient India*. Cambridge, MA: Harvard University Press.
- Sinha Kapur, N. 2011. "Introduction." In N. Sinha Kapur (ed.), *Environmental history of early India: A reader*, xiii–xxxv. New Delhi: Oxford University Press.
- Sircar, D. C. 1971. *Studies in the religious life of ancient and medieval India*. Delhi: Motilal Banarsidass.
- Sommer, M. 2005. *Roms orientalische Steppengrenze: Palmyra, Edessa, Dura-Europos, Hatra: eine Kulturgeschichte von Pompeius bis Diocletian*. Stuttgart: Franz Steiner.
- . 2013. "In the Twilight: Hatra between Rome and Iran." In L. Dirven (ed.), *Hatra: Politics, culture and religion between Parthia and Rome*, 33–44. Stuttgart: Franz Steiner.
- Stančo, L., S. Shaydullaev, O. Khamidov, A. Augustinová, L. Damašek, T. Bek, and M. Kmošej. 2019. "In the footsteps of Euthydemus. Preliminary report for archaeological survey in the Baysun District (South Uzbekistan), Season 2018." *Studia Hercynia* 23.1, 141–172.
- Stančo, L. and P. Tušlová, eds. 2019. *Sherabad oasis. Tracing historical landscape in southern Uzbekistan*. Prague: Charles University Karolinum Press.
- Stride, S. 2005. "Géographie archéologique de la province du Surkhan Darya (Ouzbékistan du sud/Bactriane du nord)." PhD diss., Université Paris 1 Panthéon-Sorbonne.
- . 2007. "Regions and territories in southern Central Asia: What the Surkhan Darya province tells us about Bactria." In J. Cribb and G. Hermann (eds.), *After Alexander: Central Asia before Islam*, 99–117. Oxford: Oxford University Press.
- Sverchkov, L. M. 2005a. "Archaeological monuments of Boysun district." In История и традиционная культура Байсуна. Труды Байсунской научной экспедиции. Vol. 2, 10–20. Ташкент: Институт искусствознания Академии Художеств Узбекистана Фонд поддержки культуры и искусства «Байсун».
- . 2005b. "Boysun. Trial historical reconstruction." In История и традиционная культура Байсуна. Труды Байсунской научной экспедиции. Vol. 2, 56–65. Ташкент: Институт искусствознания Академии Художеств Узбекистана Фонд поддержки культуры и искусства «Байсун».
- . 2008. "The Kurganzol Fortress (on the history of Central Asia in the Hellenistic Era)." *Ancient Civilizations from Scythia to Siberia* 14.1/2, 123–191.
- . 2009. "A history of research on ancient mining in Uzbekistan." *Archäologische Mitteilungen aus Iran und Turan* 41, 141–164.
- . 2014. Курганзол – Крепость Александра на юге Узбекистана [*Kurganzol: A fortress of Alexander in south Uzbekistan*]. Ташкент: SMI-ASIA.
- Thapar, R. 2001. "Perceiving the forest: Early India." *Studies in History* 17.1, 1–16.
- Thomas, R. 2012. "Port communities and Erythraean sea trade." *British Museum Studies in Ancient Egypt and Sudan* 18, 169–199.
- Trautmann, T. R. 2009. "Elephants and the Mauryas." In T. R. Trautmann (ed.), *The clash of chronologies: Ancient India in the modern world*, 229–254. Delhi: Yoda Press.
- . 2015. *Elephants and kings: An environmental history*. Chicago, IL: University of Chicago Press.
- Tse, W. W. K. 2018. *The collapse of China's Later Han dynasty, 25–200 CE: The northwest borderlands and the edge of empire*. London: Routledge.

- Tucker, D. J. and S. R. Hauser. 2006. "Beyond the world heritage site: A huge enclosure revealed at Hatra." *Iraq* 68, 183–190.
- Vayda, A. P. and B. P. Walters. 1999. "Against political ecology." *Human Ecology* 27.1, 167–179.
- Walsh, K. 2008. "Mediterranean landscape archaeology: Marginality and the culture–nature 'divide.'" *Landscape research* 33.5, 547–564.
- Wang, H. 2004. *Money on the Silk Road: The evidence from eastern Central Asia to c. AD 800, including a catalogue of the coins collected by Sir Aurel Stein*. London: British Museum Press.
- Wang, M. 1992. "The Ch'iang of ancient China through the Han dynasty: Ecological frontiers and ethnic boundaries." PhD diss., Harvard University.
- Wang Zijin 王子今. 2018. "Dong Han Luoyang de guojihua shichang" 东汉洛阳的国际化市场 [The internationalization of the market in Luoyang during Later Han times]. *Zhongyuan wenhua yanjiu* 中原文化研究, no. 1, 15–21.
- Watson, B. 1993. *Records of the Grand Historian: Han dynasty II*. Revised ed. New York, NY: Columbia University Press.
- Whitewright, J. 2007. "How fast is fast? Technology, trade and speed under sail in the Roman Red Sea." In J. Starkey, P. Starkey, and T. J. Wilkinson (eds.), *Natural resources and cultural connections of the Red Sea*, 77–87. Oxford: Archaeopress.
- Yang, Y., L. Ren, G. Dong, Y. Cui, R. Liu, G. Chen, H. Wang, S. Wilkin, and F. Chen. 2019. "Economic change in the prehistoric Hexi corridor (4800–2200 bp), north-west China." *Archaeometry* 61, 957–976.
- Yü, Y. 1967. *Trade and expansion in Han China: A study in the structure of Sino-barbarian economic relations*. Berkeley, CA: University of California Press.



Part II: **Tools**

Eli J. S. Weaverdyck

Introduction

Within the network metaphor laid out in chapter 2, the tools discussed in this section are neither nodes (actors) nor edges (relationships between actors), but rather the various phenomena that influenced the forms and scope of actors' relationships, their economic interactions, and transactions. As is implied by our choice of the term 'tool,' we focus on aspects that facilitated the construction and maintenance of economic relationships and the coordination of economic behavior. While we are well aware of the impediments inherent in all premodern economies, this focus is consistent with our goal of understanding the relative expansion of economic connectivity and complexity that is visible across Afro-Eurasia in our period. The term 'tool' carries other implications as well. Tools are strategically created, maintained, and deployed, but they also influence the behavior of the user in sometimes unconscious ways. Just so, the phenomena under discussion were not static preconditions but dynamic social processes themselves, formed – consciously or not – by the behavior of various actors and forming – again, consciously or not – that behavior in turn.

The following chapters discuss a fairly consistent range of tools. They all begin with fiscal regimes, the mechanisms by which state organizations mobilized resources, including both extraction and deployment. Closely related is the question of monetization. State power played a central role in both domains. In the former, it impelled actors to pay, collect, and redistribute resources; in the latter, the production and regulation of coinage was often (not always) a function of the state, taken on to bolster its political and economic power and to lubricate the distribution of state-owned resources. At the same time, closer investigation shows that both were really a function of negotiations between actors more or less embedded in state institutions. The political needs of those most closely wedded to the state stimulated the development of institutions that actors could use strategically in a variety of interactions. But these institutions were not so much products of the state per se as of the convergence of multiple, overlapping networks of actors operating simultaneously under a variety of institutional pressures.

The state has also been privileged in Neo-Institutional Economics for its role in reducing uncertainty by providing and enforcing laws and standards (formal institutions) that make peoples' behavior more predictable.¹ The discussions of legal systems and standardization that follow show that some states did indeed play this role to some extent. However, they also show that the effectiveness of ancient states in reducing uncertainty should not be overstated, and that a variety of other mecha-

¹ North 1990, 3–10, 46–53.

nisms operated as well. Dispute resolution and the enforcement of agreements rarely relied exclusively on state power.² The existence of a superordinate authority that would hear appeals could be helpful in facilitating transactions across social boundaries, but legal plurality was always more rule than exception. Nevertheless, standards did exist, more often spread (sometimes quite far) through private or religious networks. Many of our areas witnessed the extension of certain cultural traits over wide areas. These traits can be understood as network standards, and as they spread they facilitated interactions between those actors who adopted them. This was true not only of mediating standards, like language, which literally allowed people to talk to each other, but also of membership standards, like consumption patterns, which made strangers seem more familiar, more ‘legible,’ and therefore more predictable.

Physical infrastructure and technology can be seen as tools that facilitate interactions between human actors and their material surroundings. Here we see a great deal of variability. Infrastructure requires the mobilization of community resources, and while some imperial states were heavily involved in the coordination of transport and irrigation infrastructure, others did very little. Even in the former cases, however, imperial states never acted alone. Infrastructure projects required close coordination and buy-in from multiple, local groups, and the state was not the only organization that accomplished this. Technological change was similarly variable and multifaceted. While there was certainly no ancient equivalent of the industrial revolution, some economically significant technological innovation did occur in key sectors of some economies. In the case of China, these were sectors where the imperial state had a vested fiscal interest, but in the case of Rome more straightforward economic and social motivations were operative.

The nature of the tools that were available for actors to use, then, was often influenced by the existence of a state organization. But to see the nature of the state as determinative of the types of tools available is, at best, a gross oversimplification. Rather, a variety of actors and, crucially, the interactions between them were responsible for forging the tools that made greater economic coordination possible in the Afro-Eurasian world region.

References

- North, D. C. 1990. *Institutions, institutional change, and economic performance*. Cambridge: Cambridge University Press.
- Terpstra, T. 2019. *Trade in the ancient Mediterranean: Private order and public institutions*. Princeton, NJ: Princeton University Press.

² Terpstra 2019.

8 Mediterranean, Near East, and Iran

Eli J. S. Weaverdyck and Lara Fabian

8.A Tools of Economic Activity in the Hellenistic and Roman Worlds: Empires and Coordination

I Introduction

The tools we consider here reshaped patterns of economic behavior both individually and in combination. In the case of the ancient Mediterranean and southwestern Asia, the broad shift was toward expanded patterns of coordination that promoted economic activities across larger physical distances and between disparate social groups. However, the tools could also limit access or concentrate economic power within narrow sectors of a society or market. The classic consideration of coordination is rooted in the discussion of market exchange, considering coordination as a way of reducing impediments to markets' optimal functioning.¹ Here, we consider the impact of tools not just on market integration but on other spheres of social coordination, for example hierarchies and formal networks.²

The state looms large in these discussions, as it had the most far-reaching organizational authority and some power to regulate economic behavior among its subjects. We therefore begin with a discussion of the fundamental toolset of the state – *fiscal regimes*, including taxation, spending, and monetary policy. Such regimes allowed central authorities to raise tremendous revenue and to spend it in ways intended to ensure the preservation of state power, generally benefiting the ruling coalition. In actuality, although control of fiscal regimes rested in the hands of a central authority, the processes of consolidating and redistributing the vast capital that flowed through state coffers were distributed. The configuration of responsibility to assess and collect taxes structured patterns of authority and sovereignty, creating economic 'winners' and 'losers' and shaping patterns of cooperation in the process. State spending, although directed at the survival of the state, promoted *monetization* that was both more intense and more widespread than in previous periods. The increased monetization, in turn, supported coordination of consumption, production, and distribution not just for the state but for the wider community.

Two other tools sit in close proximity to the state, *physical infrastructure* and *law*. The former covers large-scale physical projects generally undertaken by central

1 Beckert 2009, 11–15.

2 Manning 2011; G. Thompson et al. 1991.

authorities, like the construction of hydrological and transportation infrastructure. These projects generally increase productivity, ease distribution, and facilitate consumption, and in the long run increase coordination particularly in market contexts. Law, on the other hand, is an abstract tool that offers people access to rule-based relationships, with increased transparency and predictability that is associated with economic risk-taking. The expansion of legal systems across broad territories, as well as their accessibility to individuals from different social groups, aids intergroup coordination, allowing for the expansion of economic networks.

The final tools discussed, *standardization* and *technology*, are further removed from state power, at least in the context of the ancient Mediterranean and southwestern Asia. Although the friction-reduction benefits of standardization might be seen as a significant benefit of centralized power, the evidence for effective top-down standardization in critical spheres like weights and measures or language is limited. However, informal (i.e., not state-mandated) social standardization, particularly in the sphere of consumption practices, had dramatic consequences on production and distribution systems. Studies of technology, finally, tend to focus on the facilitation of increased production (e.g., more efficient harvesting and milling), and find ancient technological progress anemic. However, the importance of technology shifts if we consider instead developments that facilitated movement and therefore coordination. Under this lens, we find that technology played a critical role in facilitating robust, geographically distributed, segmented production systems.

Throughout, our focus will be on the ways that these tools facilitated economic activity, including production and consumption but with a particular focus on distribution and coordination. At the same time, we cannot ignore the social context of these tools. They emerged, evolved, and were maintained (sometimes consciously) as a result of the behavior of the actors discussed previously. Therefore, in addition to the impact that these tools had on economic behavior, we also address the impact of socially embedded actors on the tools themselves.

II Fiscal Regimes

Ancient empires could control and deploy economic resources on a scale that dwarfed any other actor. Some revenue came from plunder and indemnities in the course of warfare and was therefore mobilized by military power; some came from the state's/monarch's property and was therefore mobilized by the same institutions that underlay private individuals' economic power; but the most important sources of revenue, because they constituted the majority of states' income and impacted the largest number of people most consistently, were taxes. These were mobilized using the state's unique political power, which was often backed by military power. Most modern scholarship on fiscal regimes asks how fiscal policies shaped the dis-

tribution, durability, and exercise of state power.³ Our focus is different. We ask how fiscal regimes, including both the collection and deployment of resources, affected the economy at large. We therefore begin by reviewing briefly the types of taxes and methods of assessment that we find in the ancient Mediterranean and Near East. We then discuss the impact of this taxation by exploring the behavior of taxpayers, the effects of the ways that states deployed the resources they extracted, and finally the consequences of the methods of collection.

II.1 Revenues

Taxation, rent, and tribute in the Hellenistic and Roman empires cannot be understood as unified, rationally designed systems. The fiscal regimes of the Hellenistic kingdoms emerged out of the interaction of imported Macedonian administrative systems and preexisting Achaemenid and local structures, and tended toward extensive and increasingly centralized intervention. In the subsequent period, as Romans conquered the Mediterranean basin, they adopted local methods of taxation and developed new ones on an ad hoc basis. Although more centralized than the Hellenistic kingdoms, the Roman government did not seek to standardize taxation across the empire.⁴ There was a trend toward more state involvement in revenue collection, but there was never a single unified system of tax assessment or payment, nor a concerted attempt at one in our period.

II.1.1 Types of Taxes

Although collected under a huge number of names, the dominant taxes in both the Hellenistic and Roman systems can be divided into three broad categories: taxes on agricultural products and land, taxes on individuals including poll taxes as well as forced labor levies, and indirect taxes on transportation or movement. Further indirect taxes were also levied on a range of other transactions like the sale and manumission of slaves, specific types of production activity, and inheritance, while particular social groups were often subjected to special direct taxation as well. There were also special-purpose taxes levied for particular needs and exigencies.

Taxes on agricultural production as well as rents paid for royal/imperial land constituted a significant portion of state income across this period.⁵ Seleukid royal

³ Monson and Scheidel 2015 for an overview. Two important exceptions, however, are Keith Hopkins (1980; [1995–1996] 2002) and Peter Bang (2007; 2008), who focus on the economic impact of imperial taxation.

⁴ For brief overviews of Roman taxation, see Brunt 1990, 324–346; Rathbone 1996; Bowman 1996; Eck 2000a; Lo Cascio 2007. Attempts at greater standardization began at the end of the third century CE.

⁵ On the Ptolemaic world, see Manning 2003, 57, discussion in von Reden 2007, 89–90. For Roman revenues, Scheidel 2015, 160–163.

lands, the vast tracts of territory that fell beyond city and temple control and were claimed by the kings, were subject to a tax called the tenth (*dekate*) or harvest tax (*ekphorion*). Lands not directly administered may also have been subject to a fixed-rate tribute, the *phoros*, although the basis on which this was assessed and its relationship to the proportional taxes mentioned above is unclear. Agricultural production and land taxes in Ptolemaic Egypt, where more is known, varied both by the crop grown (e.g., grain-land vs. orchards) and the type of land it was grown on (e.g., crown- vs. temple- vs. *kleruchic* land). *Kleruchic* lands were also subject to a range of taxes related to either cultivated plots or volumes of yield.⁶ The line between taxes and rents was fairly fluid, such that Ptolemaic temple lands were subject to an *ekphorion* that cut across rents to temples and taxes to the state. The key land tax in the Roman Empire, meanwhile, was the *tributum soli*, which was levied on noncitizens.

A range of types of capitation taxes were collected by Hellenistic kings. From the Ptolemaic world, the earliest was the salt tax, in force during the second half of the third century BCE.⁷ There were other levies placed on individuals throughout the Ptolemaic period, including a tax on priests and a later tax on all men, whose nature remains debated.⁸ In the Roman sphere, we have concrete evidence for poll taxes (*tributum capitis*) from Egypt and Judaea, and these are usually taken to have been a regular feature throughout the empire.⁹ Revenues related to the movement of people and goods were collected, including duties and taxes or fees related to infrastructure use (e.g., port fees or tolls). Indirect taxes in both the Hellenistic and Roman worlds also included a range of types of compulsory service, including military conscription, forced labor, and liturgies.¹⁰ The latter, called *munera* in Latin, were specific tasks imposed on people based on their financial and professional status, often at the municipal level. Many vital governmental functions, including tax collection, were performed by liturgists serving limited terms. Taxation, therefore, varied greatly not only by time and place but also from person to person.

II.1.2 Methods of Assessment

The question of assessment concerns tax rates, how these were calculated (e.g., as a proportion of the harvest or a fixed quantity relative to the amount of land), and the form in which they were to be paid (cash or kind). The tax rates paid on agricul-

⁶ Von Reden 2007, 92–94.

⁷ Clarysse and Thompson 2006, ch. 3.

⁸ See Monson 2019, 154.

⁹ Rathbone 1993 for Egypt; Alon 1980, 64–66 for Judaea; Neesen 1980, 117–135 for the empire at large.

¹⁰ Hellenistic: Reger 2003, 343–345 (*polis*-context). Roman: Brunt 1990, 188–214 (conscription); Lewis 1997 (liturgies).

tural products are difficult to track. This problem is particularly acute in the Seleukid kingdom, where we have little concrete information about tax assessment even for critical crops like grain cultivated under direct control of the king.¹¹ There is, however, evidence for the increasing role of cash rather than in-kind tax collection across the Seleukid sphere.¹²

Records concerning Ptolemaic taxation are far more detailed. There was, on the one hand, a grain economy which produced cereal crops whose harvest taxes were calculated in kind and used to supply urban centers. The *ekphorion* rent for crown land ranged dramatically depending on land quality and annual climatic considerations as determined during pre-harvest surveys of land.¹³ Other categories of land were assessed at different rates. The taxation rate for *kleruchic* land, for example, eventually fell quite low, amounting to only one *artaba* per *aroura* in the late second century BCE.¹⁴ Other agricultural products were taxed differently. The *apomoira* for fruits or wine, usually one-sixth of the harvest, were assessed in monetary terms – they would often have been collected in kind but then converted to cash before flowing to the central authority. In yet other cases, the unit of collection is specified as bronze coin, which suggests a local purpose for the revenue raised, since bronze coins were emphatically local.¹⁵ Many of these taxes were commutable into other units, however, with grain and coined money serving as base units.

Despite the reasonable state of Roman evidence, agricultural taxation remains a murky subject. In one brief passage, a land surveyor of the second or third century CE writes “In some provinces, they pay a definite portion of the produce, some one-fifth, others one-seventh; others pay cash, and this is based on an evaluation of the land.”¹⁶ Unfortunately, we have no comprehensive list of which provinces were taxed in which way, and we know that the details changed over time.¹⁷ Judaea paid taxes in kind under Julius Caesar, but in the census decreed by Augustus, residents of Syria (including Judaea) had to declare their property in money. Appian, writing in the second century CE, says that Syria paid a property tax of one percent.¹⁸ Forms of payment also varied by crop. In Roman Egypt, we know that taxes on grain land were collected in kind, while taxes on vineyards and olive groves were collected in coin, as in the Ptolemaic period.¹⁹ The same was true in at least some parts of the province of Asia.²⁰

11 Kaye 2018.

12 Van der Spek 2004.

13 Monson 2015, 182.

14 Monson 2019, 153.

15 Von Reden 2007, 87.

16 Pseudo-Hyginus, *Establishment of limites*, 205L, trans. Campbell 2000, 161.

17 Duncan-Jones collects the scattered evidence for taxation of provinces in money and in kind (1990, 187–198).

18 Duncan-Jones 1990, 189; Safrai 1994, 145, 351–352 for Judaea.

19 For taxation in Roman Egypt, see Rathbone 1993.

20 Duncan-Jones 1990, 192.

Assessment was probably based more often on the amount of cultivated land rather than the harvest. Usually, the land tax was not actually collected from individual landowners but from the city in whose territory the land was situated, and cities could be granted tax relief on account of natural disasters.²¹ Had land taxes been assessed on the harvest itself, such relief would have been unnecessary. On imperially owned estates, in contrast, rent was normatively paid as a share of the harvest. This might have discouraged investment (see below), but the emperor offered other incentives, e.g., the right to cultivate unused land and temporary remission of rents for those planting vines and olives.²² Egyptian papyri, however, reveal complications and flexibility here as well. Rents on imperial estates were supposed to be assessed each year in response to the quality of the Nile flood, but in practice they settled at fixed average rates. Furthermore, the cultivators could commute their obligations between crops at fixed rates of exchange and might have been able to pay in money as well.²³

In contrast to agricultural productivity taxes, which were paid in a variety of ways, capitation taxes were generally fixed and assessed in cash. The Ptolemaic salt tax, for example, was due on all individuals, free and slave, and was invariably paid in cash, making it one of the central monetization vectors for the population as a whole. In the Ptolemaic world, these taxes, along with a range of taxes tied to production, consumption, or sale of specific products, were paid in cash²⁴ and assessed according to tax registers held at the local level, and not by means of a regularized, centralized census.²⁵ The Roman poll tax, the product of a more organized census, also varied from place to place and according to gender and age, with certain occupations and ethnicities (most famously the Jews) paying extra personal taxes.

Another category of taxes generally paid in cash are customs duties. In the Ptolemaic world, for example, these were collected on goods shipped into Egypt along with a range of other transaction costs like port fees related to shipping.²⁶ Our best evidence about the amount paid comes from the Zenon archive, which demonstrates that the duties on luxury imports could reach 50 percent, a very high rate with respect to other known Mediterranean contexts.²⁷ Roman customs duties were also

²¹ Brunt 1990, 339–343.

²² These arrangements are known from epigraphic evidence in North Africa, where imperial holdings were particularly extensive (Kehoe 1988).

²³ Rathbone 1993, 84.

²⁴ E.g., taxes connected to the the *kat' ethnoi* records, von Reden 2007, 104–107 for discussion and bibliography.

²⁵ On which in general, Clarysse and Thompson 2006.

²⁶ These include payment for the upkeep of the navy, a land transportation surcharge, and a harbor fee (Gabielsen 2013, 72). On customs duties in Ptolemaic and Roman Egypt generally, see Sijpesteijn 1987.

²⁷ Bresson 2012.

primarily levied in cash,²⁸ with one major exception: the 25 percent tax on imports into the empire. The Muziris Papyrus implies that imports coming from the Red Sea through Egypt were taxed in kind.²⁹ Taking taxes in money from the eastern trade would have been difficult, as the cargoes were so valuable that few merchants would have had enough cash on hand to pay.

II.2 The Economic Impact of Fiscal Policies

II.2.1 Taxpayers

For individual taxpayers, the most basic impact of imperial fiscal policies would have been the need to increase surplus production. Beyond the need to maintain a certain pre-tax level of consumption, certain forms of taxation might have incentivized or discouraged investments to further increase production, and changes in taxation could have far-reaching impacts on the distribution of wealth. Andrew Monson has made such a case for Egypt.³⁰ In the Ptolemaic period, crown lands were extensive, and these were subject to taxation assessed as a portion of the harvest (see above). If a landowner invested in improvements that increased the harvest, the state would capture a portion of that increased production. In the Roman period, more of the arable land was private, subject to the fixed rate of one *artaba* per *aroura*. In this case, any increase in productivity due to land improvements would be entirely captured by the owner. At the same time, the owner bore all the risk for poor harvests. Over the long term, this would favor wealthy cultivators at the expense of poor ones, who were more susceptible to harvest shocks and had less capacity to invest. That such a scenario occurred in Egypt, Monson argues, is shown by the increased use of water-lifting technology, a dramatic increase in the price of land, and the rise of an aristocracy based on landed wealth similar to what is known from other parts of the Mediterranean. While this shift in the method of assessing taxes might have increased overall production, it likely did so at the expense of the less wealthy cultivators for whom the combination of a poor harvest and an inflexible tax demand would have spelled ruin.

Taxation might also have incentivized monetization and increased commercial activity. Agriculturalists paying taxes in kind could simply increase production, but to pay a monetary tax – a poll tax, for example – one had to acquire coins, which usually meant selling one's produce or labor at market. So, for example, in Egypt

²⁸ Duncan-Jones 2006, 7.

²⁹ SB 18. 13167. Von Reden, vol. 1, ch. 8.C, 369–370 for an introduction. The latest account of this much-discussed document is De Romanis 2020, who argues, contrary to the dominant opinion, that this tax could be collected in money.

³⁰ Monson 2012.

the Ptolemies introduced monetary poll taxes as part of a broader suite of institutional reforms meant to encourage monetization.³¹ Monetary taxation thus forced payers to engage in economic behaviors that brought them into new types of relationships with others and to participate in broader economic networks. The breadth of these networks becomes clearer when considered at a regional level.³² Imperial states demand taxes from one region and deploy that wealth elsewhere. In the Roman Empire, this is particularly clear. The imperial state invested most of its wealth in the capital city and Italy, which paid no land or poll tax, and in the military stationed along the frontier, much of it in continental Europe, which was less wealthy than the Mediterranean regions. To sustain this continual drain of money, the tax exporting regions had to buy back their money by selling goods to the tax importing regions. The extraction of taxes, therefore, would have contributed to economic integration not only by moving goods and money from one place to another, but by triggering a secondary return movement of goods and money.³³

II.2.2 Deployment

Commercial markets might also have benefited from the actions of the tax-collecting state. There was often a mismatch between the resources that taxpayers could provide (usually goods) and the resources that the state required (usually money), and the state would often sell in-kind taxes on the market.³⁴ The Roman state certainly sold some of its tax grain in Rome, which allowed it to stabilize the grain market in the capital and take advantage of the high prices in the city.³⁵ On the other end of the commercial spectrum, we know that the state sold the balsam resin from the imperially owned balsam groves,³⁶ and it might have sold some of the goods it collected from the 25 percent tax on eastern imports. The need to convert taxes to money, then, would have helped to ensure a steady supply of goods to the market, encouraging buyers and traders to enter the market and promoting knock-on activities like financial intermediation. The same dynamic would have applied on a smaller, more dispersed scale to landlords who extracted rents in kind and sub-imperial states.

Of course, the purpose of extracting taxes was to concentrate resources in the hands of the state, and the concentration of resources at an imperial scale brought with it possibilities and conditions that had not existed before. The impacts of such

³¹ Von Reden 2007.

³² Hopkins 1980; (1995–1996) 2002.

³³ See, however, Weaverdyck, ch. 12.C, this volume for complications.

³⁴ Bang 2007; 2008.

³⁵ For the meager evidence, see Garnsey 1988, 238–239.

³⁶ Pliny, *Naturalis historia* (Plin. *HN*) 12. 54.

concentration are particularly apparent when we examine the two areas on which the Hellenistic and Roman empires spent most of their revenue: the military and patronage in core regions. The economic impacts of military spending were discussed in chapter 3.A, above, so here we focus on the patronage of cores.

In order to survive politically, ancient imperial states had to patronize certain powerful constituencies and, in a related process, spend money to create the image of wealth and power. In the Hellenistic systems, the investment in urbanism and the structured relationship between kings and their *philoï* discussed earlier were the most economically significant draw on resources. In the case of Rome and the Ptolemies, this meant pouring vast amounts of wealth into a relatively concentrated geographic area. The Roman imperial state funneled resources to the capital city in various ways: A free grain dole fed hundreds of thousands (and indirectly supported markets in other goods);³⁷ the emperors built monumental temples, baths, basilicas, and other infrastructure that provided not only the urban fabric of the capitol, but jobs; they also distributed money (called *congiaria*) to the populace and provided spectacles; the imperial household's consumption was exceptional in quantity and quality, and at least some of this must have been purchased; the imperial household and administrators earned salaries; and a portion of the military budget went to soldiers stationed in Rome.³⁸ In addition, because proximity to the emperor was the key to social advancement, imperial elites spent money in Rome that they extracted as rents from properties scattered across the empire. If Hopkins's estimate that imperial elite income was of the same order of magnitude as the imperial state's non-military expenditure is correct,³⁹ this nongovernmental channel might have funneled as much money to Rome as the state did. The result was a megacity with a voracious demand for capital of all kinds (including human, since the high population density led to higher mortality rates) and consumers willing to pay higher prices than anywhere else in the empire, which stimulated trade, division of labor, and a flow of immigrants (some of them seasonal) that drained other regions of surplus labor.⁴⁰ Ptolemaic investments in Alexandria must have produced a similar dynamic, although the details would have varied.

The Seleukids, on the other hand, had no such single dominant urban center. Although Seleukeia-Tigris and Antiocheia were the most important cities in their empire, Seleukid urban patronage was more geographically dispersed. In seeking to understand the development of this immense urban network, Aperghis has pro-

³⁷ Tchernia 2016, 103; Weaverdyck, ch. 12.C, this volume.

³⁸ Estimates of total Roman state expenditure rarely differentiate between expenditure in Rome and elsewhere. Scheidel 2015 provides a good, recent overview; Duncan-Jones 1994, 33–46 is more detailed.

³⁹ Hopkins (1995–1996) 2002, 208

⁴⁰ For the economic impact of the city of Rome, see Morley 1996; Hopkins (1995–1996) 2002, 219–225. Erdkamp 2016 emphasizes the role of cities in providing opportunities for underutilized agricultural labor.

posed a controversial model that sees city foundations as explicitly economic: the cities mobilized underutilized landscapes and provided marketplaces that converted agricultural produce into cash income for the royal treasury.⁴¹ As Boehm has recently pointed out, the model at once overstates the scale of monetization, and flattens the multifaceted economic dimensions of Seleukid cities, with urbanization contributing not only to royal economies, but also to those of the cities themselves.⁴² Much of the patronage that Seleukid dynasts bestowed on these new cities came in the form of alienating royal lands to civic authorities and prominent citizens, expanding and diversifying land ownership. The practice of devolving lands to individuals, and then further allowing those individuals to attach their estates to a *polis* empowered both the prominent citizens, and the *poleis*. This resulted in a class of newly landed elites with concentrations of wealth dispersed across the landscape. Atop this network, Boehm has also tracked the emergence of regional urban leagues – *koina* – which, along with the practice of *synoikism*, bound smaller cities together into a regional framework.⁴³ Seleukid investment in urbanism, then, promoted more dispersed economic development. The absence of a single primate capital city, however, implies an economy that was simultaneously more regionally egalitarian and less integrated.

II.2.3 Collection

As in any premodern tax system, there was a certain amount of friction and leakage in the process of collection. The tax collectors always kept some portion of what was collected for themselves. Therefore, the configuration of the tax collection system also influenced the distribution of wealth within society at large, rather than just that of the central treasury. Tax collectors could be intrinsically state agents acting on behalf of and paid directly by the state (e.g., Roman imperial freedmen or Ptolemaic state agents), political or administrative organizations subordinate to the state that collected taxes on their land and paid taxes out of that income (e.g., temples or cities), or individuals and organizations that bought the right to collect taxes, as in the case of tax farming. We know most about Roman and Ptolemaic tax collection.

The Ptolemaic tax farming system functioned somewhat differently from the standard formulation, with implications for the distribution of wealth. Although the tax farmers still bid on the right to collect taxes, they themselves did not actually collect the money owed.⁴⁴ Rather, their bid acted as a guarantee of cash income to the state, secured by sureties and in some cases mortgages. They then oversaw the

⁴¹ Aperghis 2004, 97–101.

⁴² Boehm 2018, 104.

⁴³ Boehm 2018, esp. ch. 2.

⁴⁴ See discussion in Bingen 2007, 160–169.

records concerning tax collection, while state officials provided the labor. Banks at the *nome* level took deposit of the tax contributions, and facilitated the transfer of revenue to the central treasury. This system of tax farming acted as a check on the predatory behavior of state officials by reducing their ability to consolidate financial resources, while also limiting the excesses of the tax farmers by forcing them to rely on state officials to collect revenue. The regularized involvement of banks added another level of oversight – with accounts balanced on a monthly basis – and helped to ensure that money flowed smoothly and at regular intervals through the system.⁴⁵ However, the attempts were not always successful, as official malfeasance appears to have increased in periods of political instability.⁴⁶

The Roman Empire relied on a variegated and changing system of tax collection. Although state representatives oversaw collectors, the evidence for their involvement in direct collection is shaky.⁴⁷ In most cases, taxes were collected either by tax farmers or by civic governments who paid the state either directly or through the intermediation of tax farmers. The outsized role of tax farmers (*publicani*) in the Late Republic has attracted attention because they appear politically powerful in the literary sources of the period.⁴⁸ At this time, most provincial tax collection contracts were auctioned at Rome, and the *publicani* who bid on them were members of the equestrian order. As such, they cast influential votes in elections and sat on juries in corruption trials of former magistrates. This gave them a great deal of influence with the senatorial governors meant to oversee their activities in the provinces.⁴⁹ While various institutional structures limited their bargaining power relative to the state and to taxpayers, the difficulty of oversight and a lack of willingness to enforce limits allowed the *publicani* to exploit provincials.⁵⁰

The scope of the *publicani*'s operations could be very large. In the late second century BCE, when Rome took over the Attalid kingdom as the province of Asia, contracts to collect taxes throughout the entire province were auctioned at Rome.⁵¹ To collect these taxes and pay the resulting revenue into the Roman treasury, the *publicani* had to control huge amounts of capital and oversee an elaborate system of physical and human infrastructure. *Publicani* generally acted as companies (*societates*) with many partners (*socii*), headed by a *manceps*, governed by a board of *magistri*, and represented in the province by an officer called *pro magistro*, who oversaw the employees, slaves, and infrastructure required to carry out the business of tax collection. Whichever company won the right to collect taxes probably took

45 On the role of banks, see von Reden 2007, 168–178.

46 Monson 2015, 185.

47 The *procurators* that appear during the Principate are as likely to be overseers of tax farmers as tax collectors (Brunt 1990, 354–432).

48 Tan 2015; 2017, 40–67 with further literature.

49 This influence is especially evident in the writings of Cicero (Davenport 2019, 84–93).

50 Tan 2017, 45–54.

51 Kay 2014, 76–82; Tan 2017, 60–65.

over the provincial substructure intact from their predecessors.⁵² In contrast to most partnerships in Roman law, these *societates* resembled much more closely a modern corporation in that they were not dissolved by the death or withdrawal of a partner.⁵³ This gave them potential longevity beyond that attainable by other, purely commercial organizations. Tacitus says that some companies founded during the Republican period were still operating under Nero (r. 54–68 CE).⁵⁴

In the principate, the role of tax farming had changed.⁵⁵ In 47 BCE, Julius Caesar abolished the contract for Asian land taxes and had local communities pay his representatives directly.⁵⁶ Simultaneously, he cut the tax rate by one-third. This not only demonstrates the level of profits that the *publicani* had enjoyed,⁵⁷ it reveals a shift in the political landscape. For Caesar, the support of the cities of Asia and their local elites was more important than that of the equestrian *publicani*. This is seen as the beginning of a general shift away from the use of *publicani* in direct taxation, but the timing of the shift is not entirely clear.⁵⁸ In any case, under the monarchy both the political careers of governors and the business opportunities of the *publicani* depended more on the emperor than on each other.⁵⁹ Gradually, the emperors also increased oversight of the *publicani* by placing them under the supervision of imperial *procuratores* and their staffs.⁶⁰ Thus, a larger share of the extracted revenue would have ended up in the imperial coffers rather than in private hands. Nevertheless, the *publicani* remained important players in the imperial economy. They still dominated the collection of indirect taxes in districts that could span multiple provinces.⁶¹ The so-called *portorium publicum Illyrici*, for example, was collected in all the provinces from the source of the Danube to its mouth.⁶² On the other hand, these taxes were no longer farmed from Rome, but in the provinces themselves, expanding the opportunities for enrichment.⁶³

When the local elites who sat on city councils were made responsible for collecting land taxes, they had the same opportunities to profit through over-exaction as

52 Badian 1972, 67–81; Brunt 1990, 360–375. For the employees, see Nijf 2008.

53 Brunt 1990, 368–376.

54 Tacitus *Annals* 13. 50.

55 Brunt 1990, 354–432; Davenport (2019, 84–93, 197–201) analyzes the power of tax farmers in the Republican and monarchical ruling coalitions.

56 Appian *Bellum civile* 5. 4; Cassius Dio (Cass. Dio) 42. 6; Plutarch *Life of Caesar* 48.

57 Brunt 1990, 380.

58 Brunt (1990, 388–393) argues for a relatively quick change, but see Sirks 2018, 107 for the debate.

59 Davenport 2019, 192–201.

60 Brunt 1990, 381–386; Eck 2000a; 2000b, 283–286.

61 Brunt 1990, 407–414. Günther 2008 for indirect taxation. The preservation of a series of decrees concerning the collection of transport taxes in the province of Asia has contributed a great deal to our knowledge of indirect taxation (Cottier et al. 2008).

62 Ørsted 1985; but cf. Brunt 1990, 425–427.

63 Brunt 1990, 393.

the *publicani*, although their dependence on their fellow citizens for political support might have stayed their hand somewhat. In any case, estimates of imperial expenditure and revenues during the Principate reveal a significant gap between what was nominally owed in direct taxation and what the imperial government took in.⁶⁴ Whatever the amount, the revenues from tax collection not captured by the imperial state were now in local hands, either those of the elite or of provincial *publicani*. While the taxpayers may (or may not) have kept more of their money, this would have restricted the geographic scale at which capital circulated.

The political power of ancient empires allowed them to force increased production and move huge amounts of resources (goods, money, and people) out of the regions in which they were produced. The economic impacts of this can be seen from the perspective of the taxpayers or the state, but it is also critical to examine actors who do not fall neatly into these categories. Temple and city elites and tax farmers all stood to benefit from the imperial state's demand for taxes. Roman tax farmers in particular built geographically extensive and chronologically stable organizations with the support of the state. Imperial demand for taxes created a framework within which others operated, be they taxpayers, tax collectors, the inhabitants of a capitol, or merchants buying and selling tax goods. Perhaps the most far-reaching impact of these imperial frameworks in the ancient Mediterranean and Near East was monetization.

III Monetization

By 300 BCE, the idea and institutional foundations of money were well established in many parts of ancient southwestern Asia and the Mediterranean world.⁶⁵ The most important changes that occurred in the six centuries under consideration here concerned the scale of the money supply and the fluctuating extent of monetary networks, including the creation of the *denarius* network.⁶⁶ In the late fourth century BCE, Alexander the Great captured the Achaemenid royal treasury, turned it into coin, and dispersed it, dramatically increasing the amount of money in circulation. Greater mining activity particularly under the Romans would further increase the money supply until the second half of the second century CE. While coined metal always constituted the bulk of the money supply, banking and credit institutions increased it further and eased its deployment. The development of monetary networks followed a less linear dynamic. Alexander minted his coinage on the already widespread Athenian weight standard, creating a vast if probably patchy monetary

⁶⁴ Scheidel 2015.

⁶⁵ Von Reden 2010; Manning 2018, 195–202.

⁶⁶ *Sensu* von Reden 2010, 65–91.

network spanning the Eastern Mediterranean. Its reach was never universal, however, and it soon fragmented into multiple regional currency zones. The Roman Empire created a second massive and even more durable currency zone in the Western Mediterranean, but only partially integrated the former Hellenistic territories. Some of these monetary networks were closed while others overlapped or were partially coordinated, with multiple currencies in use simultaneously and circulating at different scales.⁶⁷ This complexity would have added to transaction costs, especially for interregional trade.

The production of coinage in the ancient Mediterranean and Southwest Asia, in contrast to China and South Asia, was always the purview of the state. One influential argument has been that ancient states minted coins exclusively to cover their own (primarily military) expenses.⁶⁸ This view is now routinely critiqued.⁶⁹ State expenses certainly played a role, but the functionality of coins cannot be divorced from the sociocultural contexts in which they had value. From the perspective of the state, ideological and fiscal concerns, and perhaps even a desire to facilitate commerce, may have been other important goals. But in order to truly understand monetization, we must shift away from seeing the state as a totalizing entity and focus instead on how monetization interacted with the goals of the various actors and interests that constituted ancient states.

We address the question of state involvement in coin production at the end of this section. First, we describe different forms of money in this space, focusing on the *drachm*-based and *denarius*-based coinage systems, but also addressing bullion and credit. Here, the emphasis is on the growth in money supply and changes in the scope of monetary networks.

III.1 Forms of Money in the Ancient Mediterranean and Southwestern Asia

III.1.1 Bullion

Bullion was a medium of exchange in the southwestern Asia for some two millennia before the advent of coinage.⁷⁰ Bullion was a commodity in its own right while also fulfilling some monetary functions as a privileged medium for payment and a measure and store of value. The developmental relationship between bullion, hacksil-

⁶⁷ See contributions to Metcalf 2012 for overviews and further literature on the various coinages of the Graeco-Roman Mediterranean.

⁶⁸ Crawford 1970.

⁶⁹ In particular by Lo Cascio 1981. Howgego 1990 has also been influential. See Woytek 2018, 16–17 for more recent literature.

⁷⁰ Le Rider 2001.

ber, and coinage remains unclear, and it is possible to argue about how ‘monetary’ these instruments were. However, for the present purposes, it is enough to note some of the general contours of bullion as they relate to the expansion of monetization.

Bullion was used in Near Eastern state accounting and was disbursed as loans already in the second millennium BCE.⁷¹ The concept of reckoning accounts in weighed metals came later to the Mediterranean, but monetary silver in a similar sense is referenced in early Athenian law, and inscriptional evidence attests to its use in Greek Asia Minor in the late seventh/early sixth century BCE.⁷² Although a variety of monetary instruments were used simultaneously in Greece as elsewhere,⁷³ coinage took off in the Aegean world. It adopted and expanded the functional sphere of bullion, became the dominant physical instrument of exchange, and expanded monetization dramatically. As Kroll has pointed out, however, monetization began with bullion, suggesting that “the employment and increasing supply of precious metal was probably more influential than the form in which it was transacted.”⁷⁴

Even after the advent of coinages, bullion was slow to disappear. In the Greek world, it remained a form of money particularly for storing large quantities of wealth. In the Roman context, beginning perhaps in the late sixth century BCE, bronze bullion (*aes rude*) constituted the earliest monetary instrument based on metallic weight, with bronze bars and minted bronze coins following thereafter.⁷⁵ Bullion, however, continued to be used, and although the scale of its use is debated, it served as a medium of transaction, storage, and measuring into the Principate.⁷⁶ In the Near East, the role of bullion was more stable, with widespread adoption of coinage only after the conquests of Alexander the Great in the late fourth century BCE. Although bullion and coinage can fulfill similar functions as monetary instruments, their relationship to the state is fundamentally different. Bullion functions more or less independent of centralized authority, whereas coinage both relies on and promotes a recognized authority.

III.1.2 *Drachm*-Based Coinage Systems

In the aftermath of Alexander the Great’s conquests, a new monetary system came to dominate the region. In contrast to the classical Mediterranean, where independ-

⁷¹ Van de Mieroop 2005 on silver in loans.

⁷² Kroll 2008, 18–21.

⁷³ Schaps 2008.

⁷⁴ Kroll 2008, 37.

⁷⁵ Crawford 1985.

⁷⁶ Hollander 2007, 31–39.

ent cities were the central locus of coin production and when a multitude of weight standards competed for primacy, and in contrast to the Achaemenid Empire, with its limited and uneven use of coined money,⁷⁷ the world of Alexander and his successors saw the rise of interregional royal coinages, organized and coordinated at the highest levels of the new massive states. The Hellenistic period, therefore, introduced a level of standardization to coinage systems hitherto unknown, despite the diversity that nevertheless persisted both at a local level and between the major powers.

The system that was introduced by Alexander in the late fourth century BCE had three principal denominations, one gold (the stater) and two silver (the *tetradrachm* and *drachm*). The weight standard was based on that of the city of Athens, with a silver *tetradrachm* weighing 17.2 g. In a radical departure from earlier practice, these coins depicted the living monarch himself.⁷⁸ By the end of Alexander's campaigns, 25 mints were minting his coinage in massive quantities, using the treasure of the Achaemenid Empire to facilitate the overwhelming scale of production: It has been estimated that four million *tetradrachms* were minted between 333 and 318 BCE at the Babylon mint alone.⁷⁹ *Drachms* and *tetradrachms* minted in the name of Alexander proved to be remarkably enduring, with posthumous issues produced long after the monarch's death by both 'official' mints of the successor kingdoms and those of various cities, as well as in territories beyond the political borders of the Hellenistic monarchies.⁸⁰ Beyond the silver denominations, there was also an increased production of gold coinage early in the Hellenistic period, which expanded the raw quantity of wealth circulating as coinage considerably. This was relatively short-lived, however, as outside of Egypt the minting of gold denominations dropped precipitously after the Diadochi.⁸¹ At the same time, the age of the successors also saw an increased minting of bronze issues. Ptolemaic mints issued bronzes in large numbers, but royal production of bronze is also attested in Seleukid and Attalid contexts as well as at numerous civic mints.⁸² Speaking extremely generally, the sum effect of these changes in minting practice served to speed up and expand the sphere of monetization and to ensure that coinage served as the financial instrument in an ever-wider range of transactions, replacing earlier traditions of weighed silver.⁸³

As royal coins flooded the market, the volume of civic issues plummeted.⁸⁴ Although the process has been seen by some as a sign of aggressive state intervention

77 For an overview of Achaemenid imperial coinage, Tuplin 2014.

78 On the role of this personalization, see Fabian and Weaverdyck, ch. 3.A, this volume.

79 Meadows 2014, 178.

80 E.g., the 'imitative' issues of Arabia and the Caucasus, Arnold-Biucchi 1991; Dadasheva 1976.

81 De Callataÿ 2014, 60–65.

82 On the royal bronze issues, de Callataÿ 2014, 73–77.

83 See Taasob, ch. 8.B, this volume.

84 Although this process was neither immediate nor absolute, see discussion in Mørkholm 1991, 85–95.

in local monetary systems, it is in fact unlikely that the decline resulted from an intentional state policy to control currency systems for either profit-making or power-consolidating motives. Instead, the decline can be seen as the natural response to the production of a vast quantity of royal issues combined with their quick and wide dissemination, which made them low-friction currencies relative to civic issues, and therefore brought benefits to users.⁸⁵

Even in the case of Egypt, where a closed currency system developed with relative rapidity following the reduction in weight of the Ptolemaic *tetradrachm* to 14.9 g. by 300 BCE, von Reden has argued that the development of the imperially regulated system that followed was a reaction, rather than a premeditated choice.⁸⁶ The initial decision to reduce the weight of *tetradrachms* by Ptolemy I sprang from the surge in demand for coinage in the late fourth century BCE and the limited silver supplies of the kingdom at that time. The reduction in weight encouraged the hoarding of full-weight coins, which led eventually to the formalization of the closed currency zone, allowing the Ptolemaic mints to capture profits from the re-minting of the heavy-weight foreign currencies.⁸⁷ Similarly, the expansion of the bronze coinage system in Ptolemaic Egypt is another phenomenon that was clearly the subject of intense state interest, but where the relationship between initial motivations and end effects is difficult to untangle.⁸⁸ It is clear, however, that Ptolemaic monetary policy resulted in a profound intensification of monetization, particularly in the Egyptian countryside. This argument highlights the fact that even the clearest example of imperial manipulation of coinage systems in the Hellenistic world should be understood as part of a complex feedback loop between local conditions and imperial opportunities, with the initial underlying intentions often difficult to reconstruct.

III.1.3 *Denarius*-Based Coinage System

Rome's coinage system would eventually unify not only vast areas where it circulated but also, with its various denominations, disparate scales and types of transactions. However, even here, friction and diversity persisted. Rome's monetary instruments began to dominate high-value exchange in Italy already in the mid-third century BCE, before the introduction of the *denarius*, but debasement during the second Punic war destroyed confidence in Roman money.⁸⁹ In response, the Romans issued a new, very pure silver coin, the *denarius*, along with several other

⁸⁵ See discussion of positions in Meadows 2014, 182–184.

⁸⁶ Von Reden 2007, 43–48.

⁸⁷ Von Reden 2007, op. cit., especially 43.

⁸⁸ Von Reden 2007, ch. 2.

⁸⁹ Burnett 2012.

bronze and silver denominations that were explicitly integrated into a single system through value marks (gold coins, first minted regularly from the 40s BCE, were also integrated).⁹⁰ At the same time, Rome also minted an alloyed silver coin that bore no numbers, perhaps for use in areas that had previously used *drachms*, showing the limits of the state's ability to impose homogeneity.⁹¹ Even more tellingly, the value of the bronze and silver coinages fluctuated against each other. In the 140s, it was necessary to retariff the *denarius* at 16 asses instead of 10. Even during the Principate, there is evidence that the value of the *denarius* in asses varied from place to place.⁹² Nevertheless, coinage of different metals was considered comparable in value, and the state's endorsement of fixed ratios of value must have provided some stability. Thus, the forms of money used in small-scale transactions could be converted into larger denominations, but the process was not frictionless.

Soon after the *denarius* was introduced, non-Roman silver coins were withdrawn from circulation in Italy, though non-Roman bronzes continued to circulate in the second century BCE.⁹³ The *denarius* system spread through Africa and Spain, and later into Gaul so that, by the mid-first century CE, it was the only currency in circulation in the western half of the empire.⁹⁴ The *denarius* circulated in the eastern half of the empire in much more limited quantities and alongside more common silver coinages, but it did circulate.⁹⁵ Therefore, the *denarius* created a vast monetary network covering the entire Roman Empire, even as it functioned differently in different parts: in the West it was the only currency available, while in the East it was a 'top currency' that was suitable for interregional transactions.⁹⁶ Conversion between *denarii* and *drachms* might have been eased by conventional exchange rates and, after Nero's reforms, greater similarity in the weight and fineness of the silver coinage, but conversion fees were never eliminated. Nevertheless, the existence of a monetary standard that could span the entire empire made coordination across great distances easier than it had been before.

The geographic spread of the *denarius* system was made possible by large-scale production of coins. While precise quantification is impossible, the evidence of die studies, the frequency of coins in hoards and as stray finds, and atmospheric pollution all point to very high levels of coin production in the Roman period.⁹⁷ Michael

⁹⁰ Woytek 2012, 315–316; 2014, 210.

⁹¹ Debernardi and Lippi 2019; Woytek 2012, 318.

⁹² Crawford (1970, 43) collects the evidence.

⁹³ Kemmers 2016.

⁹⁴ Von Reden 2010, 86–91; Kay 2014, 94–101 for the spread of the *denarius* in the Republican period. For the disappearance of local currencies in the West, see Burnett, Amandry, and Ripollès 1992, 18–19.

⁹⁵ Weaverdyck, vol. 1, ch. 7, 275–277 with further literature.

⁹⁶ For the terminology, see B. J. Cohen 2004, 14–16.

⁹⁷ For the difficulties involved with quantification, see Howgego 2009; de Callatay 2011; van Heesch 2011. For the complexity of the relationship between volume of coinage and money supply, see von Reden, vol. 1, ch. 8.C, 358–362.

Crawford estimated, based on die studies, that the volume of Roman silver coinage increased more than tenfold between the mid-second and mid-first centuries BCE to 450 million *denarii*.⁹⁸ Duncan-Jones estimated the volume of coinage (of all metals and including *drachms*) in circulation in the mid-second century CE at five billion *denarii*.⁹⁹ Although the absolute figures of the two estimates are not really comparable, taken at face value they suggest another tenfold increase in the money supply, this time over two centuries.¹⁰⁰ Republican silver continued to circulate well into the early Principate, and much of the later increase would have come in the form of gold coins, minted regularly for the first time under Julius Caesar.¹⁰¹ Gold might have constituted half to two-thirds of the value of coins in circulation, to judge from the coins found in Pompeii.¹⁰² This would suggest Roman coinage was well suited for the storage of wealth and large-scale transactions, though the risk of losing gold coins might have discouraged its transfer. Gold would also have been useful as security for loans, and thus facilitated large-scale credit transactions.¹⁰³

III.1.4 Credit and Banking

Money can only facilitate economic behavior if it is available. The large-scale production of coinage just described certainly helped in this regard, but physical limits on creating new coins and the difficulty of moving them in large quantities might have served as a break on economic activity.¹⁰⁴ Certain institutional configurations of credit and other forms of cashless payment ameliorated the problem by increasing the velocity of circulation and possibly by expanding the money supply. The quantitative extent to which they expanded the money supply remains open to question, but the combined forces of the institutional and social changes surrounding credit were key drivers in financial development. The expansion of credit systems from the Hellenistic period onward spurred the period's growing monetization, and shaped the development of interregional trade and connectivity.

98 Crawford 1974 recently defended by Kay (2014, 89–93), who summarizes the critiques.

99 Duncan-Jones 1994, 168–170 defended by Lo Cascio 2008, 162–163.

100 This comparison is only meant to illustrate an order-of-magnitude increase. Crawford's figure ignores bronze coinage and the non-*denarius* silver coinage circulating in areas that were not yet part of the Roman Empire. Duncan-Jones considers the contribution of silver *drachms* and bronze to the overall money supply to be minimal, though, so the two estimates are not entirely incomparable.

101 Woytek 2014 for the introduction of gold coinage; Lo Cascio 2008 for the role of gold coinage in the economy.

102 Duncan-Jones 2003, but cf. Andreau 2008.

103 Lo Cascio 2008.

104 Though Verboven (2009) argues that the cost of moving and securing large amounts of money was relatively low.

In the Graeco-Roman world, lending at interest was a very common avenue of investment used by wealthy elites as well as institutions such as cities and temples. Indeed, a common form of benefaction was to establish a capital endowment that would be lent out and earn interest in order to pay for a certain service.¹⁰⁵ The prevalence of professional bankers and other intermediaries who would assess and absorb risk was crucial to this system.¹⁰⁶ The sophistication of law surrounding debt also supported the availability of credit by increasing the likelihood that creditors would be protected. Certainly, lending within social circles played a larger role than in modern credit markets,¹⁰⁷ but the practice of securitizing loans and the prevalence of financial professionals suggests that lending beyond one's immediate social circle was also common. Outside of occasional crises, credit was generally easy to come by.¹⁰⁸

The types of loans extended varied from basic to intricate. On the simple and often informal end of the spectrum, rural economies relied on devices like planting season loans, either in seed or in cash, which were repaid in kind with interest after harvest.¹⁰⁹ Indeed, tenancy and agricultural labor arrangements were undoubtedly the most widespread contexts for credit relationships.¹¹⁰ Advance payments for goods to be delivered later served a similar function of stimulating small-scale economic activity. More complex and formal loans, which were more likely to be documented in a written form, preserve a range of securitizations. Loans could be unsecured (*cheirographa*) or secured by a pledge (*parathekai*); they could take the form of mortgages or provisional sales, where the security came in the form of land, or of maritime loans, where the cargo itself was the security and where the creditors assumed the financial risk, or finally they could involve the purchase and sale of property (*homologiai*).¹¹¹

Maritime loans were particularly important in facilitating long-distance shipping.¹¹² These loans were made for a single voyage, and the due date was fixed for a certain period of time after the safe return of the ship, allowing the merchant to sell the cargo. Because the lender bore the risk of loss from 'acts of god' (shipwreck, piracy, etc.), interest rates were relatively high. Financiers could dictate the date by which a ship was to set sail, and interest rates might change based on the season of the voyage to reflect the increased risk of storms.¹¹³ The merchant bore the risk

105 Liu 2008; Hoyer 2018, 31–50.

106 Andreau 1999; Verboven 2020.

107 Verboven 2002.

108 For Roman credit crises, see Kay 2014, 235–265; 2018.

109 Kehoe 2007, 149–150.

110 von Reden 2007, 227.

111 For these categories, von Reden 2010, 99.

112 Rathbone 2003; De Romanis 2020, 159–208 for a discussion of maritime lending in the context of the Muziris Papyrus.

113 De Romanis 2020, 162–168.

of market fluctuations. If they did not expect to break even, they might dump the cargo or intentionally wreck their ship to avoid repaying the loan. As a consequence, lenders often sent a representative to monitor the merchant's behavior. Lenders with long-distance networks introduced some flexibility. In a second-century CE contract for a voyage from Beirut to Brindisi, the merchant has the option of buying a return cargo and repaying the loan in Beirut or paying the lender's agent in Brindisi.¹¹⁴ Indeed, lenders could mandate repayment in a distant port as a way of moving money.¹¹⁵ The maritime loan, then, not only financed commerce, but increased connectivity in other ways as well.

Although many of these forms of credit are attested in Classical Greece, the rules surrounding their use changed over time. For example, de Romanis has recently argued that the financier would also oversee the sale process and collect the revenue until the loan was repaid.¹¹⁶ In both Athens and Rome, moreover, only moveable property could be pledged as security in earlier periods, while by the late Republic in Rome, both houses and lands could be pledged, with the sphere of pledgeable assets increasing from there.¹¹⁷ These types of shifts, in general, widened access to credit. Similarly, Roman legal institutions evolved in response to banking practices.¹¹⁸ For example, we know from Plautus that bankers would make payments on behalf of their clients already in the early second century BCE.¹¹⁹ By the late second or early first century BCE, the obligation of the banker to pay out the money was legally enforceable, allowing absentee payments. Banking *societates* were distinguished from other partnerships in that every partner was bound by the actions of the others, both liable for and able to collect debts. In the early first century BCE, this was simply customary, but by the beginning of the third century CE, it was established law.¹²⁰ It also became possible to create a debt simply by recording it in an account, which allowed for cashless transactions.¹²¹

The financial practices of bankers and other specialists were critical to the functioning of the monetary economy in the ancient Mediterranean and southwestern Asia. Cashless transfers were certainly more convenient than coins for large transactions, although the introduction of the *aureus* ameliorated the physical problem to some extent.¹²² Cashless transfers also solved some of the problems of uneven coin supply. Fractional reserve banking, in which the banker only keeps a portion

114 *Digesta (Dig.)* 45. 1. 122. 1.

115 Rathbone 2003, 215–216.

116 De Romanis 2020, 174–179.

117 Von Reden 2010, 101.

118 Andreau 2020, 103–106; Rathbone and Temin 2008, 392–393; von Reden 2012, 282–283; Verboven 2020, 389–390.

119 Kay 2014, 116–124.

120 Andreau 2020, 105.

121 Rathbone and Temin 2008, 399–401.

122 Verboven 2009, 97–98.

of the money deposited with them on hand, lending out the rest at interest, increased the velocity of coinage circulation and even, in combination with cashless transactions, the overall money supply.¹²³ Physical pieces of metal always remained the foundation of the monetary economy. But formal and informal institutions developed that allowed monetary transactions to knit people together in more complex and geographically extensive relationships than would have been possible with coinage alone.

III.2 The Role of the State

In the ancient Mediterranean and the Near East, the most prevalent form of money, coinage, was inextricably associated with the state.¹²⁴ The minting of coins was a right exclusive to, and partly constitutive of, a political organization. But money requires users as well. Any benefit that might accrue to a state from producing coinage depended on the coinage's ability to circulate, that is, its acceptability. Money is both an institution-as-rule – the result of negotiated decision making – and an institution-as-practice – the spontaneous result of repeated behavior.¹²⁵ Von Reden has shown how the Ptolemaic state, in order to monetize parts of the Egyptian economy, established a range of institutions in addition to coinage that were designed to affect the behavior of the populace in such a way as to make the state's coinage acceptable.¹²⁶ This benefited the state fiscally, but it also benefited members of the state commercially. Indeed, to draw a sharp distinction between the fiscal interests of the state per se and the commercial interests of the actors embodying and operating within state institutions is anachronistic.¹²⁷ Here we discuss the various reasons states might have minted coinage before examining the broader social context in which members of the state were acting.

As noted earlier, it has long been thought states minted coinage to cover their own expenses, primarily military expenditure.¹²⁸ In some cases, a clear link between military and monetary activity is evident. The *denarius* system was introduced in the context of the Punic war, as we have seen. Mithridates VI of Pontus minted

123 Kay 2014, 110–113; Verboven 2020, 386–387. William Harris has argued that transferable debts acted as monetary instruments that increased the money supply in the Late Republic and Principate (2006; 2008; 2019). Verboven (2020), however, argues that the transferability of debt was limited, and written debt notices were not monetary instruments.

124 In contrast to the situation in South Asia and China (Dwivedi, ch. 14 and Leese-Messing, ch. 15, this volume).

125 Gómez 2019.

126 Von Reden 2007.

127 Von Reden 2010.

128 Crawford 1970. For a historiographic discussion, see Butcher 2018. For a survey of state expenses that might have occasioned coin minting, see Howgego 1990.

coins on a large scale to pay his troops in the late second and early first centuries BCE.¹²⁹ The belligerents in the civil wars of Late Republican Rome produced large volumes of *denarii* all over the empire, contributing to the expansion of the *denarius* system.¹³⁰ However, archaeological and numismatic evidence show that military expenditure cannot be the sole reason for coin production. In the Roman case, for example, the distribution of coins is not well-correlated with military bases, and the rhythm of production is not tied to military campaigns.¹³¹ Other explanations must be sought.

The profit motive of the state might go some way to explaining coin production. By establishing a value for a coin that exceeds the intrinsic value of the precious metal it contains, states can profit from minting. Episodes of coinage debasement are often explained as a response to states' financial straits.¹³² Coinage also made the collection of taxes easier, and thus reduced transaction costs for the state itself. The denominations of some coins were chosen to facilitate the payment of certain taxes.¹³³ In order for the state to extract taxes in coin, it had to support a monetary system by issuing small change, even if it was ultimately interested in the larger denominations.¹³⁴ Nero's reforms have been explained as an effort to bring the *denarius* and *drachm* into closer alignment in order to simplify the collection of taxes.¹³⁵ Both the provision of small change and the greater correlation between the *denarius* and the *drachm* would have facilitated economic coordination, regardless of their motives.

The ideological and political functions of coins also played a role in their durability. The ability of a coin to bear an image and legend that would circulate between people made it an excellent medium for mass communication. Roman emperors used coins to advertise their virtues.¹³⁶ Indeed, having one's name on a coin was partly constitutive of one's status as emperor.¹³⁷ Civic symbols on coins contributed to the establishment of political communities in archaic Greece,¹³⁸ and civic coinage was one of the media through which cities of the Eastern Mediterranean asserted their identity in the Hellenistic and Roman periods.¹³⁹ The ability of coin-

129 De Callatay 1997.

130 Butcher and Woytek 2018.

131 Distribution: Hoyer 2018, 64 on North Africa; Katsari 2008 on the frontier provinces in general. Rhythm: Butcher 2004, 245–251 on Syrian provincial and civic issues. See Woytek 2018, 16–17 for further literature.

132 And were sometimes recognized as such even in antiquity, see Pseudo-Aristotle *Oikonomika* (Arist. [Oec.]) 2. 1349b.

133 Howgego 1990, 23.

134 Butcher 2018, 168.

135 Butcher et al. 2014, 201–238; Butcher 2018, 174–175.

136 See Noreña 2011 for Roman emperors' ideological use of coins.

137 Howgego 1990, 21.

138 Von Reden 2010, 24–25.

139 Duyrat 2016, 394–399; Howgego, Heuchert, and Burnett 2005.

age to express political power probably explains why, after introducing the *denarius*, the Romans eliminated all other Italian silver coins from circulation.¹⁴⁰ In the late second or early third century CE, Cassius Dio associated such monopolization of coinage with autocracy when, in a fictional debate about whether Augustus should institute a monarchy, he had the pro-monarchy disputant advise: “None of the cities should be allowed to have its own separate coinage or system of weights and measures; they should all be required to use ours.”¹⁴¹

But for coinage to successfully communicate messages, generate profits for the minting authority, or discharge state debts, it had to circulate: it had to be accepted by users. One could see coinage as an object of negotiation between the state, which valued coinage for the reasons listed above, and the populace, which valued coinage for its monetary functions. In this framing, the object of debate is whether or not ancient states understood or considered the populace’s need for an efficient medium of exchange in their coinage policies.¹⁴²

However, the dichotomy is misleading in two ways. First, ancient states often had commercial interests that were qualitatively similar to those of private individuals. Hellenistic kings and Roman emperors both owned property on a large scale, and revenue-in-kind often had to be monetized via the market. Second, states were coalitions of actors, most of which were privately wealthy and engaged in the same kinds of activity as the rest of the populace. Indeed, Seth Bernard has recently argued that the production of pre-*denarius* Roman coinage should be seen in the context of sociopolitical negotiation and changes in the coalition of state power holders.¹⁴³ He connects historically attested conflicts between different social orders and an increase in private wealth derived from conquest to early coinages minted in a variety of denominations, often small. At the risk of simplification, the Roman state minted coins that functioned well for commercial exchange because people whose wealth depended more on commercial exchange (elites engaged in commercial agriculture and moneylending) were in the process of taking over the state.

In competitive aristocracies like Republican Rome and most of the cities of the empire, the money-using populace could pressure powerholders to take some concern for the money supply.¹⁴⁴ But even imperial states included coalitions that depended on a functioning monetary system for their well-being. Soldiers whose sala-

140 Woytek 2014, 212.

141 Cass. Dio 52. 30. 9 trans. Cary. See below for the lack of standardization of weights and measures in the Roman Empire.

142 Butcher 2018 provides a recent overview of the debate.

143 Bernard 2018.

144 See the example of the praetor Gratidianus, whose edict in 85 BCE stabilizing the currency won him great honor (discussed by Crawford 1970, 42; Howgego 1990, 23). Butcher (2004, 146) argues that city councils would have been more responsive to local public pressure than imperial governments.

ries were worthless were dangerous.¹⁴⁵ The emperor Diocletian explicitly cites the penury of his soldiers in his attempts to stabilize the monetary system in the late third/early fourth century CE.¹⁴⁶ We should also remember that the wealth of the aristocracy was based, in large part, on commercial agriculture and moneylending. A steady supply of stable money was in their interest as well. A lack of interest by the state in the money supply seems reasonable when the state is an abstract concept. When it is dissolved into its constituencies, such disinterest appears less likely.

IV Physical Infrastructure

As with fiscal regimes and monetization, large-scale physical infrastructure also entailed negotiation between imperial states and their various constituents.¹⁴⁷ The construction of major infrastructural works required a scale of investment that surpassed the capabilities of any private individual and therefore entailed communal action. Local communities and individuals always played a central role, but the capacity and willingness of the state or state-based actors to invest was a crucial factor in the development of truly large-scale infrastructure.

The willingness of imperial states to invest in infrastructure stemmed from a particular ideology of rule. In the ancient Mediterranean, massive building works were a testament not only to power – the ability to muster the resources and knowledge to overcome nature – but to beneficence as well. Both Hellenistic kings and Roman emperors were expected to be generous, but in the Roman period, there seems to have been a particular emphasis on the utility of monumental construction.¹⁴⁸ Dionysios of Halikarnassos, a Greek living in Rome in the Augustan period, emphasized the utility and expense of infrastructure to illustrate the power of Rome:

In my opinion the three most magnificent works of Rome, in which the greatness of her empire is best seen, are the aqueducts, the paved roads and the construction of the sewers. I say this with respect not only to the usefulness of the work ... but also to the magnitude of the cost.¹⁴⁹

Frontinus, writing about aqueducts, draws an explicit comparison with “the idle pyramids or the useless, though famous, works of the Greeks.”¹⁵⁰

145 Hoyer (2018, 63–75) emphasizes the need for a well functioning monetary system to give soldiers’ salaries value.

146 The statement comes from Diocletian’s edict on maximum prices, but this was part of a larger effort at currency and tax reform (Corbier 2005).

147 For the definition of ‘infrastructure’ in regards to the ancient economy, see Woytek 2018. For the infrastructure as space where various interests intersected, see Kolb 2014, 12.

148 Kolb 2014, 9–12; Schneider 2014; Woytek 2018, 11–13.

149 Dionysios of Halikarnassos 3. 67 trans. Cary.

150 Frontinus *De aquae ductu urbis Romae* (Frontin. *Aq.*) 16, trans. Bennett.

While the civic ideological background of the Roman emperor might have encouraged infrastructural investment, the contrast with Hellenistic kings should not be overstated. As always, ideology is not a simple reflection of reality, and most of the emperors' investments were centered on the city of Rome and Italy. Nor were the Hellenistic kings idle in this area. City foundations necessarily required a major investment in physical infrastructure.¹⁵¹ Seleukos I Nikator's creation of Seleukeia-Tigris in Mesopotamia and Laodikeia and Seleukeia-Pieria in the northern Levant required the construction of large artificial harbors,¹⁵² to say nothing of the extensive harbor complex of Alexandria. Beyond city foundations, the Ptolemies invested heavily in transportation infrastructure linking the Nile with the Red Sea, and we hear of at least one occasion on which an Attalid king built harbor works at Ephesus.¹⁵³

Nevertheless, at a general level, the ideological difference between Hellenistic kings – whose position was based primarily on military supremacy – and Roman emperors – who relied on a combination of military success and other, more civic virtues – was real.¹⁵⁴ In addition, the Roman Empire at its height exceeded the size of any Hellenistic Empire, so Roman emperors had a much larger resource base to draw on. Of course, the scope of potential infrastructural investment was correspondingly larger. These ideological and political factors, in combination with the technological development of Roman concrete (see sec. VII.2 below), resulted in the construction of more physical infrastructure under the Roman Empire than ever before.

The types of infrastructure discussed here all facilitated activities that were particularly important for and characteristic of the economies of the ancient Mediterranean and southwestern Asia: irrigation systems and aqueducts increased agricultural production and urbanism, and the proliferation and development of harbors enhanced the natural connectivity of the Mediterranean and contributed to its maritime integration. We pass over roads in this section as Roman roads were discussed in volume one.¹⁵⁵ Less is known about Hellenistic roads, though the Ptolemies built significant road infrastructure including forts and watering stations in Egypt's Eastern Desert,¹⁵⁶ and the Seleukids built and maintained certain royal roads in their empire, distributing colonies, forts, and milestones along them.¹⁵⁷

151 For Hellenistic city foundation, see von Reden, vol. 1, ch. 1, 35–39.

152 Kosmin 2014, 187–189.

153 J. P. Cooper 2009; Sidebotham 2011, 179–182 (canal); Strabo 14. 1. 24 (Ephesus).

154 Arnaud (2014) distinguishes the benefactions expected of Hellenistic and Roman rulers and elites from the care for subjects expected of the Roman Emperor in the context of harbor construction. For a comparison of Hellenistic and Roman monarchical ideals, see Noreña 2011, 37–100, 314–316.

155 Weaverdyck, vol. 1, ch. 7, 271–274.

156 Sidebotham, Hense, and Nouwens 2008; Sidebotham and Gates-Foster 2019; Sidebotham 2011, 28–31.

157 Kosmin 2014, 142–169.

IV.1 Hydraulic Infrastructure

Control of water has long been associated with power. Of Dionysios's "three most magnificent works," two concern the strategic movement of water. In modern scholarship, Wittfogel's theory of Oriental Despotism has spawned much discussion of the centralized control of ancient water regimes – particularly in arid regions of southwestern Asia.¹⁵⁸ Scholars now envision a more complex relationship between imperial power and water supply systems, with multiple, varying configurations of control and funding at work.¹⁵⁹ Although imperial planning and financing facilitated the construction of large-scale and expensive projects like aqueducts, the management of these infrastructural systems was never exclusively imperial or even public.

The physical infrastructure involved in the management of water resources in the Hellenistic and Roman worlds can be loosely divided into two categories: urban water distribution systems that allowed larger populations to dwell in close quarters;¹⁶⁰ and agricultural irrigation programs that increased the extent of arable land, crop yields, and the variety of crops that could be grown.¹⁶¹ The scale of hydraulic infrastructure projects varied greatly, ranging from constructions that served individual households to dramatic regional interventions that transformed vast landscapes.

IV.1.1 Urban Water Management

The provisioning of cities with water was a central requirement for urban growth and had thus been a concern for urban authorities long before the Hellenistic period. The construction of aqueducts to serve Greek cities is attested already in the Archaic period, with several large projects associated with early *polis* rulers.¹⁶² Despite this, the broader system of urban water management in the early Greek cities was not centralized. Instead, private citizens were encouraged to construct their own wells if they lived too far away from a public water source, and were entitled to draw water from the private wells of their neighbors if their own territory yielded no

158 On Egypt, see Monson 2012, 36–45. On the association between controlling water and controlling the Roman Empire, see Purcell 1996.

159 E.g., Wilkinson and Rayne 2010, 117.

160 See for example the case of Gadara discussed in Keilholz 2017, where aqueduct construction can be closely tied to periods of urban growth.

161 An older perception that urban water distribution systems were entirely independent from agricultural hydraulic infrastructure has been widely challenged in recent years, see, e.g., Gazenbeek and Jansen 2000.

162 Koutsoyiannis et al. 2008.

water.¹⁶³ Although technological developments that began in the Hellenistic period and reached their fulfillment under the Roman Empire enlarged the scale and improved the effectiveness of public urban water supply systems, private water management installations remained important throughout the Roman period.¹⁶⁴

Nevertheless, the prowess of Roman engineering created the ability to move higher volumes of water across more rugged terrain. Accounts of early Roman aqueduct construction report that the funding for these ambitious projects, running in some cases hundreds of kilometers, came directly from war booty, reflecting the exceptional nature of the expense.¹⁶⁵ By the time of the Principate, the costs associated with aqueduct construction were borne by contributions in variable amounts from the emperor, local communities, and private donations or tax levies.¹⁶⁶ Although private *euergetism* played an important role in this financing, the cost of construction was generally prohibitive for any single individual on his own, although in North Africa, a number of aqueducts were financed by a single benefactor.¹⁶⁷

The costs associated with aqueducts did not end with their construction. Keeping water running freely required ongoing maintenance. In the exceptional case of the city of Rome's own aqueducts, much of the cost of protecting and maintaining the water supply system was assumed by the emperor himself and paid for by the imperial fisc.¹⁶⁸ Elsewhere, these maintenance costs were either paid for by water use fees or assumed by local city officials or even private individuals. Though rarely recorded, we hear of *agoranomoi* in Greece charged with oversight of water infrastructure, and in Spain a town council mandated that the chief magistrates restore an aqueduct.¹⁶⁹

IV.1.2 Agricultural Hydrological Infrastructure

Owing to climatic conditions, the nature of agricultural hydrological infrastructure in the Mediterranean basin and southwestern Asia differed – as has the history of scholarship about water in the two regions. In the case of the Mediterranean, where rain-fed agriculture was generally possible, irrigation infrastructure has received little attention. Recent work, however, has highlighted the interconnected nature of urban and rural water distribution systems – pointing out, for example, that many aque-

163 Plutarch *Solon* 23.

164 E.g., in Greece, Yannopoulos et al. 2017, 1025–1029.

165 Frontin. *Aq.* 6

166 On this general combination of financing sources for aqueduct construction, see Leveau 2001, 85–86.

167 E.g., *IRT* 117 from Sabratha. See also *IGR* 3. 804 for a donation of 2 million *denarii* to fund aqueduct construction at Aspendos in Pamphylia.

168 R. M. Taylor 2000, 85–86.

169 Greece: *IG* 5. 1. 1390 ll. 103–105 (Lolos 1997, 296–297). Spain: *CIL* 2. 3541 (Goffaux 2001, 267).

ducts also featured rural distribution channels, opening up the possibility that these projects were not serving only ‘parasitic’ cities, but rather both urban and rural landscapes.¹⁷⁰ More broadly, there has been increasing attention to the question of whether investment in irrigation technology was, in fact, a more significant factor than has been previously assumed – and one with explicitly economic implications. Even in Italian villa agriculture, irrigation was used to water meadows and market gardens.¹⁷¹

In contrast, in Egypt and Mesopotamia where aggressive water management is necessary for agricultural success, Hellenistic monarchs and their Roman successors inherited hydraulic systems that had been functioning for, in some cases, millennia, and discussions of the management of these systems have played a central role in economic history. Evidence from the Ptolemaic, Seleukid, and Roman contexts demonstrates the extension and expansion of these older frameworks, as well as the expansion of some new technologies.¹⁷² Research on hydrological control in southern Syria provides an example of how the various systems interacted, demonstrating that village-based water management systems, based on preexisting practices, remained largely stable during both the Hellenistic and Roman periods, even as urban supply systems were undergoing significant developments.¹⁷³ This is not to say that the rural landscape of arid regions remained unchanged, only that previous systems of water management were often durable. It is clear, meanwhile, that the cultivation of crops like olive trees and grapes in North Africa was bolstered by the expansion of irrigation at small and large scales, bringing new economic potentials to these regions.¹⁷⁴

One of the clearest examples of the involvement of Hellenistic monarchs in hydraulic management relates to the Ptolemaic land reclamation project in the Fayum depression of Egypt, which began in the late 260s BCE. The Fayum project developed vast new tracts of productive land through the creation of drainage systems and irrigation channels. In Egypt, where ecological factors limited the possibilities for agricultural intensification, this expansion resulted in a dramatic increase in cultivatable land, with the eventual project estimated to have represented between five and seven percent of all of the cultivable land in Egypt.¹⁷⁵ These reclaimed lands were under the political control of the king, and enabled the monarchs to capture additional revenue from rents, as well as secure political power through land grants to loyal followers.¹⁷⁶ The new land was initially used to settle Macedonian soldiers, with other Greeks and Egyptians also eventually moving to the territory as well.

170 These have long been considered to be illegal channels, but opinion on this matter has begun to shift, seeing rural distribution as a widespread feature of aqueduct projects, and likely one that was at the very least tolerated by imperial authorities, or perhaps was even intentional (Kamash 2012).

171 Ronin 2020.

172 On the uneven adoption of hydraulic practices in the Roman Near East, see Kamash 2013.

173 Braemer et al. 2009.

174 Ronin 2020.

175 For the figures of arable land and its carrying capacity, see Manning 2003, 107, n. 49.

176 On the direct control of land, see discussion in Manning 2003, 104.

Papyrological records relating to the activities of two directors of hydraulic projects in the Fayum, Kleon and Theodoros, offer detailed evidence for both imperial interest in and oversight of the hydrological works.¹⁷⁷ One specific project is detailed in the papyrological sources: the draining of the land that would become the Zenon Estate. This example demonstrates that vast projects were accomplished by Ptolemaic authorities and ambitious local individuals working in concert. In this case, the tools used in the project seem to have been owned by a central authority, who lent them out and also helped with procuring laborers, who were then paid out of private funds.¹⁷⁸

As expensive as the original work of land reclamation was, the sustained maintenance required for many types of early hydraulic systems presented an ongoing challenge. Many of the officials involved in the planning of major hydrological works – individuals associated with the central government – were also directly involved in later efforts to maintain the reclaimed land and make it fruitful through experimentation with different crops, suggesting a sustained state interest in the success of the reclamation projects.¹⁷⁹ Moving forward in time, in Roman Egypt, documents called *penthemeros* certificates evince a system of mandatory labor, whereby residents of the Fayum were required to provide five days a year working on the irrigation systems. At first interpreted as a Roman innovation that demonstrated the deep reach of Alexandrian authority into the Egyptian countryside, more recent work has hypothesized that this system was not a new invention on the part of the Romans, but rather an example of how Roman power came to coordinate labor regimes that had been arranged informally in prior periods.¹⁸⁰

The infrastructure of agricultural water management, then, is characterized by some large-scale imperial interventions, but these could only be maintained by local societies, and in some cases, imperial intervention had very little impact. Imperial influence is more evident in the construction of aqueducts that facilitated the growth of cities and therefore, indirectly, all of the consumption and other economic behavior attendant on urbanism.

IV.2 Transportation Infrastructure: The Case of Harbors

Developments in transportation infrastructure ameliorated the friction of distance, easing the transportation of both goods and information. Here, we focus on harbors and canals, which enhanced the natural connectivity of the Mediterranean.¹⁸¹ Key

¹⁷⁷ On the role of the state in these works, see Haug 2017.

¹⁷⁸ See, e.g., discussions in D. J. Thompson 1999, 135; Manning 2003, 107.

¹⁷⁹ D. J. Thompson 1999, 134–137.

¹⁸⁰ For new approaches, see, e.g., Haug 2017, 6. For traditional interpretations, Sijpesteijn 1964, 4–5.

¹⁸¹ Harbors and canals were often integrated into complex riparian infrastructural systems. The best documented is that at Rome's imperial port, Portus, for which, see Keay 2018.

developments in our period are the increased size of the largest harbors and the proliferation of harbor infrastructure made possible by the discovery of hydraulic concrete (sec. VII.2, below). Building and maintaining this infrastructure required a complex interplay of imperial, civic, and private actors.

Imperial power led to the creation and elaboration of ports to support its own survival. The Seleukid colonial foundations in the northern Levant have already been mentioned, and Herodes's construction of the great port Sebastos supplying his new foundation, Caesarea Maritima in the southern Levant at the end of the first century BCE should be seen in a similar light.¹⁸² Most important for Afro-Eurasian exchange are the Red Sea ports built by the Ptolemies, above all, Ptolemy II. Berenike and Myos Hormos were the busiest, standing at the head of overland routes to Koptos on the Nile.¹⁸³ Berenike in particular was the main port for the massive pepper carriers that rode the monsoons from Southern India in the Roman period. The northernmost port, Arsinoe (under the Romans renamed Clysma), was located at the northwest tip of the Red Sea and connected to the Nile by a canal, also built by Ptolemy II.¹⁸⁴ The initial impetus for this large-scale infrastructural investment was fiscal and military: the Ptolemies needed war elephants to counter the Indian elephants of the Seleukids, and they could offset the cost by exploiting gold mines in the Eastern Desert and by selling elephant and hippo ivory.¹⁸⁵ The effect of this infrastructure, though, was to create nodes connecting the Red Sea to the Nile, and thus the Mediterranean to the Indian Ocean much more directly than ever before.

Imperial harbors also changed connectivity within the Mediterranean. When Alexander the Great founded Alexandria at the end of the fourth century, he created the largest harbor system the Mediterranean had ever seen and connected the Nile to the Mediterranean in a new way.¹⁸⁶ Alexandria was founded by combining the populations of several smaller ports that had been situated on different branches of the delta.¹⁸⁷ The new harbor was massive. It consisted of two basins separated by a 1.3 km long mole, the 'heptastadion.' The eastern basin alone covered over 226 ha with over 12 km of quays.¹⁸⁸ For comparison, the main 'Kantharos' basin in Classical Athens's harbor, Piraeus, was only 75 ha. The famous 'lighthouse of Alexandria,'

182 Raban et al. 2009.

183 De Romanis 2020, 46–54; Cobb 2018b, 52–59 for overviews.

184 Sidebotham 2011, 178–182 for Arsinoe/Clysma and the canal. The function of the canal is much debated and may have changed over time. Dug first under Darius I, it silted up and was reopened several times under Ptolemy II and then Trajan in the second century CE. J. P. Cooper 2009 for a longue durée history of the canal; Aubert 2015 and De Romanis 2020, 35–46 for contrasting views of its commercial importance. For other Red Sea harbors, Sidebotham 2011, 175–189.

185 Sidebotham 2011, 39–53; Cobb 2018b, 28–60.

186 Empereur 1998; Goddio 1998; Goddio et al. 2008; Evelpidou et al. 2019. Khalil 2017 provides a historical overview of Alexandria from a maritime perspective.

187 Empereur 2018.

188 Wilson, Schörle, and Rice 2012, 384.

built in the early third century BCE, was 130 m tall and was visible from several kilometers away. This colossal scale was simultaneously a political assertion of power by Alexander and the Ptolemies, a military necessity for maintaining the Ptolemaic navy, and a method of concentrating traffic between the Nile and the Mediterranean that made it easier to exploit fiscally.

The size of Alexandria would also have had broader economic impacts. The new harbor infrastructure could handle larger ships, making the export of Egyptian grain more efficient, and it centralized the location of exchange, facilitating information exchange about goods and trading partners, thus lowering transaction costs. In the early Roman period, Alexandria's connection to the Nile was further enhanced by the elaboration of harbor infrastructure on Lake Mareotis.¹⁸⁹ This was part of a larger project of infrastructural investment to ease the shipment of Egyptian grain to Rome, but it would also have affected the movement of goods coming from the Indian Ocean.

The construction of Rome's imperial harbor might have had similar effects. The mouth of the Tiber, on which Rome sits, did not provide a naturally deep, protected harbor. For centuries, the main deepwater port of Rome was Puteoli, 200 km to the south, where bulk cargoes would be transshipped into smaller vessels that would sail along the coast to Ostia at the Tiber's mouth. In the mid-first century CE, the emperor Claudius built a large, artificial harbor just north of Ostia, and at the beginning of the second century CE, Trajan expanded the facilities with an elaborate, internal harbor.¹⁹⁰ The entire port system covered over 233 ha and provided up to 13.89 km of quay space.¹⁹¹ This system of harbors and canals not only fed the city, it made Rome the center of a Mediterranean-wide market in bulk products that might have stimulated the construction of other ports capable of handling the large cargoes demanded by Rome.¹⁹² Indeed, Portus and Alexandria could be seen as occupying central places in a hierarchical system of interconnected ports.¹⁹³ If the existence of megaports helped integrate regional port systems, two megaports connected through regular bulk shipments of grain and other products would have helped connect not only the Eastern and Western Mediterranean, but the continental and oceanic hinterlands beyond.

The construction of these megaports was a result of imperial, political forces. The Seleukid ports mentioned above were similarly imperial initiatives that increased connectivity between the Mediterranean and northern Mesopotamia on the one hand, and between Mesopotamia and the Indian Ocean on the other. These imperial harbors, however, were exceptional. Most of the port network consisted of

¹⁸⁹ Flaux et al. 2017

¹⁹⁰ Keay 2018 with further literature.

¹⁹¹ Keay 2018, 150.

¹⁹² Keay 2016; 2018.

¹⁹³ For port hierarchies, see Wilson, Schörle, and Rice 2012 with further citations.

smaller harbors, with infrastructure funded more from local sources, usually a mix of public funds and private beneficence.¹⁹⁴ The construction of large, new harbors was considered the purview of royalty, but maintenance, renovation, embellishments, and the construction of discrete elements within the harbor were all funded locally.¹⁹⁵ The harbor of Ephesos, as the most important port on the west coast of Asia Minor, received direct imperial benefactions several times over the course of its history, but even here local funding was critical.¹⁹⁶ In the early second century, before Hadrian redirected a river that was pouring silt into the harbor, epigraphic evidence records donations by local and provincial elites for “construction work on the harbor.”¹⁹⁷ The sums, while significant, are in line with the customary donations of elites to other projects and would not have covered the construction of major new infrastructure.¹⁹⁸ On the other hand, these could have been the largest contributions in a public subscription to raise funds.¹⁹⁹ In any case, while normal costs of operating the harbor would have been funded from the public treasury, extraordinary maintenance work and embellishment required private contributions. Imperial power may have created the largest, most central nodes in the Mediterranean harbor network, and occasionally intervened in some of the second-tier harbors like Ephesos, but the vast majority of the network relied on civic institutions.

V Law

A universal legal system is often cited as one of the major economic benefits of empire.²⁰⁰ According to NIE theory, a consistent set of rules (‘formal institutions’) enforced by a third party lowers negotiation and enforcement costs, thus facilitating economic coordination.²⁰¹ Serious uncertainties remain, however, in applying this theory to the ancient world. Most prominently, at no time in the period under con-

194 Arnaud 2016 for the importance of cities in maritime trade networks.

195 Arnaud 2014, 167–169.

196 See Kokkinia 2014 for the entanglement of private, civic, provincial, and imperial in Ephesian harbor construction and regulation. See also, more generally, Arnaud 2014; 2015; 2016.

197 Kokkinia 2014, 184.

198 Arnaud 2015, 66 and 76 n. 43.

199 Such a system is alluded to by Dio Chrysostom, a second-century CE orator from Prusa in Anatolia (*Orationes* [Dio Chrys. *Or.*] 40. 5–12; 45. 12–16; 47). Dio had proposed some sort of public building. At first, the citizens of Prusa not only approved of his proposal, but agreed to contribute to it (45. 16). He also secured the support of the governor (40. 6). But as the work progressed, he had to repeatedly defend the project and himself from accusations by political opponents and people unhappy with changes to the urban topography.

200 E.g., Manning 2005; Lo Cascio 2007.

201 North 1990, 46–53 and von Reden, ch. 2, II.4, this volume.

sideration was there a single, universally valid system of law.²⁰² If a plurality of legal systems undercuts the function of law in providing predictability, so too will a lack of consistency within a single legal system. We must also question the practical efficacy of legal systems in shaping behavior. We cannot take for granted the idea that everyone had access to impartial adjudication of conflicts, nor that judicial decisions were actually enforced. In addition to the general characteristics of the legal landscape, the form of particular legal institutions shapes economic behavior. Here we discuss property rights, which affect the distribution of wealth and shape incentives for investment, contracts, focusing on the cost of crafting enforceable agreements, and agency, which influences how people create economic organizations.²⁰³

V.1 The Consistency of Law

V.1.1 The Hellenistic Legal System(s)

To speak of a Hellenistic ‘legal system’ is misleading: there never existed a legal system united in either name or practice across Hellenistic space, and even within specific political contexts, legal pluralism was the norm. There were a range of divergent legal frameworks that were in use (e.g., those based on Greek or Aramaic traditions). Moreover, since the Hellenistic kingdoms sat atop numerous smaller-scale political units, each with a legal system of their own,²⁰⁴ the critical functions of both lawmaking and adjudication were, as a rule, dispersed between both state and nonstate legal orders, such as temples and guilds. Kings had law-giving and jurisprudential rights that they could exercise across their domains, but the frequency with which these imperial legal rights were exercised and the scope of contexts within which they were deployed varied considerably.²⁰⁵

Local law derived authority from a variety of institutional structures ranging from *poleis* to temples, and it applied to members of a range of social collectives,

202 This was true even after the *constitutio Antoniniana* of 212 CE made Roman citizenship universal (Humfress 2013b; Tuori 2007).

203 Numerous other areas of law also have economic consequences but cannot be treated here. For a survey of Roman law and economics, see Dari-Mattiacci and Kehoe 2020. A collection of contributions addressing law and transaction costs from the ancient world in general, see Kehoe, Ratzan, and Yiftach 2015a.

204 Von Reden, ch. 12.A, this volume.

205 O’Neil suggests that, when Alexander interfered directly in local legal practice, “he was careful to show that he did so in the general interest, preserving the basic principles of higher justice” (2000, 425). For a contrasting opinion that sees a greater degree of interaction between local and imperial systems in the case of the Attalids, see Kantor 2014. On the Ptolemaic system, see recently Keenan, Manning, and Yiftach-Firanko 2014, esp. 17–20 for a brief overview.

including most often citizen bodies but also communities based on *ethne* like the Jews. Naming only a few of the largest and best documented legal traditions in the Hellenistic Near East and Egypt, we find a body of Demotic law in Egypt; Jewish law rooted in the Temple in the Levant; Babylonian traditions, which included both cuneiform and Aramaic practices in Mesopotamia; and civic law embedded in Greek institutions across the territory.²⁰⁶ Whatever the potential for imperial intervention, it is clear that economic activity was conducted within a space of interacting spheres of legal authority – neither fully independent nor entirely centrally directed.

The details of how several legal traditions were operationalized in a system of complex, overlapping spheres of legal authority are most visible to us in Egypt. An Egyptian sphere is attested by the Hermopolis Legal Code, a Demotic codex found in a temple archive dated to the early third century BCE that provides formulae for various types of legal cases.²⁰⁷ These formulae would have been used by the *laokritai*, or panels of judges who adjudicated cases based on Egyptian law, largely (or entirely?) among Egyptian speakers. The *laokritai* system is believed to predate the Ptolemaic period by several centuries, and much of the legal logic of the Hermopolis Code reflects earlier Egyptian legal practices.²⁰⁸

Other courts were innovations of the Ptolemaic period, and the entire structure underwent transformations over the course of centuries, with Ptolemy II credited with systematizing parallel Greek and Egyptian systems.²⁰⁹ Greeks, and eventually Greek speakers, had their own courts, first the *dikasteria*, which functioned at the *nome* level. There was also the *chrematistai*, a royal judicial panel that also heard cases in Greek, as well as the more obscure *koinodikion* ('common court') that emerged in the third century BCE, likely involving both Greek and Egyptian jurists. To this, one can also add legal tradition that applied to Jewish residents, the Septuagint translation of the Torah, which came to act as civic law for the community.²¹⁰ The Greek courts did not function according to an overarching law code, but instead followed royal pronouncements (*diagrammata*) or local civic codes (*politikoi nomoi*), where they were present.²¹¹ By the late second century BCE, it was not the ethnicity of the participants that determined the venue, but instead the language of the contract in question.²¹² Beyond the state courts already mentioned, associations also exercised a certain type of legal authority, requiring their members to adjudicate conflicts within the association structure rather than the court system.²¹³ Judicial

206 For an overview, Geller, Maehler, and Lewis 1995.

207 Donker van Heel 1991.

208 Allam 1991, 118.

209 Wolff 1962, 56–58.

210 For a recent introduction, see Manning in Keenan, Manning, and Yiftacht-Firanko 2014, 17–19. On the overlapping spheres of private law, Yiftacht and Vandorpe 2019. See also Wolff 1960.

211 Lippert 2012, 9.

212 *P. Tebt.* I 5 l. 207–220.

213 Lippert 2012 cites *P. Lille* 29 l. 23, *P. Cairo CG* 30606 l. 18.

proceedings were attended by an official named in both Greek and Demotic texts as the *eisagogeus*, a functionary from the central government who acted as a liaison with local courts, and who worked with a bailiff to ensure that the court's determination was carried out.²¹⁴ The jurisdictional authority of these various courts was complicated. Petitions were made to the Greek administrator of a *nome*, the *strategos*, to hear a case, who decided which court it should be heard in – referring the matter either to one of the courts named above, or in the case of issues involving taxes, directly to financial administrators.²¹⁵

This distribution of legal authority demonstrates how, even in the face of considerable pluralism and the absence of a centralized legal system, the court systems did offer a more capacious range of possibilities for enforcement and adjudication across and between various social groups and communities within Egypt. The general trend, furthermore, was one toward an increasingly streamlined process, with the *chrematistai* eventually becoming the sole venue for Greek-language disputes and even encroaching into the territory of the *laokritai*. The documents surrounding a single property dispute case, brought to the *strategos* of Thebais in 117 BCE, however, demonstrate that litigants before a Greek court mustered arguments based on both Greek and Egyptian legal language, demonstrating the long-lasting complexity of the underlying system.²¹⁶

Evidence from Hellenistic Babylonia, and particularly from the cities of Uruk and Babylon, hints at similar ranges of both adjudication and enforcement mechanisms, with both temple and civil courts.²¹⁷ Archaeological factors, however, complicate the interpretation of legal evidence from this sphere. According to cuneiform evidence, legal documents produced in the temple context could be written on either leather or clay tablets, with different scribes responsible for each type of text: the *tupšarru* for clay tablets written in cuneiform, or the *sepīru* for leather documents written in Aramaic and possibly also Greek.²¹⁸ The choice between the two media (and therefore languages) was not a binary one. There are instances where it is clear that a single contract was recorded in both ways, although only the cuneiform version has survived.²¹⁹ Although our evidence for legal practice in Babylon comes from clay tablets, Clancier has argued that we ought to imagine that leather documents would have actually formed the backbone of the civil justice system, with clay copies in cuneiform produced explicitly for use within temple contexts.²²⁰ In cases where temple affairs involved individuals from these wider circles, then,

214 Allam (2008) believes that the duties of the *eisagogeus* represent a development of the responsibilities of scribes in the pre-Ptolemaic times.

215 Lippert 2012.

216 *P.Tor.Choach. 12 = MChr 30*. See Pestman 1993.

217 Doty 1977 for Uruk.

218 Clancier 2011, 762.

219 *Vorderasiatische Schriftdenkmäler der königlichen Museen zu Berlin* 15, 34, Clancier 2005, 91.

220 Clancier 2011, 765.

leather records provided a bridge. One cuneiform sales contract detailing the treatment of prebend (temple income) shares of a goldsmith provides explicit evidence for the intersection of the temple legal space and that of civil courts. The document makes reference to another legal text, drawn up by the temple court at an earlier point but referred to in cuneiform syllabic as *kur-ra-pe-e*, identified by McEwan as a rendering of the Greek term *graphe*, which was used to refer to both civil suits and written decisions in Greek contexts.²²¹ Thus, this temple court was able to issue legal instruments not only in the traditional Babylonian style, but also in accordance with the newer civic norms of life under the Seleukids.

The cuneiform archival corpora reflect the affairs of the temples, and the question of the jurisdictional reach of the temple and civil courts is unclear, although it is clear that royal legislation could overrule other contractual agreements.²²² Temple officials could also be called to account in royal courts for their behavior, as documented in an instance where a Seleukid king believed that his donations to the *šatammu* (priest) of the Esagil temple had been misused.²²³ Although the temple courts were in this sense subordinate, one text from the Esagil archive and dated to the Seleukid period records the temple's right to hand down a ruling of capital punishment for the offense of sacrilege.²²⁴ The right to levy capital punishment suggests that the temple courts had considerable power.

In considering the abundant evidence from the Ptolemaic context, and the more attenuated material from the Seleukid world, it does appear the expansion of state-endorsed venues for adjudication in the Hellenistic period could have facilitated economic coordination, but the underlying plurality of law might simultaneously have constrained it. At the same time, recent scholarship on the sociology of law has pointed out that legal pluralism offers a certain benefit in that it creates space for dialogue and negotiation between communities with different normative practices.²²⁵ The legal pluralism of the Hellenistic world was a palimpsest of the complex underlying traditions that could lend individuals within these spaces considerable flexibility in their negotiations for common ground. However, they still had to negotiate, and that had costs. Roman law provided some of that common ground for them.

V.1.2 The Roman Legal System

Like the Hellenistic kingdoms, the Roman Empire consisted of numerous small-scale political units.²²⁶ Unlike the Hellenistic kingdoms, Rome was a city-state be-

²²¹ OCET 9, 42, McEwan 1984.

²²² Doty 1977, 308 ff.

²²³ BCHP 12 = ABC 13B, preliminary publication of new reading of Finkel, van der Spek, and Pirngruber available online at <https://www.livius.org/sources/content/mesopotamian-chronicles-content/bchp-12-seleucus-iii-chronicle/> (accessed 8 February 2021).

²²⁴ BM 47737, Joannès 2000.

²²⁵ Berman 2009, 238; Shahar 2008.

²²⁶ For the political structure of the Roman Empire, see Weaverdyck, vol. 1, ch. 7.

fore it was an empire, and therefore had its own legal tradition. Although jurisdiction was one of the primary functions of Roman magistrates in the provinces, the Romans never sought to impose their legal system on their subjects.²²⁷ Not only did local courts continue to apply their own laws, Roman courts too were usually happy to apply local legal concepts when appropriate.²²⁸ Litigants likely thought less about coherent legal systems and more about what would convince a judge to rule in their favor.²²⁹ Since Roman magistrates could supersede local courts, with the emperor being the final arbiter of justice, litigants might have expected Roman legal forms to be more persuasive.²³⁰ Thus, the use of Roman law became more and more common, but it was never the only system used.

Even if Rome's had been the only legal system in use, the potential for legal inconsistency would have remained because there were several different sources of Roman law and there was never a single body of law in this period that we would recognize as a 'code.' In the mid-fifth century BCE, in its first attempt to establish an authoritative body of law, the Roman state published the Twelve Tables, but its provisions were too piecemeal to be compared to a modern legal system.²³¹ The next attempt would not be made for almost a millennium. Our evidence for Roman law comes in the form of late Roman efforts to compile and standardize a body of law that would have legal force throughout the empire, and we must be wary of retrojecting such systematization to earlier periods.

Roman laws came from a variety of sources.²³² Throughout the Republican period, most of the laws that affected the economic behavior of individuals stemmed from the Praetorian Edict.²³³ This edict determined the grounds on which one could sue another. Provincial governors would issue similar edicts closely modeled on

227 For the application of Roman law to noncitizens, see Weaverdyck, vol. 1, ch. 7, 264–266; Eck 2018; Richardson 2015.

228 Czajkowski 2019, a thoughtful examination of the extent of legal pluralism in the Roman Empire, describes these phenomena as “jurisdictional” and “normative” pluralism, respectively. For jurisdictional pluralism in general, see Humfress 2013a; 2013b, and Alonso 2013 for Roman Egypt, which was unusual in not having a court system that was separate from the Roman jurisdictional system. For normative pluralism in general, see Ando 2016, and Kantor 2013 for the example of Phrygia.

229 See, e.g., Bryen 2014 relying mostly on Egyptian evidence, and Czajkowski 2017 arguing on the basis of the Babatha and Salome Komaise archives found in the Judaean desert.

230 Eck 2018, but cf. Terpstra 2019, 125–167 who argues that Roman contractual forms were adopted because of their role in establishing and maintaining social status through the act of witnessing.

231 Ibbetson 2015, 26.

232 Ibbetson 2015 provides a historical overview of the sources of Roman law. For a very brief introduction of these sources, as understood from a statist perspective, see Riggsby 2010, 25–33. Cf. Bryen 2014 for a much more expansive view that highlights the agency of “end users” in the dialectic creation of law while still acknowledging the particular importance of authoritative actors’ rule-making activity.

233 Weaverdyck vol. 1, ch. 7, 266. For a good overview of Roman litigation procedure, see Metzger 2015 along with Bablitz 2016; Metzger 2016; Rūfner 2016.

that in Rome. These were displayed in written form in city centers throughout the empire.²³⁴ Theoretically, the edicts could change every year, but in practice they tended to build on each other. By the Late Republic, the contents were relatively stable, and in 130 CE, Hadrian commissioned an authoritative, permanent version. The Praetorian Edict, then, formed a relatively stable core of Roman law that, while not as comprehensive as modern codes, performed some of the same functions in terms of providing certainty and accessibility to the ‘rules of the game.’

Around the core of the Praetorian Edict, however, variation was introduced by the interpretations of the jurists and by the legislative activity of the emperor. Jurists were legal scholars who derived authority from their recognized expertise rather than any official position within the state apparatus. They wrote scholarly works but also issued *responsae*, answers to specific questions. Their opinions were highly influential with judges and, from the early second century CE, binding when unanimous.²³⁵ The debates between them, however, were both a sign and source of legal uncertainty.

The emperor’s ability to make law – in the form of edicts, legal verdicts, or responses to petitions – further complicated the issue. The emperor consulted jurists and was somewhat constrained by a civic ideology, but there was no formal limit to his legislative competence.²³⁶ Furthermore, while governors’ edicts were published, it is uncertain who had access to the laws made by the emperor. The recipient of a favorable response might publicize it, but unfavorable responses might have been difficult for others to access. Edicts were sometimes collected and published in reference works, but it is not certain that they were systematically stored in publicly accessible archives.²³⁷

From an economic perspective, Roman law performed some of the functions of an ideal system of formal constraints. The Praetorian Edict provided a relatively stable set of rules, and the social norm that laws should be made public made these rules knowable. At the same time, there was considerable scope for inconsistency in the juristic interpretation of these laws. Tertullian, writing at the end of the second century CE, describes imperial pronouncements as axes that prune “all the wild growth of that ancient forest of law.”²³⁸ In reality, the edicts themselves contributed to the confusion. Nevertheless, there was a systematic core at the heart of the forest that persisted over several centuries, and this core provided some common ground for individuals to negotiate, even if it did not eliminate uncertainty altogether.

234 Mantovani 2016, 28–29.

235 Gaius, *Institutes* 1. 7.

236 Harries 2013, 50–51. The *Constitutio Antoniniana*, which unilaterally extended Roman citizenship to every free inhabitant of the empire in 212 CE, is the most famous imperial deviation from established law. For a subtler example, see *Dig.* 4. 4. 38. *praef.* discussed by Bryen (2014, 352–355).

237 Ibbetson (2015, 33) thinks that rescripts and possibly decrees were systematically copied and stored in accessible archives, but cf. Mantovani 2016, 34–35.

238 Tertullian, *Apology* 4. 7; Mantovani 2016, 35.

V.2 The Efficacy of Law

The legal system only has economic impacts if the law shapes the behavior of economic actors. The most obvious way this happens is through the threat of punishment. The possibility of enforcement does two things: it incentivizes those who are already in a contractual relationship to uphold their obligations, and it encourages people to enter into contractual relationships in the first place by making the adherence of the other party more likely. This outcome requires that each party believes in their ability to sue the other for breach of contract and that the attendant penalty will actually be exacted.²³⁹ Impersonality of the justice system increases the range of potentially suable partners and therefore encourages more economic coordination,²⁴⁰ but in ancient jurisdiction, questions of social status and citizenship often shaped legal outcomes. Furthermore, it is not clear that the state actively enforced the rulings of judges.

In Greek legal systems, citizenship was a key consideration in legal adjudication. Theoretically, a city's law court handled cases concerning its own citizens, so mechanisms for adjudicating cases involving multiple citizenships had to be developed. Bresson argues that, as a rule, disputes concerning contracts would be resolved by the city in which the contract was struck.²⁴¹ Cities also struck bilateral treaties to define jurisdictional competence in cases of disputes between their citizens. In Classical Athens, in the absence of such a treaty, commercial disputes were settled by a port magistrate, who must frequently have been biased in favor of his fellow citizens.²⁴² In the mid-fourth century BCE, however, the Athenians established a more elaborate system for handling cases involving large-scale trade that was open to all.²⁴³ Other commercial hubs, like Byzantion and Rhodes, soon offered similar services.²⁴⁴ Xenophon, in the fourth century BCE, thought that quick, fair dispute resolution would give Athens a competitive advantage in attracting merchants,²⁴⁵ and other cities might have tried this too. Whether these courts actually treated citizens and foreigners equally is not clear, but at least the ideal was widespread.

The efficacy of these courts required that the injured party be able to exact a penalty, which could be difficult if the guilty had no property in the city. In the pre-

239 Lawsuits were a measure of last resort, avoided if at all possible in favor of other means of dispute resolution (Bablitz 2016). Nevertheless, the ability to sue, even if not exercised, shapes behavior (Cooter, Marks, and Mnookin 1982).

240 Impersonality is a key aspect of North, Wallace, and Weingast's (2009) distinction between "natural states" and "open access orders." See also Kehoe, Ratzan, and Yiftach 2015b; Arruñada 2016.

241 Bresson 2016, 321–322.

242 Bresson 2016, 317–322.

243 E. E. Cohen 2005; Bresson 2016, 322–325.

244 E. E. Cohen 2005, 300 n. 55.

245 Xenophon *Poroi*, 3. 3.

Roman Greek world, the right of reprisal provided a costly solution.²⁴⁶ The wronged party, with the approval of their city, had the right to seize goods belonging to the guilty party's fellow citizens. While encouraging the guilty party's city to provide enforcement, this also reduced security. One fourth-century contract forbids a ship from stopping in ports where the right of reprisal might be exercised.²⁴⁷ Thus, Hellenistic courts could apply their laws to noncitizens, but political fragmentation made enforcement costly. After conquest, Roman imperial power allowed jurists to establish a universal principle tying jurisdiction to property: merchants could only be tried in a city in which they had an established place of business or in their home city.²⁴⁸ The plaintiff could then seize the defendant's property in case of a guilty verdict.

Under the Roman Empire, social standing arguably became more important than citizenship in determining access to adjudication.²⁴⁹ In addition to the advantages that wealth still provides today, in Roman courts, social status determined credibility and therefore functioned as a guide to truth.²⁵⁰ At some point before the reign of Hadrian (r. 117–138), a new legal dichotomy between *honestiores* and *humiliores* was recognized, formalizing the differential treatment of higher and lower status people.²⁵¹ Pliny the Younger commended a governor for reinforcing social hierarchies in jurisdiction, saying, when such distinctions are ignored, “nothing is more unequal than that equality.”²⁵² At the same time, Pliny was drawing a contrast with those who did ignore such distinctions in hopes of appearing impartial. The jurist Ulpian urged governors to counteract power imbalances by establishing systems to ensure that all disputants could be heard and have legal representation.²⁵³ Written contracts and the social status of their witnesses could partially ameliorate status imbalances.²⁵⁴ The patronage of a social superior and petitions to higher officials might also be helpful in this regard.²⁵⁵ Thus, while Roman jurisprudence was by no means impersonal by modern standards, people of lower social standing were not completely excluded.²⁵⁶

What happened after the trial, whether the verdict of the judge was actually enforced, is another question. Taco Terpstra has argued that, in general, ancient

246 Bresson 2016, 318.

247 Demosthenes *Orationes* 35. 13; Bresson 2016, 318.

248 *Dig.* 5. 1. 19; Arnaud 2016, 125–127.

249 Here, we use ‘social standing’ and similar terms to encompass both rank, defined by rules, and status, based on esteem (Garnsey and Saller 2015, 136–144).

250 Meyer 2016; T. S. Taylor 2016.

251 T. S. Taylor 2016, 354–355.

252 Pliny, *Epistulae* (Plin. *Ep.*) 9. 5.

253 *Dig.* 1. 16. 9. 4–5.

254 Meyer 2004; 2015; Wolf 2015.

255 T. S. Taylor 2016.

256 For a brief summary of the evidence that lower-status claimants did use Roman courts, see T. S. Taylor 2016, 358–359 with further literature.

states in the Mediterranean and Near East did very little to enforce the decisions of the courts.²⁵⁷ The law dictated the sentence and how it was to be carried out, but left it to the winning side to actually execute the judgment. The role of the judge, Terpstra argues, was to adjudicate the dispute, that is, to decide who is in the right and what obligations exist in consequence. An official decision of this sort gave the winning side the moral authority to mobilize community support in their enforcement efforts. Koenraad Verboven, however, argues that Roman magistrates had the means and discretion to enforce their decisions and probably did so.²⁵⁸ In the mid-second century CE, Antoninus Pius ordered that “those who appointed judges or arbitrators should execute their decisions.”²⁵⁹ Whatever the case, the abundance of lawsuits that occurred in the ancient world testifies to the courts’ effectiveness.

If the authority of the court was the key to community mobilization, imperial courts would have had a particular role to play. Theoretically, in a local community an individual’s social status might give them greater authority than the court’s, preventing enforcement.²⁶⁰ Similarly, in transactions between members of different communities, each party likely had more authority within their own community. Courts associated with the imperial state, in contrast, would have had greater authority than almost any individual, and the origin of the claimants would have mattered less (unless one claimant could effectively assert closer association with the imperial power). As when a litigant petitions a higher official for support in a case against a more powerful opponent, imperial power in the form of courts could flatten locally significant differences. Economically, the effect would be to widen the range of people subject to the formal constraints of the law and therefore broaden the scope of economic coordination.

V.3 The Economic Impact of the Rules

Beyond the existence of laws and court systems to adjudicate disputes, the particular form the law takes has economic impacts as well. Certain laws can encourage people to enter into agreements and invest in productive activities, and they affect the distribution of wealth within society. The nature of property rights – understood as a bundle of rights over something, including the right to make use of something, to derive income from it, and to manage it – could encourage or discourage investment and could concentrate or disperse wealth.²⁶¹ The ability to craft enforceable

²⁵⁷ Terpstra 2019, 13–23 especially; see also R fner 2016, 265 for a summary of the Roman legal evidence.

²⁵⁸ Verboven 2020, 404–407.

²⁵⁹ *Dig.* 42. 1. 15. *praef.*, trans. Watson.

²⁶⁰ Of course, in such a situation, the individual would probably not have been sued in the first place.

²⁶¹ For this definition of property rights and some of its implications, see Furubotn and Richter 2005, 87–92.

contracts makes complex, risky transactions more secure. Laws governing liability in complex exchanges could encourage or discourage the use of agents, thereby expanding or restricting the scale of economic enterprises.

V.3.1 Property Rights

Property rights are those rights that determine who has the legitimate ability to exploit a resource. In the premodern world, the most important resource was agricultural land, so this will be our primary focus. Property rights come in bundles, of which ownership is one configuration.²⁶² For example, the right to derive income from land, in the form of taxes or rent, might be claimed by the state, the owner, or both,²⁶³ and owners often temporarily alienated the right to use land to tenants in return for rent.²⁶⁴ Rather than treating such property rights individually, we examine three characteristics of property rights that influenced investments in productivity and the distribution of wealth: security, alienability, and accessibility. Secure property rights encourage investment, particularly in the Mediterranean where the major cash crops (grape and olive) take several years to mature; alienability affects the overall value of goods in circulation and incentivizes investment; and accessibility affects the distribution of wealth, and therefore the capacity of people to consume.

Property rights were secured differently in Greek *polis* contexts and in Roman law. Greek city-states maintained records of land that had been sold or confiscated, and similar archives are known from Ptolemaic and Roman Egypt. In Roman Egypt, even liens and mortgages were registered.²⁶⁵ Public registration of property in Rome and the western part of the Roman Empire, on the other hand, served primarily the fiscal purposes of the state.²⁶⁶ A census declaration might have been used as evidence of ownership but was not dispositive on its own, and cadastral maps, drawn up in cases of colonization and land redistribution, did not record changes in ownership. Procedures of sale in Roman law, however, provided some security by limiting opportunities for competing claims to be recognized.²⁶⁷ The most common

262 For ownership and property rights from the perspective of New Institutional Economics, see Furubotn and Richter 2005, 79–133. For a good discussion of ownership from a historical perspective, see Jakab 2015. E. M. Harris (2015) argues that ownership is a meaningful category that cuts across cultural boundaries without acknowledging the analytical difference between ownership and distinct rights to property.

263 Monson (2012, 159–208) has argued persuasively that the amount of income claimed by the state and the way this was assessed influenced investment in Egypt.

264 Kehoe (2007) has analyzed the economic implications of Roman tenancy practices.

265 For registries in Greek city-states, E. M. Harris 2015; Monson 2012, 122–131 for Ptolemaic and Roman Egypt.

266 Arruñada 2020, 261–268 with further literature.

267 Arruñada 2020, 268–277.

method of property transfer was *traditio*, which transferred possession rather than ownership, coupled with *usucapio*, by which a possessor achieved ownership by maintaining unchallenged possession for two years.²⁶⁸ A similar principle was officially extended to the provinces in the late second century CE, though with a longer time frame.²⁶⁹ Nevertheless, the absence of public archives must have increased the cost of litigation and therefore transaction costs, especially for transactions across long distances. To own land in distant places probably required wealth, status, and social relationships to overcome the costs of the transaction.

The right to sell or otherwise alienate land was widespread in the ancient world. Aristotle defined ownership as the right to give away or sell as one wished.²⁷⁰ Theoretically, alienability incentivizes investment by tying the value of land to its future productivity.²⁷¹ Recent scholarship has emphasized the extent of alienable land even in areas previously thought to be characterized by extensive state and temple ownership. Andrew Monson has argued that, in later Ptolemaic Egypt, both temple and royal land could be privately owned, the labels referring rather to their fiscal status. The Romans privatized more land and lifted restrictions on who could own certain categories of land, but private land itself was not an innovation.²⁷²

The accessibility of property rights in land, that is, whose claims to property rights were recognized, was often locally restricted. Hellenistic Greek city-states generally limited the right to own land to citizens.²⁷³ This not only restricted the land market, it must also have restricted credit, since it was hard for a noncitizen creditor to claim land that had been pledged as surety.²⁷⁴ From the Republican period on, Roman governors undercut the exclusivity of property rights in the Greek East by endorsing claims on land made on the basis of Roman laws governing possession.²⁷⁵ The operative question was how the land was acquired, not the citizenship of the acquirer. This allowed wealthy individuals to buy land in the provinces (or lend to provincials in hopes of obtaining mortgaged land) and acquire vast for-

268 For ownership and possession in Roman law, see Baldus 2016; Capogrossi Colognesi 2016; du Plessis 2015; Jakab 2015.

269 Jakab 2015, 122–124. Provincial property rights in Roman law is a field of lively discussion. See Kantor 2017; Jördens 2016 is helpful for Egypt.

270 Aristotle *Rhetoric* 1. 5. 7.

271 Furubotn and Richter 2005, 97–100. Pliny *Ep.* 3. 19 ties the price of an estate partly to the penury of its tenants, which impacts their productivity.

272 Monson 2012. For the summaries of the progressive privatization of land in Roman Egypt, see Rathbone 2007; Minnen 2019 with further literature.

273 For the close connection between landownership and the communal aspects of the Greek *polis*, see Bresson 2016, 225–234; Mackil 2017.

274 Hard but not impossible. The Byzantines passed a law stating that such noncitizen creditors could obtain title to the mortgaged land by paying one-third of the loaned sum to the state (Arist. [*Oec.*] 2. 1347a. 1–3).

275 Eberle 2016.

tunes that dwarfed all but those of Hellenistic rulers.²⁷⁶ Hellenistic Babylon provides an interesting comparison. There, the old system of prebend contracts, which provided shares of income from temple land in exchange for cultic service, expanded from a few families to a range of individuals, including foreigners and women.²⁷⁷ Here too we see an expansion in the accessibility of property rights associated with imperial rule. This might have increased economic activity and integration in the aggregate, but it did so at the expense of local people who had to compete with wealthy outsiders.

V.3.2 Contracts

A contract is an agreement between private parties that is meant to be enforceable by a third party, thereby reducing the risk of opportunistic behavior.²⁷⁸ Without third-party enforcement, parties must rely on their own social resources to ensure their partner's adherence to the terms of an agreement, excluding those with modest resources from complex transactions. Therefore, as forging contracts becomes easier, more complex transactions become feasible to a wider range of people.²⁷⁹ Ancient contracts were originally oral, and enforceability was achieved by expressing agreements using fixed formulas, rituals, witnesses, and oaths.²⁸⁰ Written contracts could serve as evidence for the oral agreement, though in some traditions they became constitutive of the agreement itself. For our purposes, the key question concerns the balance between the cost of entering into a contract and the level of security – the enforceability – that contract provided.

The formal requirements of enforceability affect both the cost and strength of a contract. In Classical Athens, and probably in most Hellenistic *poleis*, there were no formal requirements for written contracts aside from witnesses. On the other hand, the written word carried less weight in court than the spoken word.²⁸¹ The only exception was the maritime courts, discussed above, which required written con-

276 Harper 2015.

277 Corò 2005.

278 For a discussion of the definition of 'contract' in the ancient world, see Ratzan 2015, 188–196.

279 For a theoretical NIE perspective on contracts, see Furubotn and Richter 2005, 135–290. Kehoe, Ratzan, and Yiftach (2015b) and Kehoe (2015) discuss the economic impact of Roman contract law in terms of default rules, the terms that cover situations not explicitly described in the contract, and conclude that Roman default rules were economically efficient from a modern theoretical perspective. Other legal traditions almost certainly had default rules as well based on custom, but what these were and how consistently they were applied is not known.

280 See Meyer's discussion of "unitary acts" that changed the nature of the universe (Meyer 2004, 91–120). Demotic sales contracts sometimes refer to "the oath that will be imposed on you in the courthouse with respect to the right conveyed by the foregoing document" (vel sim. E.g., Keenan, Manning, and Yiftach-Firanko 2014, nos. 6.1.1, 6.1.2, 6.2.1).

281 Gagarin 2008, 196–205 for the use value of the written word in fourth-century Athenian trials.

tracts. In Ptolemaic Egypt, in contrast, the form of the contract was more important and was even mandated by the state.²⁸² Greek and Demotic contracts were distinguished from other texts both by the use of certain phrases and by their physical forms. In the course of the third and second centuries BCE, it became customary and then required to deposit contracts in state archives. State support would have made these contracts very secure but also costly to draw up. As an alternative, people would record agreements in texts written as letters that, from the second century BCE, often contained legal formulas, thus compromising between enforceability and cost. In Roman courts too, the physical form of the written contract carried great weight.²⁸³ Contracts were written on wooden tablets (*tabulae*) that, though not technically constitutive of the obligations recorded, symbolized the agreement.²⁸⁴ The tablets were bound with a string and sealed by witnesses and parties to the contract, and in 61 CE, the state stepped in to mandate a new form of sealing to prevent forgery.²⁸⁵ Roman contracts derived their authority from the reputation of those whose seals they bore and the physical form of the *tabulae* rather than any state institution as in Ptolemaic Egypt. Recording contracts on *tabulae* was more expensive than using papyrus, but one was not required to file them with an official archive.

Tabulae carried weight in Roman courts, but they were not required for adjudication. Similarly, being able to repeat the precise words of the Praetorian Edict might have helped convince a judge that one's contract should be enforced, and this would have required the assistance of a legal expert,²⁸⁶ but it was not strictly necessary. From the first century BCE, Roman jurists recognized obligations arising from words (e.g., a promise), actions that do not require words (e.g., making a loan), and agreements (e.g., sale, lease and hire, and partnership).²⁸⁷ The categorization of agreements that gave rise to obligations allowed Roman jurists to develop default rules surrounding them. In essence, if a judge recognized an agreement as a certain type and knew (or was made aware of) the laws concerning that type, a contract with legally binding terms existed without ever having to be written. Similar default rules might have existed in other traditions, either implicit rules dictated by custom or explicitly enacted laws, but the systematization of the Praetorian Edict, the long history and sophistication of Roman juristic writing, and the geographic extent of Roman power that gave those opinions legal force made Roman default rules more powerful than others. Bearing in mind the inadequacies of the Roman courts de-

282 Depauw et al. 2014.

283 Meyer 2004.

284 Meyer 2004, esp. 90 for the destruction of debt tablets.

285 Meyer 2004, 163–168.

286 A quotation from the Praetorian Edict appears in the Babatha archive. For the importance of reciting the precise words of the Praetorian Edict, see Meyer 2004, 59.

287 For the Roman law of obligations, see Ibbetson 2016. For these contractual forms, see Fiori 2016; Sirks 2018.

scribed above and the cost of hiring legal experts to advise one at a trial, entering into a legally enforceable agreement in the Roman Empire would have been relatively easy.

V.3.3 Agency

Agency, the ability of one person (an agent) to make contracts and transactions on behalf of another (a principal), is a prerequisite for economic activity that transcends the capacity of a single person. Agency creates extra costs both for the principal and for the third party interacting with the agent. The principal bears the cost of ensuring the agent's faithful performance of their duties (the 'principal-agent problem'), while the third party bears the risk that the principal will try to deny responsibility for obligations entered into by the agent.

Legal regulations governing the agent-principal relationship are not strictly necessary for agency to occur. The third-century BCE archive of Zenon, who managed the affairs of Appolonios the *dioiketes*, reveals an extensive, complex network of agents conducting a wide range of business ventures on behalf of a single principal without any apparent legal framework to define or enforce their obligations.²⁸⁸ Mutual monitoring between agents, frequent communication, and the ability to punish faithless agents through imprisonment and confiscation of property allowed Zenon to coordinate the activities of numerous individuals and mobilize resources across great distances. But difficulties and added costs arose when agents dealt with individuals outside their social networks.²⁸⁹ A clear legal framework defining liability and property rights in such cases would not have eliminated such costs, but it might have lessened them by lowering the cost of enforcement. Roman law provided such a framework.

In Roman society, the extra-legal institutions of *familia* and *amicitia* helped principals ensure the good behavior of their agents.²⁹⁰ Within the Roman *familia*, a principal had a variety of coercive mechanisms and incentives with which to influence the behavior of their slave agents. But Romans also frequently asked free peo-

288 Terpstra (2019, 83–124) illuminates the lack of state enforcement in business dealings, although he does not focus specifically on the legal status of agency relationships; for Zenon and Apollonios, see von Reden, vol. 1, ch. 1.

289 E.g., the unnamed individual who wrote to Zenon complaining of being cheated by Zenon's subordinates because he was a "barbarian" (Terpstra 2019, 101–102), or the underhanded slave dealers who demanded a fee for returning runaway slaves that they had just sold (Terpstra 2019, 119–121).

290 The English 'friendship' does not encompass the same range of relationships as the Latin *amicitia*. *Amicitia* included, in addition to those based on mutual affection, relationships defined by stark power imbalances and those that were more instrumental than implied in modern English usage (Verboven 2002; 2011).

ple with whom they had an extrafamilial social relationship to act on their behalf. Many were former slaves, freedmen.²⁹¹ Roman law recognized and enforced the moral obligation of such agents to act in the best interests of their principal and offered ways of formally defining the scope of the agent's legitimate action.²⁹² Standardized categories of contractual agency allowed the principal to sue the agent in case of breach while also allowing the agent to sue the principal for losses incurred in the course of business.²⁹³

The risk to the third party, that the principal would back out of deals made by the agent, was addressed by assigning liability either to the agent or the principal. At some point in the Mid- or Late Republican period, Praetorian Edicts began to contain mechanisms for suing the principal in addition to the agent (the so-called *actiones adiecticiae qualitatis*).²⁹⁴ When setting up an agent in business, the principal would draw up a charter to specify their agent's remit, a copy of which was deposited in the city archive.²⁹⁵ This not only defined the liability of the principal, it also made the agent-principal relationship public knowledge.²⁹⁶ This ameliorated information asymmetry by giving third parties confidence that the agent had the legal right to dispose of the principal's property.²⁹⁷ The wealth of the principal also served to guarantee solvency, allowing third parties to enter into larger transactions than if the agent had been working alone.

Roman law could not eliminate the costs involved in agency, and social relationships and informal constraints always played a major role in shaping behavior. But the law provided additional support. This would have been especially important for people with less social power than the ultrawealthy Apollonios, who could rely on his prestige and social network to enforce the good behavior of his agents. If someone thought they could count on the backing of the law, they might have been more willing to take on greater risk in forming principal-agent relationships or in dealing with an agent. Again, we see the law widening the range of people who could engage in business by lowering transaction costs, thus increasing the scope of economic coordination.

291 For the term and its limits, see Verboven 2002, 230–237. For an in-depth analysis, see Schäfer 1998. For the economic importance of freedmen procurators, see Mouritsen 2011, 206–247; Verboven 2012.

292 Verboven (2002, 227–274) and Arruñada (2020) examine the interplay of social relationships, law, and economics.

293 Aubert 1994, 104–114.

294 The chronology is uncertain: Aubert 1994, 70–100; cf. de Ligt 1999. For descriptions of these *actiones*, see Aubert 1994, 46–70; Johnston 2007; Kirschenbaum 1987, 47–121.

295 Aubert 1994, 9–16.

296 Aubert 1994, 9–12. *Dig.* 14. 3. 11. 2–6 states that, in cases where the principle wants to limit the scope of action of an agent in ways that are not customary, a notice to that effect must be posted publicly. Affirmative publication of the principle-agent relationship was not required.

297 Arruñada 2020.

VI Standardization and Norms

Standardization and the expansion of community norms are tools that increase transparency, lower uncertainty, and reduce chances for miscommunication.²⁹⁸ Despite the regular appearance of standardization in the historical record, total standardization is a mirage, even in the modern world. Nevertheless, “although many if not most standards never catch on, standards still transform the world as we know it.”²⁹⁹ In the case of the Mediterranean and southwestern Asia, standardization does emerge, but on a largely local scale, as is the case with weights and measures. While there were attempts to develop equivalencies between different sets of standards, there was notably less interest in developing a single across-the-board set of standards. The lack of top-down standardization is even more clear in the domain of language, where multilingualism even in state administrative contexts remained the norm. And yet, the Hellenistic and Roman period saw the spread of a wide range of mass-produced objects that were themselves standardized, and which were also a vehicle for the standardization of consumption patterns and, ultimately, taste. This more informal standardization of norms was a consequential force in the development of stable production and distribution networks.

VI.1 Weights and Measures

Following from the earlier discussion of monetization and the eventual expansion of the *denarius* system, one might expect other spheres of weights and measures to have similarly coalesced toward formal standards. In fact, while some imperial standards were widely distributed in space, the picture remains one of great variety. The Seleukids, Ptolemies, and Romans all developed consistent dating systems expressing year, month, and day, but these imperial systems coexisted with local and regional systems that persisted in use.³⁰⁰ Roman land surveyors employed consistent measurements of length and area across the empire, but many people had more faith in their own local units.³⁰¹ Adding to the complexity, units in various standards often shared names: a *mina* in one city did not equal a *mina* in another, and there were at least five different standards of the *modius*.³⁰² This homonymy and lack of consistency would have resulted in increased uncertainty and transaction costs for long-distance exchange, particularly as shared legal frameworks and public infrastructure knit far-flung corners of the Roman world together.

298 See von Reden, ch. 2, II.3, this volume.

299 Timmermans and Epstein 2010, 84.

300 Bickerman 1983; Stern 2012.

301 Hyginus 1 *De generibus controversiarum* 92. 24–25.

302 Duncan-Jones 1976. While there are modifiers to identify some of these standards (e.g., *modius castrensis*), there are more standards than modifiers (Riggsby 2019, 92).

Standardization of measurement was always circumscribed. Professional groups that required training and consistency, such as land surveyors or military engineers, maintained high levels of standardization.³⁰³ More commonly used weight and measure standards were city-based, regulated within the context of urban markets under the oversight of local officials (e.g., *agoranomoi*, *aediles*, or *metronomoi*).³⁰⁴ Volumetric standards were physically embodied in measurement tables, large stone slabs with holes of different sizes carved into them, which bear no relation to any supralocal standard.³⁰⁵ Epigraphic evidence commemorates the provision of standard weights and measures, sometimes by an official, but often by a private individual.³⁰⁶ Magistrates enforced these local standards, often by breaking measuring equipment that was found wanting, but the criteria they used to determine equivalence is unclear. Theoretically, equivalency could be established by inscribing an authoritative standard on a measuring implement. But even in Rome, the 55 surviving weights that claim to be calibrated at the Temple of Castor vary from the notional standard, in eight cases by more than 20 percent!³⁰⁷

This inconsistency created negotiation and enforcement costs for long-distance trade. Traders had to agree on a standard,³⁰⁸ and even then quantitative precision could not be assumed. The ‘amphora’ was simultaneously the most common vessel used to ship liquids and a standard unit of volume. But even within a stable type the capacity of individual amphorae varied by up to 20 percent.³⁰⁹ If a shop owner ordered ten amphorae of wine, she could only know approximately how many servings she could sell. When disputes inevitably arose, the legal question never concerned the accuracy of the measures used, but whether they were used fraudulently.³¹⁰ This lack of precision explains why the act of measuring was so important in Roman sales. First-century CE jurists opined that, when goods are sold by quantity, the sale is only complete once the good has actually been measured out, transforming an abstract quantity into a concrete, specific commodity.³¹¹ Without precise standards, the parties to a sale had to agree that the commodity actually delivered was sufficient.³¹² Beyond having faith in the measurements, this required the simul-

303 Riggsby 2019, 123–125.

304 Riggsby 2019, 112.

305 Riggsby 2019, 104–105.

306 Riggsby 2019, 112–113.

307 Riggsby 2019, 101.

308 A second-century imperial decision hints at the possibility of confusion based on regional variation: “No one is obliged to sell, if dissatisfied with the price or the measures, especially when nothing is done contrary to the custom of the region” (*Dig* 18. 1. 71).

309 Riggsby 2019, 105–106.

310 Riggsby 2019, 110.

311 *Dig.* 18. 1. 35. 5; Riggsby 2019, 119–120.

312 See also *TPSulp* 55; Riggsby 2019, 117, for a contract that refers to an explicitly approximate quantity of silver that has been certified by one of the parties involved.

taneous presence of both parties or their agents, not to mention a system of signifying approval, and a system of delegating authority to give that approval. The institutions defining agency relationships outlined above and the other personal networks that structured long-distance trade were necessary in part because of the low level of standardization of weights and measures.

VI.2 Language

Bilingualism was widespread around the Mediterranean basin and southwestern Asia in antiquity, and movement toward linguistic standardization was at best uneven. The successive presence of the Achaemenid, Hellenistic, and finally Roman empires did, however, change language-use practices through the introduction or expansion of specific languages – ‘Official Aramaic,’ Greek, and to a certain extent Latin – across vast territories, and into diverse populations. These widespread languages became ‘mediating standards’ that facilitated the creation of evermore extensive social networks across the space and reduced the costs of interaction between actors from different communities.³¹³ At the same time, local languages persisted, and the use of non-imperial languages in local administration can be understood as a membership standard that gained new relevance as a reaction to the spread of imperial power.³¹⁴ As mediating standards in their own right, local and regional languages would have maintained smaller-scale networks that were distinct from, but partially integrated into, the larger-scale imperial linguistic networks.

The eastward spread of Greek with Alexander’s Macedonian army and its eventual presence in the deep reaches of Central Asia is generally understood as a central driving force behind the phenomenon of Hellenization. As a written language, and particularly as a language of administration that was promulgated through things like official inscriptions and coin legends, Greek exploded across southwestern Asia in the third century BCE. The idiom was even adopted as a marker of political authority in the Arsakid world. Furthermore, the Greek language itself was more standardized. In the fifth and fourth centuries BCE, ‘Greek’ was a number of mutually intelligible dialects,³¹⁵ but the Hellenistic period saw the development of *koine*, a postdialectal version of Greek based on the dominant earlier version of the language.³¹⁶ This standardized and systematized Greek spread through the court culture of the Ptolemaic, Attalid, and Seleukid empires. Foreigners wishing to access

313 Grewal 2008, 21–22 for mediating and membership standards, 71–88 for languages as network standards.

314 Grewal 2008, 86–88 on regional linguistic revivals.

315 Colvin 2010.

316 *Koine* evolved out of Attic-Ionic Greek spoken in the late fourth century in Attica as well as territories in western Asia Minor (Brixhe and Panayotou-Triantaphyllopoulou 1988).

this community now had only to learn one version of Greek, which gave them more or less universal access to the Greek-speaking world, thus expanding the mediatory potential of the language.

Roman conquest spread the use of Latin primarily in the Western Mediterranean. The power of Greek as a network standard, and Roman esteem for Greek culture, meant that elite Romans were usually content to use Greek even in official administrative contexts in the Eastern Mediterranean.³¹⁷ Latin was only insisted upon in certain legal documents concerning Roman citizens.³¹⁸ In this case, language served as an official membership standard rather than a mediating standard. Under Roman rule, Latin and Greek formed two distinct superregional linguistic networks, though the imperial elite, and doubtless others as well, could participate in both.

At the same time, other local and regional languages persisted, defining smaller networks that interacted with those of the imperial languages. Greek never gained traction as a spoken language among non-elites across the Hellenistic space.³¹⁹ Instead, a plethora of languages continued to be spoken by local communities throughout the Hellenistic and Roman periods.³²⁰ Some of these, such as Akkadian, Aramaic, and Demotic, were administrative languages used in inscriptions that would have contributed to the sense that local power structures were distinct from imperial power. The spread of the epigraphic habit represents a standardization of cultural habits surrounding public language representation. These monuments make the ideological importance of local languages visible to us in the present, but they were also tools in the maintenance of those languages as membership standards in the past. This is clearest in the case of Aramaic, which although common in Achaemenid inscriptions, was attested only rarely in Hellenistic-period epigraphic contexts.³²¹ In the Roman period, however, a number of versions of Aramaic, from Nabataean and Hatrene in Mesopotamia to Aramazian in the South Caucasus, came to be used as prestige languages in their own right and as vehicles for the consolidation of local identities within the cities of the Roman East.³²²

The maintenance of local language networks did not entail isolation from or rejection of imperial language networks. The appearance of the term *puf-li-ṭe-e/pu-li-ṭa-nu*, a rendering of the Greek *politai*, in Late Babylonian Akkadian administrative documents demonstrates that the rise of new, nonlocal forms of political

317 In the Republican period, the performative use of Latin in Greek contexts could serve political purposes (Rochette 2010, 282–286; Henrichs 1995, 245 on Cato).

318 Adams 2003b, 186–188.

319 This is in sharp contrast to a later imperial idiom, Arabic, which had far deeper consequences, see Wasserstein 2015.

320 For surveys of linguistic diversity, see Brixhe 2010; Richter 2011, ch. 4; Clackson 2015.

321 See, e.g., steles from Armenia (Khatchadourian 2007). For Aramaic in Central Asia, see Morris, ch. 9, IV.1, this volume.

322 Gzella 2015, 215–216; 2006.

organization could be accommodated through linguistic adaptation.³²³ More positively, bilingual Latin-Palmyrene inscriptions demonstrate how multilingualism allowed people to participate in multiple networks simultaneously. A funerary stele from Britain, commemorating the death of Regina, the wife of Barates, a Palmyrene, bears Latin and Palmyrene texts that commemorate the death differently, using linguistic formulae appropriate to the language.³²⁴ The deployment of (often ungrammatical) Latin on bilingual Latin-Palmyrene funeral monuments erected in Palmyra itself, meanwhile, demonstrates a clearly self-conscious desire by local elites to align themselves with the dominant political and cultural power.³²⁵ These inscriptions display membership in the Palmyrene community (both at home and abroad) and the imperial community simultaneously.

The spread of imperial languages did not standardize language use, but it did provide a standardized idiom that people could use to participate in broader networks if they chose to. It also provided a context in which regional linguistic variation took on greater significance. If the use of Palmyrene instead of an imperial language strengthened ties between Palmyrene speakers, this would have facilitated economic transactions between them not only by allowing them to communicate, but also by contributing to the network of trust.³²⁶ Bilingual Palmyrenes, then, could use imperial languages to communicate with others who would be similarly situated within their own trust network. Thus, imperial languages contributed to economic interaction not only by acting as a mediating standard, but by making local languages into membership standards that strengthened the ties of local networks.

VI.3 Consumption Patterns

In the ancient Mediterranean world, it became normal for people in very different areas to consume similar things. The causes of this standardization in consumption are the subject of perhaps the longest-running debate in ancient history, and we do not pretend to solve the issue here. Rather, we will examine the consequences both for the producers and the consumers. Our main focus will be on ‘bulk luxuries,’ things that were not strictly necessary for biological subsistence but were produced and consumed in large quantities. We focus on *terra sigillata* pottery, glass, and pepper because these were costly to produce and transport. Nevertheless, standardization of demand among sub-elites with the capacity to consume made it economical to produce and distribute them in large quantities.

³²³ Mitsuma 2019 for a recent reconsideration.

³²⁴ Adams 2003a, 253–255. See also the discussion of this monument and its iconography in Mullen 2011, 543–546.

³²⁵ As’ad and Delplace 2002.

³²⁶ Seland 2013 for Palmyrene networks.

The basic idea of what tableware should look like in the Graeco-Roman world was remarkably homogeneous, especially in the first and second centuries CE. Hard-fired, finely made ceramics with a black glossy surface were common in Greece and Italy already in the Classical period, but in the last two centuries BCE, red *terra sigillata* replaced the black and then spread throughout the Roman Empire. Most tableware circulated on a regional or supraregional scale; very few workshops distributed goods throughout the entire Mediterranean basin. However, precision in this regard is difficult to achieve because many different workshops produced similar pottery. Even when potting traditions are distinguishable, they often produce very similar goods that could be considered a kind of ceramic ‘*koine*.’³²⁷ This is not to deny the existence of variation. There was ‘better,’ ‘worse,’ and ‘different’ *terra sigillata*. The availability of high-quality imported pottery created a demand for local imitations that had most of the same attributes but cost less. Indeed, Astrid van Oyen has pointed out that standardization in some key features is a prerequisite for comparison and competition.³²⁸ Standardization of demand, then, fostered diversification of the market and created opportunities for potters even outside of the main production centers.

The spread of standardized consumption practice was critical because, despite being relatively cheap to buy, *terra sigillata* was difficult to make.³²⁹ The clay had to be refined through a multistep process of levigation to achieve a very fine, regular fabric, and the kiln had to achieve very high temperatures while simultaneously channeling smoke away from the baking vessels.³³⁰ Economies of scale were critical, and kilns fired tens of thousands of vessels at a time. Production was characterized by regional and local nucleation of small production units, each with only a few workers. There was some vertical specialization, above all in the use of specialized kiln operators, but much of the efficiency came from geographic proximity, with separate production units sharing access to natural resources, facilities, specialists, and distributors.³³¹ This industry could only exist because specialist potters could rely on the demand for a specific type of pottery.

Glass is another complex industry that exploded in the Roman world thanks to widespread standardization of demand. The production of glass is a complicated process. The first step involves mixing sand with an alkali flux that lowers the melting point and then heating it to an extremely high temperature. That flux, natron, was available only in a few places, mostly in Egypt. In the late Hellenistic and Roman periods, natron was exported in tremendous quantities from Egypt, and sent

327 Poblome, Gerçeker, and Loopmans 2017, 87–94.

328 Van Oyen 2016; van Oyen and Pitts 2017, 15 for a summary of the argument.

329 Peña 2007, 27–31; Poblome 2013, 86–88.

330 M. D. Jackson and Greene 2008.

331 Fülle 1997; Mees 2013; Wilson 2008a; Poblome 2013; Poblome, Gerçeker, and Loopmans 2017; Poblome 2016.

to production facilities concentrated along the Syro-Palestinian coast, where specialized furnaces were used to melt together the sand and flux, producing the product known as ‘raw glass.’³³² Ingots of raw glass were then shipped to local glass-makers far and wide.³³³ Broken glass was also shipped over long distances to be recycled.³³⁴ This complex supply chain emerged astonishingly quickly in the Late Hellenistic and Early Roman periods due to the invention of glass blowing. First developed along the Syro-Palestinian coast during the first century BCE, the technique quickly spread throughout the empire.³³⁵ Blown glass allowed for an unprecedented range of glass forms to be created faster and with less raw material than earlier forms. Blown glass vessels became popular across the entire Roman Empire and far beyond its borders.³³⁶ Widespread demand and the interconnectedness of the Mediterranean led to a complex industry producing glass on such a large scale that it became as cheap and utilitarian as terracotta.

Pepper was another commodity that went from a rarified to an everyday luxury in the Roman period.³³⁷ In the ancient world, all pepper consumed in the Mediterranean was imported from South Asia. Pliny the Elder inveighs against it as an example of luxury, but the prices he quotes are not exorbitant.³³⁸ A soldier in Britain bought an unknown quantity of pepper for two *denarii*; the same price is listed for a towel in the same tablet.³³⁹ In northwest Europe, archaeological finds of pepper are limited to military contexts, but in Herculaneum in Italy, pepper was found in a septic tank attached to a building with shops and middling apartments.³⁴⁰ If pepper was so common, it must have been imported in astonishing quantity. Pepper is commonly found at Roman sites in the Eastern Desert of Egypt, including a cache weighing 7.55 kg found in Berenike.³⁴¹ In the 160s CE, a single ship carried perhaps 139 tonnes of pepper from India to Egypt.³⁴² Mayer has recently argued that the direct trade between the Red Sea and India, riding the monsoon winds across the high seas, required large ships that could only have been profitable because of the great demand for bulk luxuries like pepper.³⁴³ Direct trade, in turn, brought down

332 C. M. Jackson et al. 2018 on the glass production process.

333 Gorin-Rosen 2000, 54.

334 Keller 2005; Giacobelli 1997.

335 Israeli 1991; Larson 2019.

336 E.g., Hoppál 2016; Morris, ch. 4, II.1 and V.2.

337 For Roman pepper consumption, see Evers 2017, 68–74; Cobb 2018a; Mayer 2018.

338 Plin. *HN* 12. 14.

339 *Tab.Vindol.* 2. 184.

340 Evers 2017, 68–74; Mayer 2018, 570–573.

341 Sidebotham 2011, 226.

342 The cargo of the *Hermapollon* is recorded in the Muziris Papyrus, and the entry generally taken to concern pepper is not completely preserved. De Romanis (2020, 236–245, most recently) argues for a much higher figure, but c.f. Evers 2017, 99–109 for an overview of recent scholarship and notes of caution.

343 Mayer 2018, even after rejecting De Romanis’s higher estimate for the size of *Hermapollon*’s pepper cargo; see also De Romanis 2020, 61–77.

the prices of all imports. In Mayer's account, the standardization of pepper consumption drove the growth of Indo-Mediterranean trade. Against this maximalist account of pepper imports must be placed the logistical difficulties of crossing the Eastern Desert and questions about the productive capacity of the pepper lands in South Asia.³⁴⁴ But regardless of the precise quantities involved, pepper was consumed in the Roman Empire in quantities that far exceeded previous levels. It was familiar to and desired by millions of people all around the empire – not just the elite – and this demand was a major, if not the primary, driver of Roman involvement in Indian Ocean trade.

The standardization of consumption had economic impacts on the consumers as well as the producers when it helped them participate in a broader network. The use of ceramic tableware, for example, was considered normal, at least for people living in a city.³⁴⁵ *Terra sigillata*, then, could have functioned as one of the membership standards that allowed access to the network of 'respectable' or 'civilized' people. If every community has a network of respectability that excludes outsiders ('us' vs. 'them'), these networks can be linked up if the standards of respectability are similar. Prior to Roman conquest, the standards of respectability were very different in continental Europe and the Mediterranean. But the direct force of conquest and the indirect force of access to a powerful, wealthy network of people who shared the standards of the conquerors introduced new ones. The network power of these standards increased the more people adopted them.³⁴⁶ The use of *terra sigillata* and other bulk luxuries would have contributed to making someone respectable in the eyes of another from a different community and might have signaled (rightly or not) membership in a network defined by a standard conceptual frame, and so acted to lubricate economic coordination across social divides.³⁴⁷

In this consideration of standardization as a tool that shaped economic behaviors, we find many examples of informal, consensus-driven adoption of standards among specific communities (i.e., merchants, political or social elites, citizen bodies), or of standardization driven by consumption patterns. The implementation of formal standards used in a regulatory way across wide territories was far rarer. The few examples of pan-regional formal regulation, as in the case of coinage standards and the use of Latin in critical affairs of Roman citizens, demonstrate that central authorities were able to enforce standardization, even across distances. The fact that they so rarely chose to do so may reflect an assessment that the costs of such enforcement were not worth the benefits. Non-official standardization in the form

344 Evers 2017, 105–109.

345 Dio Chrysostom uses a lack of ceramic dishes to characterize his virtuous rustics as abnormal (*Or.* 7. 47, 75–76).

346 For the concepts of direct and indirect force in reference to the introduction and spread of standards, see Grewal 2008, 35–38.

347 For conceptual frames, see Grewal 2008, 282–284.

of consumption patterns, meanwhile, created durable networks that gave producers access to stable and predictable customer bases while also giving consumers access to social power in the form of recognizable conformity.

VII Technology

The Hellenistic and Roman world has long been considered a period of technological stagnation.³⁴⁸ Recent work is roundly challenging this thesis³⁴⁹ – as well as theories that the availability of slave labor held back technological development³⁵⁰ – but the role of technology in the ancient economy continues to be hotly debated.³⁵¹ It is obvious that nothing like the sustained, progressive series of inventions and scientific breakthroughs that characterized the industrial revolution occurred in antiquity, but there were some inventions, particularly in the context of Hellenistic court society. In any case, historically, most of the economic impact of technology has come from expanded application and improvement of old technologies,³⁵² so the question is, to what extent were new technologies applied, and did old technologies find applications in new areas? Given the fragmentary nature of the archaeological record, this is difficult to answer with any precision, but the example of the water mill discussed below shows that it is easy to underestimate the scope of a technology's application.³⁵³ While most scholarship considers only the aggregate level of a technology's use, we argue that the context of use also makes a difference. Technology that supports key parts of the ancient economy can have significant indirect impacts that are not reflected by its ubiquity.

The economic impact of technology has usually been considered from the perspective of increased efficiency in production because the underlying question usually concerns intensive economic growth.³⁵⁴ We focus, rather, on the ways in which technology shaped economic activity more generally. We see technology as playing

348 Finley 1965 has been especially influential.

349 Greene 2000 refutes Finley 1965 directly. For summaries of the debate, see Greene 2008; Flohr 2016.

350 Greene 2000, 50–51; Wilson 2002, 24–25.

351 Wilson (2002) argues influentially for the positive contribution of technology. See also Schneider 2007; 2019 and the edited volumes Lo Cascio 2006; Oleson 2008. For arguments that technology had little economic impact, see Scheidel 2009; Terpstra 2020. Erdkamp (2020) emphasizes the broader application of existing technology in the Roman world, but sees other factors as contributing more to economic growth. Cuomo (2007) and Flohr (2016) examine technological innovation from a cultural, rather than economic perspective.

352 Mokyr (1990, 6, 9–11) arguing that invention was nevertheless important too.

353 Wilson 2020.

354 E.g. Mokyr 1990; Scheidel 2009, 54–57; Terpstra 2020; Erdkamp 2020 but cf. Schneider 2007, 170.

a positive role in certain key areas: advances in food production allowed cash crops to be grown in more varied places and were particularly important for sustaining urban populations; the application of water power in mining facilitated the production of silver, and therefore coinage; and improved maritime technology, especially hydraulic concrete, increased connectivity and long-distance distribution.³⁵⁵ The role of technology in facilitating trade was just as (if not more) important to the ancient economy as its role in increasing production.

VII.1 Production: Agriculture and Metals

VII.1.1 Advances in Agricultural Production

Agriculture – both in the production of foodstuffs and their processing – is the most obvious candidate for technological innovations that increased productive capacity. The physical technology of water-lifting devices, which became increasingly widespread in the Hellenistic period, increased the amount of land that could be cultivated in areas where irrigation was required (see above).³⁵⁶ There is some evidence for the invention of new tools in the Roman period – a heavy, wheeled plow and a reaping machine – but the actual extent of their use is unclear.³⁵⁷ More significant are developments in agricultural practice.³⁵⁸ Geoffrey Kron has argued that both Greeks and Romans practiced convertible farming, a technique that closely integrates animal husbandry and arable cultivation, with significant investments in fodder crops and high yields of both plant and animal products.³⁵⁹ A growing body of archaeozoological remains shows that Roman-period agriculturalists produced not only larger animals but a greater variety of specialized breeds.³⁶⁰ While some of these breeds already existed in the Classical period, Roman conquest expanded their range. Similarly, Roman conquest extended the range of numerous domesticated plants, and skilled cultivators created new varieties of crops, most notably grapes that would grow in continental Europe.³⁶¹ The tradition of Roman agricultur-

355 Wilson (2002) already linked mining technology to monetization; Erdkamp (2020, 50) highlights the role of maritime technology in facilitating trade.

356 Oleson 1984; 2000; Wilson 2008b, 350–355. For debate over the invention of this technology, see Dalley and Oleson 2003.

357 Plin. *HN* 18. 48 (plow); 72 (reaper), on which Raepsaet 1997 (both); Forni 2006 (plow); Stoll 2016, 244–245 (reaper). For Roman farm equipment in general, see White 1975. Kron, an ardent advocate for the productivity of ancient agriculture (2000; 2008; 2012; 2014), argues that the ubiquity of well-made iron tools are better seen as an indication of rural prosperity than a cause of increased production (2012, 169–170).

358 Kron 2012 for an overview.

359 Kron 2000; 2012; 2014. For Greek agricultural practice, see Amigues 2007.

360 Kron 2014; MacKinnon 2015.

361 Bakels and Jacomet 2003. Grapes: Kron 2012, 162–163.

al writing attests to elite interest in innovative cultivation practices, and might have contributed to their spread.³⁶²

Technological change also affected the processing of primary products.³⁶³ The most important are the presses and mills that transformed olives, grapes, and grain into oil, wine, and bread. Olives and grapes were pressed primarily using lever presses. Innovations in pressing technology – primarily changes in the way pressure was applied, but also in the size and fixture of the beam – follow no single, evolutionary path toward higher productivity, but rather a diverse range of regionally specific traditions that allowed people to press grapes and olives efficiently under a variety of constraints and incentives.³⁶⁴ The development of milling technology can more easily be seen in terms of increasing productivity. By the fifth century BCE, two different developments on opposite ends of the Mediterranean represented significant advances over the Neolithic saddle quern: the ‘Olynthus mill’ in the East,³⁶⁵ and the rotary quern in the West.³⁶⁶ Then, in second-century BCE Italy, the ‘Pompeian’ donkey mill came into use. This consisted of a conical lower stone and an hourglass-shaped upper stone that was turned by a donkey.³⁶⁷ The top of the upper part functioned as a hopper, and when the grinding surface wore down, it could be flipped over to double the useful life of the mill. The combination of animal power, size, and continuous rotary motion made these mills very productive, and their development is often linked to the rise of urban, commercial baking.³⁶⁸

The ability to harness waterpower for milling increased productivity even more. The prevalence and economic impact of the water mill in the ancient world are still debated.³⁶⁹ The necessary technology of the waterwheel and gear system was invented in the Ptolemaic court at Alexandria in the third century BCE, but it was

362 For a recent analysis of this genre as scientific literature, see Thibodeau 2018. For its use as evidence for economic history, see Weaverdyck, vol. 1, ch. 8.B.

363 For an overview of food processing technology in the Graeco-Roman world, see Curtis 2008. For more detailed studies, see Curtis 2001, covering all of antiquity, and Thurmond 2006 for the Roman period.

364 Lewit 2020 provides an up to date discussion of innovations in ancient pressing technology with further literature.

365 Frankel 2003; Curtis 2001, 282–287; 2008, 374; Thurmond 2006, 38–40.

366 Curtis 2001, 336–341; 2008, 375; Thurmond 2006, 40–42.

367 The basic design elements are attested already in the fourth century BCE, but the larger, animal-driven mill dates to the second century (Curtis 2001, 341–348; 2008, 376; Thurmond 2006, 42–46).

368 Curtis 2008, 376; Thurmond 2006, 42–43.

369 Finley famously used their apparent scarcity to argue against the importance of technological change (1965), but subsequent research has shown that they were more common than he thought. Wilson (2020) sketches the history of scholarship. For recent debate about economic impact, see Scheidel 2009, 56–57 *contra* Wilson 2009, 79–80. More recently, Terpstra 2020; Wilson 2020, 179–181.

not widely applied until the first and second centuries CE.³⁷⁰ In addition to mills, water power was applied to kneading machines³⁷¹ and other industrial uses. Most discussion of the water mills' economic impact has focused on how much they increased productivity in the aggregate,³⁷² but the technology might have had an outsized impact in certain targeted applications. Urban life in most of the Roman Empire required not just grain but, for cultural reasons, bread. The use of animal- and water-powered mills and kneading machines helped supply this demand more efficiently.

VII.1.2 Mining and the Production of Metal

We noted above that increased monetization relied on increased supplies of precious- and base-metal coin. While Alexander minted Persian bullion to produce his coins, increased coin supply in the Roman period relied more heavily on increased mining.³⁷³ Recent analysis of lead pollution in Greenland ice cores has revealed in detail both the volume of mining activity in the ancient world and its correlation with the metallurgical content of Roman coins.³⁷⁴ Lead pollution levels rise sharply in the fourth century BCE and continue to climb until the crisis of the Late Republic, when they temporarily fall, only to spike again in the first two centuries CE. This mining boom was accomplished, at least in part, by machines and water management techniques that were invented in the Hellenistic and Roman periods. Unfortunately, the precise chronology of technological innovation and diffusion is impossible to reconstruct.

The most spectacular advances in mining, known from the massive scars they left on the landscape in Spain, came from harnessing the erosive power of water to remove the soil and rock above the metalliferous layer (a process known as 'hushing'). The mine operator would construct large aqueducts to collect water in a cistern on top of a hill and then release it all at once, tearing away anything in its

370 The geographic extent of water mills is still unclear. Wilson emphasizes that the current distribution maps are heavily affected by research bias and is optimistic about the presence of water mills throughout the Roman Empire (2020, 157, 165–167). However, the regionalization of press designs emphasized by Tamara Lewit (2020) should encourage caution in attempting empire-wide extrapolations concerning heavy, immobile technology.

371 Vitruvius *De Architectura* 10. 5. 2; Curtis 2001, 363–365; Thurmond 2006, 66–67; Wilson 2020, 168.

372 E.g., Saller 2002, 265–266.

373 Overviews of ancient mining can be found in Craddock 2008; 2016 with further literature. Wilson (2002) makes a forceful case for the economic importance of technology in Roman mining, but cf. Scheidel 2009, 55–56 for criticism and Wilson 2009, 78–79.

374 McConnell et al. 2018. For a discussion of this and other evidence from air pollution, see Weaverdyck, vol. 1, ch. 8.A, 333–335.

path. Pliny the Elder describes a variant in which tunnels were dug into the hillside first, which would channel the water and increase its erosive capacity. Water running over a slanted surface was also used to break up and sort the metalliferous material directly ('ground sluicing'). By applying knowledge developed in the construction of aqueducts, Roman engineers 'mechanized' much of the laborious, slow digging processes involved in mining, speeding up the discovery and extraction of metal.

Underground mining, using tunnels and shafts, required precise surveying skills to make the tunnels connect, ensure ventilation, and drain groundwater.³⁷⁵ Often, groundwater had to be lifted out of the mine. In addition to bailing by hand, we know of two machines that were used: Archimedes's screw and the treadwheel-operated waterwheel. These were both invented in the Hellenistic era for irrigation but were applied to water management in other domains such as baths, ship sheds, and of course mines.³⁷⁶ Both were powered by a person walking on a revolving set of stairs, and they were used in batteries to lift water out of mines in a series of steps. The ability to remove water from deep mineshafts efficiently made more mineral resources accessible than ever before.³⁷⁷

One final machine must be mentioned: the water-powered trip hammer used to crush ore.³⁷⁸ To minimize the fuel and time needed for smelting, chunks of ore had to be reduced in size. Normally this would be done by humans wielding hammers, but stone anvils have been found at mining sites with rows of deep, regularly spaced depressions that could only have been produced by a machine. One such anvil was discovered in Wales next to a waterwheel pit, suggesting that the machine was powered by water rather than muscle. Given how efficient hushing and sluicing were, crushing ore by hand would have formed a bottleneck in the mining process, so mechanization would have increased productivity significantly.

The technological innovations evident in Roman mining came only partially from the invention of new machines and techniques. The ore-crushing machine just described and hushing might have been Roman inventions, but it was the application of older technology (water management using aqueducts and cisterns and Hellenistic water-lifting machines) on a massive scale that really made Roman mining productive enough to expand the money supply of the empire.

VII.2 Distribution: Maritime Trade

The Mediterranean is characterized by high levels of connectivity,³⁷⁹ but in the period under investigation, technological advances increased that connectivity. First,

³⁷⁵ Craddock 2016, 212–213.

³⁷⁶ Oleson 2000, 229–251.

³⁷⁷ It is no more than a historical curiosity that the first widespread application of the modern steam engine was also pumping water out of mine shafts.

³⁷⁸ Wilson 2002, 21–24; 2020, 168–171.

³⁷⁹ Horden and Purcell 2000.

the maximum size of ships increased.³⁸⁰ Prior to the first century BCE, there are no known wrecks of ships over 100 tons, but between 100 BCE and 300 CE, there are several, with some reaching over 300 tons.³⁸¹ Such large ships were made possible in part by the invention of the chain pump, a water-lifting device used to bail out bilge water.³⁸² It consisted of a series of wooden discs mounted on a loop of rope or chain pulled through a tube. By lifting bilge water farther than a human could bail by hand, the chain pump increased the maximum distance between the bilge and the gunwale. The earliest archaeological example dates to the early third century BCE, and minor improvements over the following centuries made the action smoother.³⁸³ Although most ships remained small, the appearance of large ships had a major impact in two key areas of the ancient economy: they transported grain to Rome and other megacities efficiently, and they carried pepper across the open ocean on the monsoon winds from India to the Red Sea (see above, section VI.3).

The technology that had the greatest impact on maritime trade, however, was hydraulic concrete, used to create artificial harbors.³⁸⁴ Concrete is a combination of aggregate (e.g., gravel) and mortar, which was mostly lime-based.³⁸⁵ Simple lime mortar, long used to coat walls, line basins, and create smooth floors, hardens through contact with the air, so the interior never becomes very strong.³⁸⁶ The mortar in Roman concrete, though, contains volcanic ash that makes the mortar strong and waterproof throughout.³⁸⁷ Volcanic ash is plentiful in west-central Italy, but ash from the Bay of Naples ('pozzolana') is unique.³⁸⁸ Concrete made with pozzolana not only sets quickly but sets underwater, making it possible to build moles and breakwaters much more cheaply than before.³⁸⁹ Prior to this, artificial harbor basins had to be excavated behind natural barriers, quays were built out of ashlar blocks, and breakwaters could be built from rubble.³⁹⁰ Concrete allowed engineers to en-

380 Casson 1971, based primarily on textual evidence, is the standard work on ancient ships and sailing and is still useful. For overviews, see Gertwagen 2014; McGrail 2008. For technological innovations, see Wilson 2011 and contributions to W. V. Harris, Iara, and Arnaud 2011. For ship size, see Casson 1971, 170–173; Wilson 2011, 39–40.

381 Wilson 2011, 39–40.

382 Wilson 2011, 42–44; Bendig 2020.

383 Bendig 2020, 186–191.

384 Concrete, along with mass production of standardized bricks and the invention of the arch, also supported urbanism by making the construction of large, durable buildings cheaper (DeLaine 2006; Wilson 2006). For the economic impact of port infrastructure, see sec. IV.2 above.

385 Gypsum-based mortars also existed (Lancaster 2015, 20).

386 F. A. Cooper 2008, 235–238.

387 Lancaster 2015, 21–29.

388 Oleson 2014, 14–19 for different types of volcanic ash; Lancaster 2015, 21–23 for the terminology.

389 It is also possible that pozzolana allowed bridge builders to set foundations underwater, but no analysis has been conducted to test this.

390 Blackman 2008, 643–644.

close much larger spaces, create much larger quays, and do this in many more places than had ever been possible before. The economic impact is particularly evident in Tunisia, where a shallow bottom inhibits the approach of large ships to shore. The construction of long moles that reached into deeper water allowed the agricultural produce of this fertile area to be exported in bulk to Rome and around the Mediterranean.³⁹¹

The invention and spread of concrete technology is fraught with difficulties because important technological advances built on each other in a long process of experimentation. Marine concrete was probably first used, as early as the late third century BCE, in *piscinae*, fish ponds that were very popular among the Roman republican elite.³⁹² These produced luxurious fish for consumption and sale, but they were also valued for their aesthetic properties.³⁹³ Fish ponds and harbors face many of the same problems, including the need to protect the interior from the violence of waves and to prevent siltation, and literary evidence draws explicit parallels between the two.³⁹⁴ Thus, the technological innovations behind artificial harbors might have developed in the relatively closeknit social milieu of the Roman aristocracy, driven by elite consumption and social competition.³⁹⁵

What is remarkable is how far this technology spread. A recent project has analyzed 36 cores from 11 Roman harbors all over the Mediterranean and found that they all used mortar containing pozzolana ash and had remarkably consistent ratios of mortar to aggregate, despite the fact that the latter was often locally sourced.³⁹⁶ This suggests that the key ingredient in Roman marine concrete circulated along with knowledge of how to use it. When the Jewish king Herodes built the massive artificial harbor at Caesarea Maritima, he probably had access to Roman experts dispatched by the emperor, but this would have been exceptional. Alternative paths of technological diffusion include shippers who traded in pozzolana and taught their customers how to use it,³⁹⁷ the circulation of subliterate instruction manuals,³⁹⁸ and the interpersonal transmission of knowledge between builders. In places where construction happened more or less continuously on a fairly large scale for centuries, a specialized building industry could accumulate a considerable stock of

391 Wilson 2011, 46–51.

392 Blackman 2008, 644; Hohlfelder and Oleson 2014.

393 Hohlfelder and Oleson 2014, 227–230; Marzano 2013, 199–234.

394 Hohlfelder and Oleson 2014, 229 for citations.

395 Roman elite interest in certain areas of technology and engineering, including villa architecture, is evident in the literary sources (Hohlfelder and Oleson 2014, 227–230; Terpstra 2020), but the builders themselves must surely receive most of the credit for innovation. These would have circulated along the coast, working for different patrons who must have taken varying levels of interest in the details of their work.

396 M. D. Jackson 2014, 161; Oleson and Jackson 2014, 8–10.

397 Hohlfelder and Oleson 2014, 223–226.

398 Hohlfelder and Oleson 2014, 230–233.

practical knowledge.³⁹⁹ Given the high level of maritime connectivity and the demand for harbor infrastructure, it is possible that a mobile, loosely bound network of construction workers circulated through the Mediterranean's ports, sharing and accumulating knowledge as they went. However it spread, the technology of Roman marine concrete played a critical role in creating the infrastructure that facilitated movement and exchange across the Mediterranean.

VIII Conclusion

This survey of economic 'tools' – the institutions and social and physical phenomena that actors used in their economic activities – has focused on things that increased coordination and the movement of goods across physical and social space. We began with the tools of the state and moved progressively to tools that were less dependent on political power, but throughout we have seen that the state, by itself, cannot account for economic activity. Fiscal regimes consist of the tools that imperial states used to extract revenue, but even here, the process spread wealth to a variety of people, tax collectors, who cannot be viewed simply as state actors. Different methods of extraction spread wealth differently, but in every case, state demand for revenues enriched private people.

Monetization, dependent on the political authority to mint coins, is arguably the most important factor in economic development in the ancient Mediterranean and Near East. The massive outputs of Hellenistic and Roman states and the creation of large, interlinked monetary networks, along with the institutions underlying credit arrangements, bound large- and small-scale transactions all over our region into a single network of money use (even if the integration of that system was uneven). Here too, however, the state's production of money can only be understood by dissolving the state into its constituencies.

The concentration of wealth at the imperial scale allowed empires to invest in infrastructure that similarly increased production, urbanization, and connectivity across the Mediterranean, but the systems of hydraulic and transportation infrastructure relied on contributions by local polities and individuals as well.

Imperial legal systems similarly coexisted with local systems. In the best-attested cases, the Ptolemaic and Roman, empire expanded opportunities for adjudication by judges whose authority overrode local status differences without creating a unified legal system. Roman law, however, did represent a relatively coherent system of laws that was at least available to people across the empire. The particular provisions of Roman law also lowered transaction costs in such a way as to allow people with less social power to engage in riskier economic activities. On the other

³⁹⁹ DeLaine 2006, 248–250.

hand, by breaking the local exclusivity of property rights enforced by *poleis*, it allowed imperial elites to concentrate wealth.

Imperial states did little directly to enforce standardization. Weights and measures remained loosely standardized at best. Behavioral standardization, informally tied to imperial power, was more profound. The extension of imperial languages created a network that people could join if they chose to and gave added significance to local language networks. The remarkable standardization of consumption practices, which can be seen as a more or less spontaneous result of the power of membership standards in a globalized network, created economic niches for producers and transporters.

We also see the impact of technological development in terms of connectivity. While improved techniques increased agricultural production in general, major improvements in processing technology expanded the range of contexts in which particular, important cash crops (grape and olive) could be produced and facilitated urbanism by efficiently producing bread in large quantities. The application of technology in mining underwrote monetization, new concrete allowed for the expansion of harbor facilities, and developments in shipping technology increased the efficiency of trade. All of these developments contributed to the density of economic networks in the ancient Mediterranean and southwestern Asia. The role of imperial states in these developments was indirect at best. The Ptolemies supported intellectuals at court who invented some technologies, and the Roman emperors' demand for metal and grain could account for the application of technology in mines and shipping.

What, then, was the role of empire in the development and maintenance of the tools that increased connectivity in the ancient Mediterranean and southwestern Asia? States are configurations of power made up of coalitions bound by institutional relationships. In the process of expanding their power, imperial states create various structures that other actors, more or less associated with the state, operated within, around, and sometimes against. The integrating role of empire lies in the superiority of its power. Those most embedded in the state will use its institutions to claim and deploy resources, which sometimes takes the form of a primate city or harbor or an insatiable demand that others can profitably satisfy. More often, less embedded actors call on this superior state power for their own purposes. They use it to seize wealth in the form of taxes, to convince someone that a piece of silver is valuable, to sue someone who would otherwise be untouchable, or to convince someone of their social status by adopting language and other signs associated with empire (or more rarely by rejecting those signs). The empire, and the power it offers to those who accept that it is powerful, then becomes a common point of reference, allowing people to interact and relate to each other wherever its power is acknowledged. Unlike nonstate points of reference (e.g., Hellenism), empires include military and economic power that state-dependent actors can deploy to ensure the superiority of their power is acknowledged. In this way, the violent expansion and maintenance of imperial power can spread an overarching structure that facilitates integration.

References

- Adams, J. N. 2003a. *Bilingualism and the Latin language*. Cambridge: Cambridge University Press.
- . 2003b. “‘Romanitas’ and the Latin language.” *Classical Quarterly* 53.1, 184–205.
- Allam, S. 1991. “Egyptian law courts in Pharaonic and Hellenistic times.” *The Journal of Egyptian Archaeology* 77, 109–127.
- . 2008. “Regarding the *eisagogeus* (εἰσαγωγεὺς) at Ptolemaic law courts.” *Journal of Egyptian History* 1.1, 3–19.
- Alon, G. 1980. *The Jews in their land in the Talmudic age, 70–640 CE*. G. Levi (trans.). Jerusalem: Magnes Press.
- Alonso, J. L. 2013. “The status of peregrine law in Egypt: ‘Customary law’ and legal pluralism in the Roman Empire.” *Journal of Juristic Papyrology* 43, 351–404.
- Amigues, S. 2007. “L’exploitation du monde végétal en Grèce classique et hellénistique. Essai de synthèse.” *Topoi. Orient-Occident* 15.1, 75–125.
- Ando, C. 2016. “Legal pluralism in practice.” In P. J. du Plessis, C. Ando, and K. Tuori (eds.), *The Oxford handbook of Roman law and society*, 283–293. Oxford: Oxford University Press.
- Andreau, J. 1999. *Banking and business in the Roman world*. J. Lloyd (trans.). Cambridge: Cambridge University Press.
- . 2008. “The use and survival of coins and of gold and silver in the Vesuvian cities.” In W. V. Harris (ed.), *The monetary systems of the Greeks and Romans*, 208–225. Oxford: Oxford University Press.
- . 2020. “Banking, money-lending, and elite financial life in Rome.” In Dari-Mattiacci and Kehoe (2020). Vol. 2, 81–111.
- Aperghis, G. G. 2004. *The Seleukid royal economy: The finances and financial administration of the Seleukid empire*. Cambridge: Cambridge University Press.
- Arnaud, P. 2014. “Maritime infrastructure. Between public and private initiative.” In A. Kolb (ed.), *Infrastruktur und Herrschaftsorganisation im Imperium Romanum: Akten der Tagung in Zürich 19.–20. 10. 2012*, 161–179. Berlin: De Gruyter.
- . 2015. “The interplay between practitioners and decision-makers for the selection, organisation, utilisation and maintenance of ports in the Roman Empire.” In J. Preiser-Kapeller and F. Daim (eds.), *Harbours and maritime networks as complex adaptive systems: International workshop “Harbours and maritime networks as complex adaptive systems” at the Römisch-Germanisches Zentralmuseum in Mainz, 17.–18. 10. 2013*, 61–81. Mainz: Verlag des Römisch-Germanischen Zentralmuseums.
- . 2016. “Cities and maritime trade under the Roman Empire.” In C. Schäfer (ed.), *Connecting the ancient world: Mediterranean shipping, maritime networks and their impact*, 115–172. Rahden: Marie Leidorf.
- Arnold-Biucchi, C. 1991. “Arabian Alexanders.” In W. E. Metcalf (ed.), *Mnemata: Papers in memory of Nancy M. Waggoner*, 101–115. New York, NY: American Numismatic Society.
- Arruñada, B. 2016. “How Rome enabled impersonal markets.” *Explorations in Economic History* 61, 68–84.
- . 2020. “The institutions of Roman markets.” In Dari-Mattiacci and Kehoe (2020). Vol. 2, 247–298.
- As’ad, K. and C. Delplace. 2002. “Inscriptions latines de Palmyre.” *Revue des Études Anciennes* 104.3/4, 363–400.
- Aubert, J.-J. 1994. *Business managers in ancient Rome: A social and economic study of institores, 200 BC–AD 250*. Leiden: Brill.
- . 2015. “Trajan’s canal: River navigation from the Nile to the Red Sea?” In F. De Romanis and M. Maiuro (eds.), *Across the ocean: Nine essays on Indo-Mediterranean trade*, 33–42. Leiden: Brill.

- Bablit, L. 2016. "Roman courts and private arbitration." In P. J. du Plessis, C. Ando, and K. Tuori (eds.), *The Oxford handbook of Roman law and society*, 234–244. Oxford: Oxford University Press.
- Badian, E. 1972. *Publicans and sinners: Private enterprise in the service of the Roman Republic*. Ithaca, NY: Cornell University Press.
- Bakels, C. and S. Jacomet. 2003. "Access to luxury foods in Central Europe during the Roman period: The archaeobotanical evidence." *World Archaeology* 34.3, 542–557.
- Baldus, C. 2016. "Possession in Roman law." D. Kerr (trans.). In P. J. du Plessis, C. Ando, and K. Tuori (eds.), *The Oxford handbook of Roman law and society*, 537–552. Oxford: Oxford University Press.
- Bang, P. F. 2007. "Trade and empire — In search of organizing concepts for the Roman economy." *Past and Present* 195, 3–54.
- . 2008. *The Roman bazaar: A comparative study of trade and markets in a tributary empire*. Cambridge: Cambridge University Press.
- Beckert, J. 2009. "The great transformation of embeddedness: Karl Polanyi and the new economic sociology." In C. Hann and K. Hart (eds.), *The Great Transformation today*, 38–55. Cambridge: Cambridge University Press.
- Bendig, C. D. 2020. "Ships' pumps: From antiquity to the early modern era." *Journal of Maritime Archaeology* 15.2, 185–207.
- Berman, P. S. 2009. "The new legal pluralism." *Annual Review of Law and Social Science* 5, 225–242.
- Bernard, S. 2018. "The social history of Early Roman coinage." *The Journal of Roman Studies* 108, 1–26.
- Bingen, J. 2007. *Hellenistic Egypt: Monarchy, society, economy, culture*. R. S. Bagnall (ed.). Berkeley, CA: University of California Press.
- Blackman, D. J. 2008. "Sea transport, part 2: Harbors." In Oleson (2008), 638–670.
- Boehm, R. 2018. *City and empire in the age of the successors: Urbanization and social response in the making of the Hellenistic kingdoms*. Oakland, CA: University of California Press.
- Bowman, A. K. 1996. "Provincial administration and taxation." In A. K. Bowman, E. Champlin, and A. Lintott (eds.), *The Cambridge ancient history*. 2nd ed. Vol. 10, 344–370. Cambridge: Cambridge University Press.
- Braemer, F., D. Genequand, C. D. Maridat, P.-M. Blanc, J.-M. Dentzer, D. Gazagne and P. Wech. 2009. "Long-term management of water in the Central Levant: The Hawran case (Syria)." *World Archaeology* 41.1, 36–57.
- Bresson, A. 2012. "Wine, oil and delicacies at the Pelousion customs." In L.-M. Günther and V. Grieb (eds.), *Das imperiale Rom und der hellenistische Osten. Festschrift für Jürgen Deininger zum 75. Geburtstag*, 69–88. Stuttgart: Franz Steiner.
- . 2016. *The making of the ancient Greek economy: Institutions, markets, and growth in the city-states*. S. Rendall (trans.). Princeton, NJ: Princeton University Press.
- Brixhe, C. 2010. "Linguistic diversity in Asia Minor during the empire: Koine and non-Greek Languages." In E. J. Bakker (ed.), *A companion to the ancient Greek language*, 228–252. Malden, MA: Wiley Blackwell.
- Brixhe, C. and A. Panayotou-Triantaphyllopoulou. 1988. "L'atticisation de la Macédoine: l'une des sources de la koiné." *Verbum* 11, 245–260.
- Brunt, P. A. 1990. *Roman imperial themes*. Oxford: Oxford University Press.
- Bryen, A. Z. 2014. "Law in many pieces." *Classical Philology* 109.4, 346–365.
- Burnett, A. 2012. "Early Roman coinage and its Italian context." In Metcalf (2012), 297–314.
- Burnett, A., M. Amandry and P. P. Ripollès. 1992. *Roman provincial coinage*. Vol. 1, *From the death of Caesar to the death of Vitellius (44 BC–AD 69): Introduction and catalogue*. London: British Museum.

- Butcher, K. 2004. *Coinage in Roman Syria: Northern Syria, 64 BC–AD 253*. London: Royal Numismatic Society.
- . 2018. “Monetary policy in the Roman Empire.” In R. J. van der Spek and B. van Leeuwen (eds.), *Money, currency and crisis: In search of trust, 2000 BC to AD 2000*, 165–184. New York, NY: Routledge.
- Butcher, K. and M. Ponting. 2014. *The metallurgy of Roman silver coinage: From the reform of Nero to the reform of Trajan*. Cambridge: Cambridge University Press.
- Butcher, K. and B. E. Woytek. 2018. “The grand scheme of things: Modelling coin production and coin distribution in the Roman Empire in the first and second centuries AD.” In B. E. Woytek (ed.), *Infrastructure and distribution in ancient economies: Proceedings of a conference held at the Austrian Academy of Sciences, 28–31 October 2014*, 253–281. Vienna: Austrian Academy of Sciences Press.
- Campbell, B. 2000. *The writings of the Roman land surveyors: Introduction, text, translation and commentary*. London: Society for the Promotion of Roman Studies.
- Capogrossi Colognesi, L. 2016. “Ownership and power in Roman law.” T. Roberts (trans.). In P. J. du Plessis, C. Ando, and K. Tuori (eds.), *The Oxford handbook of Roman law and society*, 513–523. Oxford: Oxford University Press.
- Casson, L. 1971. *Ships and seamanship in the ancient world*. Princeton, NJ: Princeton University Press.
- Clackson, J. 2015. *Language and society in the Greek and Roman worlds*. Cambridge: Cambridge University Press.
- Clancier, P. 2005. “Les scribes sur parchemin du temple d’Anu.” *Revue d’assyriologie et d’archéologie orientale* 99, 85–104.
- . 2011. “Cuneiform culture’s last guardians: The old urban notability of Hellenistic Uruk.” In K. Radner and E. Robson (eds.), *The Oxford handbook of cuneiform culture, 753–773*. Oxford: Oxford University Press.
- Clarysse, W. and D. J. Thompson. 2006. *Counting the people in Hellenistic Egypt*. Vol. 2, *Historical studies*. Cambridge: Cambridge University Press.
- Cobb, M. A. 2018a. “Black pepper consumption in the Roman Empire.” *Journal of the Economic and Social History of the Orient* 61, 519–559.
- . 2018b. *Rome and the Indian Ocean trade from Augustus to the early third century CE*. Leiden: Brill.
- Cohen, B. J. 2004. *The future of money*. Princeton, NJ: Princeton University Press.
- Cohen, E. E. 2005. “Commercial law.” In M. Gagarin and D. Cohen (eds.), *The Cambridge companion to ancient Greek law*, 290–302. Cambridge: Cambridge University Press.
- Colvin, S. 2010. “Greek dialects in the Archaic and Classical ages.” In E. J. Bakker (ed.), *A Companion to the ancient Greek language*, 200–212. Malden, MA: Blackwell.
- Cooper, F. A. 2008. “Greek engineering and construction.” In Oleson (2008), 225–255.
- Cooper, J. P. 2009. “Egypt’s Nile-Red Sea canals: Chronology, location, seasonality and function.” In L. K. Blue (ed.), *Connected hinterlands: Proceedings of Red Sea Project IV held at the University of Southampton, September 2008*, 195–209. Oxford: Archaeopress.
- Cooter, R., S. Marks, and R. Mnookin. 1982. “Bargaining in the shadow of the law: A testable model of strategic behavior.” *The Journal of Legal Studies* 11.2, 225–251.
- Corbier, M. 2005. “Coinage and taxation: The state’s point of view, AD 193–337.” In A. K. Bowman, P. Garnsey, and A. Cameron (eds.), *The Cambridge ancient history*. 2nd ed. Vol. 12, 327–392. Cambridge: Cambridge University Press.
- Corò, P. 2005. *Prebende templari in età seleucide*. Padova: Sargon.
- Cottier, M., M. H. Crawford, C. V. Crowther, J.-L. Ferrary, B. M. Levick, O. Salomies, and M. Wörrle, eds. 2008. *The customs law of Asia*. Oxford: Oxford University Press.

- Craddock, P. T. 2008. "Mining and metallurgy." In Oleson (2008), 93–120.
- . 2016. "Classical geology and the mines of the Greeks and Romans." In G. L. Irby (ed.), *A companion to science, technology, and medicine in ancient Greece and Rome*. Vol. 2, 197–216. Malden, MA: Wiley Blackwell.
- Crawford, M. H. 1970. "Money and exchange in the Roman World." *Journal of Roman Studies* 60, 40–48.
- . 1974. *Roman republican coinage*. 2 vols. Cambridge: Cambridge University Press.
- . 1985. *Coinage and money under the Roman Republic. Italy and the Mediterranean economy*. London: Methuen.
- Cuomo, S. 2007. *Technology and culture in Greek and Roman antiquity*. Cambridge: Cambridge University Press.
- Curtis, R. I. 2001. *Ancient food technology*. Leiden: Brill.
- . 2008. "Food processing and preparation." In Oleson (2008), 369–392.
- Czajkowski, K. 2017. *Localized law: The Babatha and Salome Komaise archives*. Oxford: Oxford University Press.
- . 2019. "The limits of legal pluralism in the Roman Empire." *The Journal of Legal History* 40.2, 110–129.
- Dadasheva, S. A. 1976. "Монеты, чеканенные от имени Александра Македонского на территории Кавказской Албании" [Coins minted in the name of Alexander the Great in the territory of Caucasian Albania]. *Azərbaycan SSR Elmlər Akademiyasının Məruzələri* 32.10, 60–64.
- Dalley, S. and J. P. Oleson. 2003. "Sennacherib, Archimedes, and the water screw: The context of invention in the ancient world." *Technology and Culture* 44.1, 1–26.
- Dari-Mattiacci, G. and D. Kehoe, eds. 2020. *Roman law and economics*. 2 vols. Oxford: Oxford University Press.
- Davenport, C. 2019. *A history of the Roman equestrian order*. Cambridge: Cambridge University Press.
- de Callatay, F. 1997. *L'histoire des guerres mithridatiques vue par les monnaies*. Louvain-la-Neuve: Département d'archéologie et d'histoire de l'art, Séminaire de numismatique Marcel Hoc.
- . 2011. "Quantifying monetary production in Greco-Roman times: A general frame." In F. de Callatay (ed.), *Quantifying monetary supplies in Greco-Roman times*, 7–29. Bari: Edipuglia.
- . 2014. "For whom were royal Hellenistic coins struck? The choice of metals and denominations." In A. Lichtenberger, K. Martin, H.-H. Nieswandt, and D. Salzmann (eds.), *BildWert: Nominalspezifische Kommunikationsstrategien in der Münzprägung hellenistischer Herrscher. Kolloquium vom 17.–18. Juni 2010 in Münster*, 59–77. Bonn: Habelt.
- De Romanis, F. 2020. *The Indo-Roman pepper trade and the Muziris papyrus*. Oxford: Oxford University Press.
- Debernardi, P. and R. Lippi. 2019. "When quantification makes a difference: A preliminary attempt to arrange early *victoriati* by extensive die studies." In B. Callegher (ed.), *Troppo grandi di studiare?*, 105–129. Trieste: Edizioni Università di Trieste.
- DeLaine, J. 2006. "The cost of creation: Technology at the service of construction." In E. Lo Cascio (2006), 237–252.
- Depauw, M., T. Kruse, J. G. Manning, T. Markiewicz, T. S. Richter, K. Vandorpe, and U. Yiftach-Firanko. 2014. "The historical development of the form, content, and administration of legal documents." In Keenan, Manning, and Yiftach-Firanko (2014), 1–30. Cambridge: Cambridge University Press.
- Donker van Heel, K. 1991. *The legal manual of Hermopolis (P. Mattha): Text and Translation*. Leiden: Leids Papyrologisch Instituut.
- Doty, L. T. 1977. "Cuneiform archives from Hellenistic Uruk." PhD diss., Yale University.
- Duncan-Jones, R. 1976. "The choenix, the artaba and the modius." *Zeitschrift für Papyrologie und Epigraphik* 21, 43–52.

- . 1990. *Structure and scale in the Roman economy*. Cambridge: Cambridge University Press.
- . 1994. *Money and government in the Roman Empire*. Cambridge: Cambridge University Press.
- . 2003. “Roman coin circulation and the cities of Vesuvius.” In E. Lo Cascio (ed.), *Credito e moneta nel mondo romano: Atti degli Incontri capresi di storia dell'economia antica (Capri 12–14 ottobre 2000)*, 161–180. Bari: Edipuglia.
- . 2006. “Roman customs dues: A comparative view.” *Latomus* 65.1, 3–16.
- du Plessis, P. J. 2015. “Property.” In D. Johnston (ed.), *The Cambridge companion to Roman law*, 175–198. Cambridge: Cambridge University Press.
- Duyrat, F. 2016. *Wealth and warfare: The archaeology of money in ancient Syria*. New York, NY: American Numismatic Society.
- Eberle, L. P. 2016. “Law, empire, and the making of Roman estates in the provinces during the Late Republic.” In “The New Ancient Legal History.” Special issue, *Critical Analysis of Law* 3, 50–69.
- Eck, W. 2000a. “Provincial administration and finance.” In A. K. Bowman, P. Garnsey, and D. Rathbone (eds.), *The Cambridge ancient history*. 2nd ed. Vol. 11, 266–292. Cambridge: Cambridge University Press.
- . 2000b. “The growth of administrative posts.” In A. K. Bowman, P. Garnsey, and D. Rathbone (eds.), *The Cambridge ancient history*. 2nd ed. Vol. 11, 238–265. Cambridge: Cambridge University Press.
- . 2018. “Die Wirksamkeit des römischen Rechts im Imperium Romanum und seinen Gesellschaften.” In E. Lo Cascio and D. Mantovani (eds.), *Diritto romano e economia. Due modi di pensare e organizzare il mondo (nei primi tre secoli dell'Impero)*, 747–782. Pavia: Pavia University Press.
- Empereur, J.-Y. 1998. *Alexandrie redécouverte*. Paris: Fayard Stock.
- . 2018. “New data concerning the foundation of Alexandria.” In C. S. Zerefos and M. V. Vardinoyannis (eds.), *Hellenistic Alexandria: Celebrating 24 centuries. Papers presented at the conference held on December 13–15 2017 at Acropolis Museum, Athens*, 3–12. Oxford: Archaeopress Publishing.
- Erdkamp, P. 2016. “Economic growth in the Roman Mediterranean world: An early good-bye to Malthus?” *Explorations in Economic History* 60, 1–20.
- . 2020. “Population, technology, and economic growth in the Roman world.” In P. Erdkamp, K. S. Verboven, and A. Zuiderhoek (eds.), *Capital, investment, and innovation in the Roman world*, 39–65. Oxford: Oxford University Press.
- Evelpidou, N., C. Repapis, C. Zerefos, H. Tzalas, and C. Synolakis. 2019. *Geophysical phenomena and the Alexandrian littoral*. Oxford: Archaeopress.
- Evers, K. G. 2017. *Worlds apart trading together: The organisation of long-distance trade between Rome and India in antiquity*. Oxford: Archaeopress.
- Finley, M. I. 1965. “Technical innovation and economic progress in the ancient world.” *Economic History Review* 18.1, 29–45.
- Fiori, R. 2016. “Contracts, commerce and Roman society.” In P. J. du Plessis, C. Ando, and K. Tuori (eds.), *The Oxford handbook of Roman law and society*, 581–595. Oxford: Oxford University Press.
- Flaux, C., M. El-Assal, C. Shaalan, N. Marriner, C. Morhange, M. Torab, J.-P. Goiran, and J.-Y. Empereur. 2017. “Geoarchaeology of Portus Mareoticus: Ancient Alexandria’s lake harbour (Nile Delta, Egypt).” *Journal of Archaeological Science: Reports* 13, 669–681.
- Flohr, M. 2016. “Innovation and society in the Roman world.” *Oxford Handbooks Online*. <https://dx.doi.org/10.1093/oxfordhb/9780199935390.013.85>.
- Forni, G. 2006. “Innovazione e progresso nel mondo romano: Il caso dell'agricoltura.” In Lo Cascio (2006), 145–179.
- Frankel, R. 2003. “The Olynthus mill, its origin, and diffusion: Typology and distribution.” *American Journal of Archaeology* 107.1, 1–21.

- Fülle, G. 1997. "The internal organization of the Arretine *terra sigillata* industry: Problems of evidence and interpretation." *Journal of Roman Studies* 87, 111–155.
- Furubotn, E. G. and R. Richter. 2005. *Institutions and economic theory: The contribution of the New Institutional Economics*. 2nd ed. Ann Arbor, MI: University of Michigan Press.
- Gabrielsen, V. 2013. "Rhodes and the Ptolemaic kingdom: The commercial infrastructure." In K. Buraselis, M. Stefanou, and D. J. Thompson (eds.), *The Ptolemies, the sea and the Nile: Studies in waterborne power*, 66–81. Cambridge: Cambridge University Press.
- Gagarin, M. 2008. *Writing Greek law*. Cambridge: Cambridge University Press.
- Garnsey, P. 1988. *Famine and food supply in the Graeco-Roman world: Responses to risk and crisis*. Cambridge: Cambridge University Press.
- Garnsey, P. and R. Saller. 2015. *The Roman Empire: Economy, society and culture*. 2nd ed. Berkeley, CA: University of California Press.
- Gazenbeek, M. and G. C. M. Jansen. 2000. "Interaction entre aqueduc et habitat rural. Deux cas d'étude en France méditerranéenne: Nîmes et Arles." In G. M. C. Jansen (ed.), *Cura aquarum in Sicilia: Proceedings of the Tenth International Congress on the History of Water Management and Hydraulic Engineering in the Mediterranean region: Syracuse, May 16–22, 1998*, 225–230. Leiden: Stichting.
- Geller, M. J., H. Maehler and A. W. D. Lewis, eds. 1995. *Legal documents of the Hellenistic world: Papers from a seminar arranged by the Institute of Classical Studies, the Institute of Jewish Studies and the Warburg Institute, University of London February to May 1986*. London: Warburg Institute, University of London.
- Gertwagen, R. 2014. "Nautical technology." In P. Horden and S. Kinoshita (eds.), *A companion to mediterranean history*, 154–169. Malden, MA: Wiley Blackwell.
- Giacobelli, M. 1997. "I vetri del relitto di Grado." In G. Volpe (ed.), *Atti del Convegno nazionale di archeologia subacquea: Anzio, 30–31 maggio e 1 giugno 1996*, 311–313. Bari: Edipuglia.
- Goddio, F. 1998. *Alexandria: The submerged royal quarters*. London: Periplus Publishing.
- Goddio, F., D. Fabre, M. Clauss, and C. Gerigk, eds. 2008. *Egypt's sunken treasures*. 2nd ed. Munich: Prestel.
- Goffaux, B. 2001. "Municipal intervention in the public construction of towns and cities in Roman *Hispaniae*." *Habis* 32, 257–270.
- Gómez, G. M. 2019. "Money as an institution: Rule versus evolved practice? Analysis of multiple currencies in Argentina." *Journal of Risk and Financial Management* 12.2, 1–14.
- Gorin-Rosen, Y. 2000. "The ancient glass industry in Israel: Summary of the finds and new discoveries." In M.-D. Nenna (ed.), *La route du verre. Ateliers primaires et secondaires du second millénaire av. J.-C. au Moyen Âge. Colloque organisé en 1989 par l'Association française pour l'Archéologie du Verre*, 49–63. Lyon: Maison de l'Orient et de la Méditerranée.
- Greene, K. 2000. "Technological innovation and economic progress in the ancient world: M. I. Finley re-considered." *Economic History Review* 53.1, 29–59.
- . 2008. "Historiography and theoretical approaches." In Oleson (2008), 62–90.
- Grewal, D. S. 2008. *Network power: The social dynamics of globalization*. New Haven, CT: Yale University Press.
- Günther, S. 2008. "*Vectigalia nervos esse rei publicae*": *Die indirekten Steuern in der Römischen Kaiserzeit von Augustus bis Diokletian*. Wiesbaden: Harrassowitz.
- Gzella, H. 2006. "Das Aramäische in den römischen Ostprovinzen: Sprachsituationen in Arabien, Syrien und Mesopotamien zur Kaiserzeit." *Bibliotheca Orientalis* 63.1/2, 15–39.
- . 2015. *A cultural history of Aramaic: From the beginnings to the advent of Islam*. Leiden: Brill.
- Harper, K. 2015. "Landed wealth in the long term: Patterns, possibilities, and evidence." In P. Erdkamp, K. S. Verboven, and A. Zuiderhoek (eds.), *Ownership and exploitation of land and natural resources in the Roman world*, 43–61. Oxford: Oxford University Press.

- Harries, J. 2013. "Roman law from city state to world empire." In J. Duindam, J. Harries, C. Humfress, and N. Hurvitz (eds.), *Law and empire: Ideas, practices, actors*, 45–61. Leiden: Brill.
- Harris, E. M. 2015. "The legal foundations of economic growth in ancient Greece: The role of property records." In E. M. Harris, D. M. Lewis, and M. Woolmer (eds.), *The ancient Greek economy: Markets, households and city-states*, 116–146. Cambridge: Cambridge University Press.
- Harris, W. V. 2006. "A revisionist view of Roman money." *Journal of Roman Studies* 96, 1–24.
- . 2008. "The nature of Roman money." In W. V. Harris (ed.), *The monetary systems of the Greeks and Romans*, 174–207. Oxford: Oxford University Press.
- . 2019. "Credit-money in the Roman economy." *Klio* 101.1, 158–189.
- Harris, W. V., K. Iara and P. Arnaud, eds. 2011. *Maritime technology in the ancient economy: Ship-design and navigation*. Portsmouth, RI: Journal of Roman Archaeology.
- Haug, B. 2017. "Water and power: Reintegrating the state into the study of Egyptian irrigation." In A. Bryen (ed.), "Environment and society in the ancient world: New perspectives." Special issue, *History Compass* 15.10, 1–9.
- Henrichs, A. 1995. "Graecia capta: Roman views of Greek culture." *Harvard Studies in Classical Philology* 97, 243–261.
- Hohlfelder, R. L. and J. P. Oleson. 2014. "Roman maritime concrete technology in its Mediterranean context." In C. J. Brandon, R. L. Hohlfelder, M. D. Jackson, and J. P. Oleson, *Building for eternity: The history and technology of Roman concrete engineering in the sea*, 223–236. Oxford: Oxbow Books.
- Hollander, D. B. 2007. *Money in the Late Roman Republic*. Leiden: Brill.
- Hopkins, K. 1980. "Taxes and trade in the Roman Empire (200 BC–AD 400)." *Journal of Roman Studies* 70, 101–125.
- . (1995–1996) 2002. "Rome, taxes, rents and trade." In W. Scheidel and S. von Reden (eds.), *The ancient economy*, 190–230. Edinburgh: Edinburgh University Press.
- Hoppál, K. 2016. "Contextualising Roman-related glass artefacts in China. An integrated approach to Sino-Roman relations." *Acta Archaeologica Academiae Scientiarum Hungaricae* 67.1, 99–114.
- Horde, P. and N. Purcell. 2000. *The corrupting sea: A study of Mediterranean history*. Malden, MA: Blackwell.
- Howgego, C. 1990. "Why did ancient states strike coins?" *Numismatic Chronicle* 150, 1–26.
- . 2009. "Some numismatic approaches to quantifying the Roman economy." In A. K. Bowman (ed.), *Quantifying the Roman economy: Methods and problems*, 287–298. Oxford: Oxford University Press.
- Howgego, C., V. Heuchert and A. Burnett, eds. 2005. *Coinage and identity in the Roman provinces*. Oxford: Oxford University Press.
- Hoyer, D. 2018. *Money, culture, and well-being in Rome's economic development, 0–275 CE*. Leiden: Brill.
- Humfress, C. 2013a. "Laws' empire: Roman universalism and legal practice." In P. J. du Plessis (ed.), *New frontiers: Law and society in the Roman world*, 73–101. Edinburgh: Edinburgh University Press.
- . 2013b. "Thinking through legal pluralism: 'Forum shopping' in the later Roman Empire." In J. Duindam, J. Harries, C. Humfress, and N. Hurvitz (eds.), *Law and empire: Ideas, practices, actors*, 225–250. Leiden: Brill.
- Ibbetson, D. 2015. "Sources of law from the Republic to the Dominate." In D. Johnston (ed.), *The Cambridge companion to Roman law*, 25–44. Cambridge: Cambridge University Press.
- . 2016. "Obligatio in Roman law and society." In P. J. du Plessis, C. Ando, and K. Tuori (eds.), *The Oxford handbook of Roman law and society*, 569–580. Oxford: Oxford University Press.

- Israeli, Y. 1991. "The invention of blowing." In M. Newby and K. Painter (eds.), *Roman glass: Two centuries of art and invention*, 46–55. London: Society of Antiquaries of London.
- Jackson, C. M., S. Paynter, M.-D. Nenna, and P. Degryse. 2018. "Glassmaking using natron from el-Barnugi (Egypt); Pliny and the Roman glass industry." *Archaeological and Anthropological Sciences* 10.5, 1179–1191.
- Jackson, M. D. 2014. "Sea-water concretes and their material characteristics." In C. J. Brandon, R. L. Hohlfelder, M. D. Jackson, and J. P. Oleson, *Building for eternity: The history and technology of Roman concrete engineering in the sea*, 141–187. Oxford: Oxbow Books.
- Jackson, M. D. and K. Greene. 2008. "Ceramic production." In Oleson (2008), 496–519.
- Jakab, É. 2015. "Property rights in ancient Rome." In P. Erdkamp, K. S. Verboven, and A. Zuiderhoek (eds.), *Ownership and exploitation of land and natural resources in the Roman world*, 107–131. Oxford: Oxford University Press.
- Joannès, F. 2000. "Une chronique judiciaire d'époque hellénistique et le châtement des sacrilèges à Babylone." In J. Marzahn, H. Neumann, and A. Fuchs (eds.), *Assyriologica et Semitica. Festschrift für Joachim Oelsner anlässlich seines 65. Geburtstages am 18. Februar 1997*, 193–211. Munster: Ugarit-Verlag.
- Johnston, D. 2007. "Suing the *paterfamilias*: Theory and practice." In J. W. Cairns and P. J. du Plessis (eds.), *Beyond dogmatics: Law and society in the Roman world*, 173–184. Edinburgh: Edinburgh University Press.
- Jördens, A. 2016. "Possession and provincial practice." J. Wagstaff (trans.). In P. J. du Plessis, C. Ando, and K. Tuori (eds.), *The Oxford handbook of Roman law and society*, 553–568. Oxford: Oxford University Press.
- Kamash, Z. 2012. "Irrigation technology, society and environment in the Roman Near East." *Journal of Arid Environments* 86, 65–74.
- . 2013. *Archaeologies of water in the Roman Near East: 63 BC–AD 636*. Piscataway, NJ: Gorgias Press.
- Kantor, G. 2013. "Law in Roman Phrygia: Rules and jurisdictions." In P. Thonemann (ed.), *Roman Phrygia: Culture and society*, 143–167. Cambridge: Cambridge University Press.
- . 2014. "Roman legal administration in the province of Asia: Hellenistic heritage vs. innovation." In J. Dubouloz, S. Pittia, and G. Sabatini (eds.), *L'imperium Romanum en perspective. Les savoirs d'empire dans la République romaine et leur héritage dans l'Europe médiévale et moderne*, 243–268. Besançon: Presses universitaires de Franche-Comté.
- . 2017. "Property in land in Roman provinces." In G. Kantor, T. Lambert, and H. Skoda (eds.), *Legalism: Property and ownership*, 55–74. Oxford: Oxford University Press.
- Katsari, C. 2008. "The monetization of Rome's frontier provinces." In W. V. Harris (ed.), *The monetary systems of the Greeks and Romans*, 242–266. Oxford: Oxford University Press.
- Kay, P. 2014. *Rome's economic revolution*. Oxford: Oxford University Press.
- . 2018. "Financial institutions and structures in the last century of the Roman Republic." In A. Wilson and A. K. Bowman (eds.), *Trade, commerce, and the state in the Roman world*, 133–174. Oxford: Oxford University Press.
- Kaye, N. 2018. "Taxation in the Greco-Roman world: The Hellenistic East." *Oxford Handbooks Online*. <https://dx.doi.org/10.1093/oxfordhb/9780199935390.013.36>.
- Keay, S. 2016. "Portus in its Mediterranean context." In K. Höghammar, B. Alroth, and A. Lindhagen (eds.), *Ancient ports: The geography of connections: Proceedings of an international conference at the department of Archaeology and Ancient History, Uppsala University, 23–25 September 2010*, 291–322. Uppsala: Coronet.
- . 2018. "The role played by the *Portus Augusti* in flows of commerce between Rome and its Mediterranean ports." In B. E. Woytek (ed.), *Infrastructure and distribution in ancient economies: Proceedings of a conference held at the Austrian Academy of Sciences, 28–31 October 2014*, 147–192. Vienna: Austrian Academy of Sciences Press.

- Keenan, J. G., J. G. Mannning, and U. Yiftach-Firanko, eds. 2014. *Law and legal practice in Egypt from Alexander to the Arab Conquest: A selection of papyrological sources in translation, with introductions and commentary*. Cambridge: Cambridge University Press.
- Kehoe, D. 1988. *The economics of agriculture on roman imperial estates in North Africa*. Göttingen: Vandenhoeck & Ruprecht.
- . 2007. *Law and the rural economy in the Roman Empire*. Ann Arbor, MI: University of Michigan Press.
- . 2015. "Contracts, agency, and transaction costs in the Roman economy." In Kehoe, Ratzan, Yiftach (2015a), 231–252.
- Kehoe, D., D. M. Ratzan and U. Yiftach, eds. 2015a. *Law and transaction costs in the ancient economy*. Ann Arbor, MI: University of Michigan Press.
- . 2015b. "Introduction: Transaction costs, ancient history, and the law." In Kehoe, Ratzan, and Yiftach (2015a), 1–35.
- Keilholz, P. 2017. "Water supply and distribution in the ancient Decapolis city of Gadara." *Water History* 9.2, 147–168.
- Keller, D. 2005. "Social and economic aspects of glass recycling." In J. Bruhn, B. Croxford, and D. Grigoropoulos (eds.), *TRAC 2004: Proceedings of the fourteenth annual Theoretical Roman Archaeology Conference, Durham 2004*, 65–78. Oxford: Oxbow Books.
- Kemmers, F. 2016. "Coin use in the Roman Republic." In F. Haymann, W. Hollstein, and M. Jehne (eds.), *Neue Forschungen zur Münzprägung der römischen Republik: Beiträge zum internationalen Kolloquium im Residenzschloss Dresden 19.–21. Juni 2014*, 347–372. Bonn: Habelt.
- Khalil, E. 2017. "Alexandria and the sea in Hellenistic and Roman times." In P. de Souza and P. Arnaud (eds.), *The sea in history: The ancient world / La mer dans l'histoire: L'antiquité*, 243–257. Woodbridge: Boydell Press.
- Khatchadourian, L. 2007. "Unforgettable landscapes: Attachments to the past in Hellenistic Armenia." In N. Yoffee (ed.), *Negotiating the past in the past: Identity, memory, and landscape in archaeological research*, 43–75. Tucson, AZ: University of Arizona Press.
- Kirschenbaum, A. 1987. *Sons, slaves, and freedmen in Roman commerce*. Jerusalem: Magnes Press, Hebrew University.
- Kokkinia, C. 2014. "Rome, Ephesos, and the Ephesian Harbor: A case study in official rhetoric." In A. Kolb (ed.), *Infrastruktur und Herrschaftsorganisation im Imperium Romanum: Akten der Tagung in Zürich 19.–20. 10. 2012*, 180–196. Berlin: De Gruyter.
- Kolb, A. 2014. "Einführung: Infrastruktur und Herrschaftsorganisation im Imperium Romanum." In A. Kolb (ed.), *Infrastruktur und Herrschaftsorganisation im Imperium Romanum: Akten der Tagung in Zürich 19.–20. 10. 2012*, 9–17. Berlin: De Gruyter.
- Kosmin, P. J. 2014. *The land of the elephant kings: Space, territory, and ideology in the Seleucid Empire*. Cambridge, MA: Harvard University Press.
- Koutsyiannis, D., N. Zarkadoulas, A. N. Angelakis, and G. Tchobanoglous. 2008. "Urban water management in ancient Greece: Legacies and lessons." *Journal of Water Resources Planning and Management* 134.1, 45–54.
- Kroll, J. H. 2008. "The monetary use of weighed bullion in Archaic Greece." In W. V. Harris (ed.), *The monetary systems of the Greeks and Romans*, 12–37. Oxford: Oxford University Press.
- Kron, G. 2000. "Roman ley-farming." *Journal of Roman Archaeology* 13, 277–287.
- . 2008. "The much maligned peasant. Comparative perspectives on the productivity of the small farmer in classical antiquity." In L. de Ligt and S. Northwood (eds.), *People, land, and politics: Demographic developments and the transformation of Roman Italy*, 71–119. Leiden: Brill.
- . 2012. "Food production." In W. Scheidel (ed.), *The Cambridge companion to the Roman economy*, 156–174. Cambridge: Cambridge University Press.

- . 2014. “Animal husbandry.” In G. L. Campbell (ed.), *The Oxford handbook of animals in classical thought and life*, 109–135. Oxford: Oxford University Press.
- Lancaster, L. C. 2015. *Innovative vaulting in the architecture of the Roman Empire: 1st to 4th centuries CE*. Cambridge: Cambridge University Press.
- Larson, K. A. 2019. “Cheap, fast, good: The Roman glassblowing revolution reconsidered.” *Journal of Roman Archaeology* 32, 7–22.
- Le Rider, G. 2001. *La naissance de la monnaie: Pratiques monétaires de l’Orient ancien*. Paris: Presses universitaires de France.
- Leveau, P. 2001. “Aqueduct building: Financing and costs.” In D. R. Blackman and A. T. Hodge (eds.), *Frontinus’ legacy: Essays on Frontinus’ de aquis urbis Romae*, 85–101. Ann Arbor, MI: University of Michigan Press.
- Lewis, N. 1997. *The compulsory public services of Roman Egypt*. 2nd ed. Florence: Gonnelli.
- Lewit, T. 2020. “Invention, tinkering, or transfer? Innovation in oil and wine presses in the Roman Empire.” In P. Erdkamp, K. S. Verboven, and A. Zuiderhoek (eds.), *Capital, investment, and innovation in the Roman world*, 307–353. Oxford: Oxford University Press.
- Ligt, L. de. 1999. “Legal history and economic history: the case of the *actiones adiecticiae qualitatibus*.” *Tijdschrift voor Rechtsgeschiedenis* 67.3/4, 205–226.
- Lippert, S. 2012. “Law courts.” *UCLA Encyclopedia of Egyptology*. escholarship.org/uc/item/4136j3s7.
- Liu, J. 2008. “The economy of endowments: The case of Roman *collegia*.” In K. S. Verboven, K. Vandorpe, V. Chankowski, and R. Bogaert (eds.), *Pistoi dia tèn technèn: Bankers, loans, and archives in the ancient world: Studies in honour of Raymond Bogaert*. Leuven: Peeters.
- Lo Cascio, E. 1981. “State and coinage in the Late Republic and Early Empire.” *The Journal of Roman Studies* 71, 76–86.
- , ed. 2006. *Innovazione tecnica e progresso economico nel mondo romano: Atti degli Incontri capresi di storia dell’economia antica (Capri, 13–16 aprile 2003)*. Bari: Edipuglia.
- . 2007. “The Early Roman Empire: The state and the economy.” In W. Scheidel, I. Morris, and R. P. Saller (eds.), *The Cambridge economic history of the Greco-Roman world*, 619–647. Cambridge: Cambridge University Press.
- . 2008. “The function of gold coinage in the monetary economy of the Roman Empire.” In W. V. Harris (ed.), *The monetary systems of the Greeks and Romans*, 160–173. Oxford: Oxford University Press.
- Lolos, Y. A. 1997. “The Hadrianic aqueduct of Corinth (with an appendix on the Roman aqueducts in Greece).” *Hesperia* 66.2, 271–314.
- Mackil, E. 2017. “Property claims and state formation in the archaic Greek world.” In C. Ando and S. F. C. Richardson (eds.), *Ancient states and infrastructural power: Europe, Asia, and America*, 63–90. Philadelphia, PA: University of Pennsylvania Press.
- MacKinnon, M. 2015. “Changes in animal husbandry as a consequence of developing social and economic patterns in the Roman Mediterranean context.” In P. Erdkamp, K. S. Verboven, and A. Zuiderhoek (eds.), *Ownership and exploitation of land and natural resources in the Roman world*, 249–273. Oxford: Oxford University Press.
- Manning, J. G. 2003. *Land and power in Ptolemaic Egypt: The structure of land tenure*. Cambridge: Cambridge University Press.
- . 2005. “Texts, contexts and subtexts: Beyond the parochial and toward (dynamic) modelling of Ptolemaic Egypt.” *Bulletin of the American Society of Papyrologists* 42, 235–256.
- . 2011. “Networks, hierarchies and markets in the Ptolemaic economy.” In Z. H. Archibald, J. K. Davies, and V. Gabrielsen (eds.), *The economies of Hellenistic societies, third to first centuries BC*, 296–323. Oxford: Oxford University Press.
- . 2018. *The open sea: The economic life of the ancient Mediterranean world from the Iron Age to the rise of Rome*. Princeton, NJ: Princeton University Press.

- Mantovani, D. 2016. "More than codes: Roman ways of organizing and giving access to legal information." T. Roberts (trans.). In Paul J. du Plessis, C. Ando, and K. Tuori (eds.), *The Oxford handbook of Roman law and society*, 23–42. Oxford: Oxford University Press.
- Marzano, A. 2013. *Harvesting the sea: The exploitation of marine resources in the Roman Mediterranean*. Oxford: Oxford University Press.
- Mayer, E. E. 2018. "Tanti non emo, Sexte, Piper: Pepper prices, Roman consumer culture, and the bulk of Indo-Roman trade." *Journal of the Economic and Social History of the Orient* 61.4, 560–589.
- McConnell, J. R., A. Wilson, A. Stohl, M. M. Arienzo, N. J. Chellman, S. Eckhardt, E. M. Thompson, A. M. Pollard, and J. P. Steffensen. 2018. "Lead pollution recorded in Greenland ice indicates European emissions tracked plagues, wars, and imperial expansion during antiquity." *Proceedings of the National Academy of Sciences* 115.22, 5726–5731.
- McEwan, G. J. P. 1984. "A Greek legal instrument in Hellenistic Uruk." *Altorientalische Forschungen* 11.1/2, 237–241.
- McGrail, S. 2008. "Sea transport, part 1: Ships and navigation." In Oleson (2008), 606–637.
- Meadows, A. 2014. "The spread of coins in the Hellenistic world." In P. Bernholz and R. Vaubel (eds.), *Explaining monetary and financial innovation: A historical analysis*, 169–195. Cham: Springer International Publishing.
- Mees, A. 2013. "The internal organisation of terra sigillata (Samian) workshops." In M. G. Fulford (ed.), *Seeing red: New economic and social perspectives on Terra Sigillata*, 66–96. London: Institute of Classical Studies, University of London.
- Metcalf, W. E., ed. 2012. *The Oxford handbook of Greek and Roman coinage*. Oxford: Oxford University Press.
- Metzger, E. 2015. "Litigation." In D. Johnston (ed.), *The Cambridge companion to Roman law*, 272–298. Cambridge: Cambridge University Press.
- . 2016. "Republican civil procedure: Sanctioning reluctant defendants." In P. J. du Plessis, C. Ando, and K. Tuori (eds.), *The Oxford handbook of Roman law and society*, 245–256. Oxford: Oxford University Press.
- Meyer, E. A. 2004. *Legitimacy and law in the Roman world: Tabulae in Roman belief and practice*. Cambridge: Cambridge University Press.
- . 2015. "Writing in Roman legal contexts." In D. Johnston (ed.), *The Cambridge companion to Roman law*, 85–96. Cambridge: Cambridge University Press.
- . 2016. "Evidence and argument: The truth of prestige and its performance." In P. J. du Plessis, C. Ando, and K. Tuori (eds.), *The Oxford handbook of Roman law and society*, 270–282. Oxford: Oxford University Press.
- Minnen, P. 2019. "Economic growth and the exploitation of land." In K. Vandorpe (ed.), *A companion to Greco-Roman and late antique Egypt*, 251–268. Malden, MA: Wiley Blackwell.
- Mitsuma, Y. 2019. "The relationship between Greco-Macedonian citizens and the 'Council of Elders' in the Arsacid Period: New evidence from Astronomical Diary BM 35269 + 35347 + 35358." In J. Haubold, J. Steele, and K. Stevens (eds.), *Keeping watch in Babylon: The Astronomical Diaries in context*, 294–306. Leiden: Brill.
- Mokyr, J. 1990. *The lever of riches: Technological creativity and economic progress*. Oxford: Oxford University Press.
- Monson, A. 2012. *From the Ptolemies to the Romans. Political and economic change in Egypt*. Cambridge: Cambridge University Press.
- . 2015. "Hellenistic empires." In A. Monson and W. Scheidel (eds.), *Fiscal regimes and the political economy of premodern states*, 169–207. Cambridge: Cambridge University Press.
- . 2019. "Taxation and fiscal reforms." In K. Vandorpe (ed.), *A companion to Greco-Roman and Late Antique Egypt*, 147–162. Malden, MA: Wiley Blackwell.

- Monson, A. and W. Scheidel. 2015. "Studying fiscal regimes." In A. Monson and W. Scheidel (eds.), *Fiscal regimes and the political economy of premodern states*, 3–28. Cambridge: Cambridge University Press.
- Mørkholm, O. 1991. *Early Hellenistic coinage: From the accession of Alexander to the Peace of Apamea (336–188 BC)*. P. Grierson and U. Westermark (eds.). Cambridge: Cambridge University Press.
- Morley, N. 1996. *Metropolis and hinterland: The city of Rome and the Italian economy, 200 BC–AD 200*. Cambridge: Cambridge University Press.
- Mouritsen, H. 2011. *The freedman in the Roman world*. Cambridge: Cambridge University Press.
- Neesen, L. 1980. *Untersuchungen zu den direkten Staatsabgaben der römischen Kaiserzeit: 27 v. Chr.–284 n. Chr.* Bonn: Habelt.
- Nijf, O. 2008. "The social world of tax farmers and their personnel." In M. Cottier, M. H. Crawford, C. V. Crowther, J.-L. Ferrary, B. M. Levick, O. Salomies, and M. Wörle (eds.), *The customs law of Asia*, 279–311. Oxford: Oxford University Press.
- Noreña, C. F. 2011. *Imperial ideals in the Roman West: Representation, circulation, power*. Cambridge: Cambridge University Press.
- North, D. C. 1990. *Institutions, institutional change, and economic performance*. Cambridge: Cambridge University Press.
- North, D. C., J. J. Wallis, and B. R. Weingast. 2009. *Violence and social orders: A conceptual framework for interpreting recorded human history*. Cambridge: Cambridge University Press.
- Oleson, J. P. 1984. *Greek and Roman mechanical water-lifting devices: The history of a technology*. Toronto: University of Toronto Press.
- . 2000. "Water-lifting." In Ö. Wikander (ed.), *Handbook of ancient water technology*. Vol. 2, 217–302. Leiden: Brill.
- , ed. 2008. *The Oxford handbook of engineering and technology in the classical world*. Oxford: Oxford University Press.
- . 2014. "Ancient literary sources concerned with Roman concrete technology." In C. J. Brandon, R. L. Hohlfelder, M. D. Jackson, and J. P. Oleson, *Building for eternity: The history and technology of Roman concrete engineering in the sea*, 11–36. Oxford: Oxbow Books.
- Oleson, J. P. and M. D. Jackson. 2014. "The technology of Roman maritime concrete." In C. J. Brandon, R. L. Hohlfelder, M. D. Jackson, and J. P. Oleson, *Building for eternity: The history and technology of Roman concrete engineering in the sea*, 1–10. Oxford: Oxbow Books.
- O'Neil, J. L. 2000. "Royal authority and city law under Alexander and his Hellenistic successors." *Classical Quarterly* 50.2, 424–431.
- Ørsted, P. 1985. *Roman imperial economy and Romanization: A study in Roman imperial administration and the public lease system in the Danubian provinces from the first to the third century AD*. Copenhagen: Museum Tusculanum Press.
- Peña, J. T. 2007. *Roman pottery in the archaeological record*. Cambridge: Cambridge University Press.
- Pestman, P. W. 1993. *The archive of the Theban choachytes (second century BC): A survey of the Demotic and Greek papyri contained in the archive*. Leuven: Peeters.
- Poblome, J. 2013. "Money makes pottery go round." In J. Poblome (ed.), *Exempli gratia: Sagalassos, Marc Waelkens and interdisciplinary archaeology*, 81–96. Leuven: Leuven University Press.
- . 2016. "The potters of ancient Sagalassos revisited." In A. Wilson and M. Flohr (eds.), *Urban craftsmen and traders in the Roman world*, 377–404. Oxford: Oxford University Press.
- Poblome, J., S. Ö. Gerçeker, and M. Loopmans. 2017. "Different similarities or similar differences? Thoughts on *koine*, oligopoly and regionalism." In A. van Oyen and M. Pitts (eds.), *Materialising Roman histories*, 85–100. Oxford: Oxbow Books.

- Purcell, N. 1996. "Rome and the management of water: Environment, culture and power." In J. Salmon and G. Shipley (eds.), *Human landscapes in classical antiquity*, 180–212. London: Routledge.
- Raban, A., M. Artzy, B. Goodman, and Z. Gal, eds. 2009. *The harbour of Sebastos (Caesarea Maritima) in its Roman Mediterranean context*. Oxford: Archaeopress.
- Raepsaet, G. 1997. "The development of farming implements between the Seine and the Rhine from the second to twelfth centuries." In G. Astill and J. Langdon (eds.), *Medieval farming and technology: The impact of agricultural change in Northwest Europe*, 41–68. Leiden: Brill.
- Rathbone, D. 1993. "Egypt, Augustus and Roman taxation." *Cahiers du Centre Gustave Glotz* 4, 81–112.
- . 1996. "The imperial finances." In A. K. Bowman, E. Champlin, and A. Lintott (eds.), *The Cambridge ancient history*. 2nd ed. Vol. 10, 309–323. Cambridge: Cambridge University Press.
- . 2003. "The financing of maritime commerce in the Roman Empire, I–II AD." In E. Lo Cascio (ed.), *Credito e moneta nel mondo romano: Atti degli Incontri capresi di storia dell'economia antica (Capri 12–14 ottobre 2000)*, 197–229. Bari: Edipuglia.
- . 2007. "Roman Egypt." In W. Scheidel, I. Morris, and R. P. Saller (eds.), *The Cambridge economic history of the Greco-Roman world*, 698–719. Cambridge: Cambridge University Press.
- Rathbone, D. and P. Temin. 2008. "Financial intermediation in first-century AD Rome and eighteenth-century England." In K. S. Verboven, K. Vandorpe, V. Chankowski, and R. Bogaert (eds.), *Pistoi dia tèn technèn: Bankers, loans, and archives in the ancient world: Studies in honour of Raymond Bogaert*, 371–419. Leuven: Peeters.
- Ratzan, D. M. 2015. "Transaction costs and contract in Roman Egypt: A case study in negotiating the right of repossession." In Kehoe, Ratzan, and Yiftach (2015a), 185–230.
- Reger, G. 2003. "The economy." In A. Erskine (ed.), *A companion to the Hellenistic world*, 331–353. Oxford: Blackwell.
- Richardson, J. 2015. "Roman law in the provinces." In D. Johnston (ed.), *The Cambridge companion to Roman law*, 45–58. Cambridge: Cambridge University Press.
- Richter, D. S. 2011. *Cosmopolis: Imagining community in late Classical Athens and the early Roman Empire*. Oxford: Oxford University Press.
- Riggsby, A. M. 2010. *Roman law and the legal world of the Romans*. Cambridge: Cambridge University Press.
- . 2019. *Mosaics of knowledge: Representing information in the Roman World*. Oxford: Oxford University Press.
- Rochette, B. 2010. "Greek and Latin bilingualism." In E. J. Bakker (ed.), *A companion to the ancient Greek language*, 281–293. Malden, MA: Blackwell.
- Ronin, M. 2020. "Funding Irrigation: Between individual and collective investments." In P. Erdkamp, K. S. Verboven, and A. Zuiderhoek (eds.), *Capital, investment, and innovation in the Roman world*, 225–252. Oxford: Oxford University Press.
- Rüfner, T. 2016. "Imperial *cognitio* process." In P. J. du Plessis, C. Ando, and K. Tuori (eds.), *The Oxford handbook of Roman law and society*, 257–269. Oxford: Oxford University Press.
- Safrai, Z. 1994. *The economy of Roman Palestine*. London: Routledge.
- Saller, R. P. 2002. "Framing the debate over growth in the ancient economy." In W. Scheidel and S. von Reden (eds.), *The ancient economy*, 251–269. New York, NY: Routledge.
- Schäfer, C. 1998. *Spitzenmanagement in Republik und Kaiserzeit: Die Prokuratoren von Privatpersonen im Imperium Romanum vom 2. Jh. v. Chr. bis zum 3. Jh. n. Chr.* St. Katharinen: Scripta Mercaturae.
- Schaps, D. 2008. "What was money in ancient Greece?" In W. V. Harris (ed.), *The monetary systems of the Greeks and Romans*, 38–48. Oxford: Oxford University Press.
- Scheidel, W. 2009. "In search of Roman economic growth." *Journal of Roman Archaeology* 22, 46–70.

- . 2015. “State revenue and expenditure in the Han and Roman empires.” In W. Scheidel (ed.), *State power in ancient China and Rome*, 150–180. Oxford: Oxford University Press.
- Schneider, H. 2007. “Technology.” In W. Scheidel, I. Morris, and R. P. Saller (eds.), *The Cambridge economic history of the Greco-Roman world*, 144–171. Cambridge: Cambridge University Press.
- . 2014. “Infrastruktur und politische Legitimation im frühen Principat.” In A. Kolb (ed.), *Infrastruktur und Herrschaftsorganisation im Imperium Romanum: Akten der Tagung in Zürich 19.–20. 10. 2012*, 21–51. Berlin: De Gruyter.
- . 2019. “Innovationen und wirtschaftliche Entwicklung im Imperium Romanum.” *Gephyra* 17, 189–221.
- Seland, E. H. 2013. “Networks and social cohesion in ancient Indian Ocean trade: Geography, ethnicity, religion.” *Journal of Global History* 8.3, 373–390.
- Shahar, I. 2008. “State, society and the relations between them: Implications for the study of legal pluralism.” *Theoretical Inquiries in Law* 9.2, 417–441.
- Sidebotham, S. E. 2011. *Berenike and the ancient maritime spice route*. Berkeley, CA: University of California Press.
- Sidebotham, S. E. and J. Gates-Foster. 2019. *The archaeological survey of the desert roads between Berenike and the Nile Valley: Expeditions by the University of Michigan and the University of Delaware to the Eastern Desert of Egypt, 1987–2015*. Boston, MA: American Schools of Oriental Research.
- Sidebotham, S. E., M. Hense, and H. M. Nouwens. 2008. *The Red Land: The illustrated archaeology of Egypt's Eastern Desert*. Cairo: The American University in Cairo Press.
- Sijpesteijn, P. J. 1964. *Penthemeros-certificates in Graeco-Roman Egypt*. Leiden: Brill.
- . 1987. *Customs duties in Graeco-Roman Egypt*. Zutphen: Terra Publishing.
- Sirks, B. 2018. “Law, commerce, and finance in the Roman Empire.” In A. Wilson and A. K. Bowman (eds.), *Trade, commerce, and the state in the Roman world*, 53–115. Oxford: Oxford University Press.
- Stern, S. 2012. *Calendars in antiquity: Empires, states, and societies*. Oxford: Oxford University Press.
- Stoll, O. 2016. “Melonen, Mähmaschinen und Manager: Limeszonen als transkulturelle (Wirtschafts-)Räume.” In K. Droß-Krüpe, K. Ruffing, and S. Föllinger (eds.), *Antike Wirtschaft und ihre kulturelle Prägung / The cultural shaping of the ancient economy*, 235–266. Wiesbaden: Harrassowitz.
- Tan, J. 2015. “The Roman republic.” In A. Monson and W. Scheidel (eds.), *Fiscal regimes and the political economy of premodern states*, 208–228. Cambridge: Cambridge University Press.
- . 2017. *Power and public finance at Rome, 264–49 BCE*. Oxford: Oxford University Press.
- Taylor, R. M. 2000. *Public needs and private pleasures: Water distribution, the Tiber river and the urban development of ancient Rome*. Rome: L'Erma di Bretschneider.
- Taylor, T. S. 2016. “Social status, legal status and legal privilege.” In P. J. du Plessis, C. Ando, and K. Tuori (eds.), *The Oxford handbook of Roman law and society*, 349–361. Oxford: Oxford University Press.
- Tchernia, A. 2016. *The Romans and trade*. J. Grieve and E. Minchin (trans.). Oxford: Oxford University Press.
- Terpstra, T. 2019. *Trade in the ancient Mediterranean: Private order and public institutions*. Princeton, NJ: Princeton University Press.
- . 2020. “Roman technological progress in comparative context: The Roman Empire, Medieval Europe and Imperial China.” *Explorations in Economic History* 75. <https://dx.doi.org/10.1016/j.eeh.2019.101300>.
- Thibodeau, P. 2018. “Ancient agronomy as a literature of best practices.” In P. T. Keyser and J. Scarborough (eds.), *The Oxford handbook of science and medicine in the classical world*, 463–480. Oxford: Oxford University Press.

- Thompson, D. J. 1999. "New and old in the Ptolemaic Fayum." In A. K. Bowman and E. Rogan (eds.), *Agriculture in Egypt. From Pharaonic to modern times*, 123–138. Oxford: Oxford University Press.
- Thompson, G., J. Frances, R. Levacic, and J. Mitchell, eds. 1991. *Markets, hierarchies and networks: The coordination of social life*. Thousand Oaks, CA: Sage.
- Thurmond, D. L. 2006. *A handbook of food processing in classical Rome: For her bounty no winter*. Leiden: Brill.
- Timmermans, S. and S. Epstein. 2010. "A world of standards but not a standard world: Toward a sociology of standards and standardization." *Annual Review of Sociology* 36, 69–89.
- Tuori, K. 2007. "Legal pluralism and the Roman Empires." In J. W. Cairns and P. J. du Plessis (eds.), *Beyond dogmatics: Law and society in the Roman world*, 39–52. Edinburgh: Edinburgh University Press.
- Tuplin, C. 2014. "The changing pattern of Achaemenid Persian royal coinage." In P. Bernholz and R. Vaubel (eds.), *Explaining monetary and financial innovation: A historical analysis*, 127–168. Cham: Springer International Publishing.
- van der Mierop, M. 2005. "The invention of interest. Sumerian loans." In W. N. Goetzmann and K. G. Rouwenhorst (eds.), *The origins of value: The financial innovations that created modern capital markets*, 17–30. Oxford: Oxford University Press.
- van der Spek, R. J. 2004. "Palace, temple and market in Seleucid Babylonia." In V. Chankowski and F. Duyrat (eds.), *Le roi et l'économie. Autonomies locales et structures royales dans l'économie de l'empire séleucide*, 303–332. Paris: De Boccard.
- van Heesch, J. 2011. "Quantifying Roman imperial coinage." In F. de Callataÿ (ed.), *Quantifying monetary supplies in Greco-Roman times*, 311–328. Bari: Edipuglia.
- van Oyen, A. 2016. *How things make history: The Roman Empire and its terra sigillata pottery*. Amsterdam: Amsterdam University Press.
- van Oyen, A. and M. Pitts. 2017. "What did objects do in the Roman world? Beyond representation." In A. van Oyen and M. Pitts (eds.), *Materialising Roman histories*, 3–19. Oxford: Oxbow Books.
- Verboven, K. S. 2002. *The economy of friends: Economic aspects of amicitia and patronage in the Late Republic*. Brussels: Editions Latomus.
- . 2009. "Currency, bullion and accounts: Monetary modes in the Roman world." *Revue Belge de Numismatique et de Sigillographie/Belgisch Tijdschrift voor Numismatiek en Zegelkunde* 155, 91–121.
- . 2011. "Friendship among the Romans." In M. Peachin (ed.), *The Oxford handbook of social relations in the Roman world*, 404–421. Oxford: Oxford University Press.
- . 2012. "The freedman economy of Roman Italy." In S. Bell and T. Ramsby (eds.), *Free at last! The impact of freed slaves on the Roman Empire*, 88–109. London: Bristol Classical Press.
- . 2020. "Capital markets and financial entrepreneurs in the Roman world." In P. Erdkamp, K. S. Verboven, and A. Zuiderhoek (eds.), *Capital, investment, and innovation in the Roman world*, 381–416. Oxford: Oxford University Press.
- von Reden, S. 2007. *Money in Ptolemaic Egypt: From the Macedonian conquest to the end of the third century BC*. Cambridge: Cambridge University Press.
- . 2010. *Money in classical antiquity*. Cambridge: Cambridge University Press.
- . 2012. "Money and finance." In W. Scheidel (ed.), *The Cambridge companion to the Roman economy*, 266–286. Cambridge: Cambridge University Press.
- Wasserstein, D. 2015. "Why did Arabic succeed where Greek failed? Language change in the Near East after Muhammad." In S. F. Johnson (ed.), *Languages and cultures of eastern Christianity: Greek*, 467–482. London: Routledge.
- White, K. D. 1975. *Farm equipment of the Roman world*. Cambridge: Cambridge University Press.
- Wilkinson, T. J. and L. Rayne. 2010. "Hydraulic landscapes and imperial power in the Near East." *Water History* 2.2, 115–144.

- Wilson, A. 2002. "Machines, power and the ancient economy." *The Journal of Roman Studies* 92, 1–32.
- . 2006. "The economic impact of technological advances in the Roman construction industry." In Lo Cascio (2006), 225–236.
- . 2008a. "Large-scale manufacturing, standardization, and trade." In Oleson (2008), 393–417.
- . 2008b. "Machines in Greek and Roman technology." In Oleson (2008), 337–366.
- . 2009. "Indicators of Roman Economic Growth: A response to Walter Scheidel." *Journal of Roman Archaeology* 22, 71–82.
- . 2011. "Developments in Mediterranean shipping and maritime trade from the Hellenistic period to AD 1000." In D. Robinson and A. Wilson (eds.), *Maritime archaeology and ancient trade in the Mediterranean*, 33–59. Oxford: Oxford Centre for Maritime Archaeology, Institute of Archaeology.
- . 2020. "Roman water-power: Chronological trends and geographical spread." In P. Erdkamp, K. S. Verboven, and A. Zuiderhoek (eds.), *Capital, investment, and innovation in the Roman world*, 147–194. Oxford: Oxford University Press.
- Wilson, A., K. Schörle, and C. Rice. 2012. "Roman ports and Mediterranean connectivity." In S. J. Keay (ed.), *Rome, Portus and the Mediterranean*. London: British School at Rome.
- Wolf, J. G. 2015. "Documents in Roman practice." In D. Johnston (ed.), *The Cambridge companion to Roman law*, 61–84. Cambridge: Cambridge University Press.
- Wolff, H. J. 1960. "Plurality of laws in Ptolemaic Egypt." *Revue internationale des droits de l'antiquité* 7, 191–223.
- . 1962. *Das Justizwesen der Ptolemäer*. Vienna: Beck.
- Woytek, B. E. 2012. "The denarius coinage of the Roman Republic." In Metcalf (2012), 315–334.
- . 2014. "Monetary innovation in ancient Rome: The Republic and its legacy." In P. Bernholz and R. Vaubel (eds.), *Explaining monetary and financial innovation: A historical analysis*, 197–226. Cham: Springer International Publishing.
- . 2018. "Infrastructure and distribution in ancient economies: By way of introduction." In B. E. Woytek (ed.), *Infrastructure and distribution in ancient economies: Proceedings of a conference held at the Austrian Academy of Sciences, 28–31 October 2014*, 11–22. Vienna: Austrian Academy of Sciences Press.
- Yannopoulos, S., G. Antoniou, M. Kaiafa-Saropoulou, and A. N. Angelakis. 2017. "Historical development of rainwater harvesting and use in Hellas: A preliminary review." *Water Science and Technology: Water Supply* 17.4, 1022–1034.
- Yiftach, U. and K. Vandorpe. 2019. "Immigration, globalization, and the impact on private law." In K. Vandorpe (ed.), *A companion to Greco-Roman and late antique Egypt*, 179–198. Malden, MA: Wiley Blackwell.

Razieh Taasob with contributions from Sitta von Reden

8.B Tools of Economic Activity in the Arsakid Empire

I Introduction

Our knowledge of the economy of the Arsakid Empire is far more limited than that of the Hellenistic and Roman Empires in the Near East. While some cities or regions are relatively well documented, others are not at all. The rather patchy sources, moreover, cover very different aspects of the economy and administration of particular regions and places: some give us titles of administrative personnel, transactions, and accounting practices in specific tributary contexts; others preserve contracts relating to particular legal traditions; yet others offer glimpses into regional minting. The *Stathmoi Parthikoi* (“Parthian Stations”) describe the forts and road stations of the main imperial road in great detail, while the Palmyrene caravan inscriptions show the incentives that drove the use of another route for commercial purposes.¹ Furthermore, the documentary evidence from the Arsakid period, written in several languages, is not evenly distributed chronologically, with much pertaining to just a few decades in the life of an empire that lasted over 400 years; questions of diachronic development can rarely be addressed.

These limitations are all the more frustrating as the Arsakid court had authority over relatively autonomous imperial subregions. Economic and administrative diversity must have been even greater than in other ancient imperial states.² Given that there are, in terms of administrative personnel and terminology, long-term continuities from the Achaemenid to the Sasanian period, scholars tend to assume some long-term administrative continuities that were maintained throughout the Arsakid period.³ Yet we must be careful not to overlook important differences, especially in those aspects where there are strong indications of change. Such differences stand out in the coin policy of the Arsakids, which shows important innovations.⁴ Another area of change can be noted in the military system, which seems to have been more decentralized than under the empires before and after.⁵ Given that military organization is closely related to fiscal politics, this will have changed economic life in important ways.⁶

1 Wiesehöfer, vol. 1, ch. 11, 482–491 for date and contents of the most important groups of evidence. For a collection and translation of the most important ones, see the three volumes of Hackl, Jacobs, and Weber 2010.

2 Fabian, vol. 1, ch. 6, 217, and *passim*.

3 E.g., Lukonin 1983; van der Spek 1998; 2014, to name but a few.

4 Sinisi 2012; 2018, and below.

5 Fabian, vol. 1, ch. 6, 226–227.

6 See also Fabian and Weaverdyck, ch. 3.A, this volume, and Fabian, vol. 1, ch. 6, 226–227 for the Arsakid military regime and its transformation during the Arsakid period; c.f. Hauser 2006, 295–319; Olbrycht 2003 and 2016.

II Fiscal Regime

The Arsakid fiscal regime was far more decentralized than that of the Seleukids outlined in the previous chapter. *Strategoï* and *marzbāns* controlled several *satrapies*, which had become smaller administrative units.⁷ The Seleukid central financial officer, the *epi ton prosodon*, is no longer attested, suggesting that there was far less central coordination of local fiscal structures. Nevertheless, tax extraction was not entirely local. Arguably, the kings still extracted a large amount of tribute, rents, and payments from local economic activities. Yet given the frequently changing structure of authority in the different parts of the Arsakid Empire from the first century BCE onward, one may wonder whether payments to the *basilikon* always referred to the same central treasury.⁸

Some evidence of Arsakid taxation comes from the *Astronomical Diaries*, a series of relatively fragmentary cuneiform inscriptions from Babylonia. The nature of taxation in Babylonia was likely very different from other regions. In addition, the Nisa ostraca offer glimpses into the practice of collecting, storing, and distributing taxes in relation to specific categories of what was probably royal land around the district of Mithradatkert in Old Nisa.⁹ Inscriptions, papyri, and parchments from Dura-Europos, moreover, attest to a complex set of land taxes, property taxes, poll taxes, income taxes, and taxes on commerce. Levels of taxation and collection methods clearly differed regionally, as did the ways land was categorized. Indirect taxes could also be levied on services such as the maintenance and improvement of hydraulic infrastructure, the construction of new cities, and other communal tasks.

All known taxes were levied or paid in either cash or kind. In-kind taxation of agricultural land was predominant in the ancient world, so the amount of land taxes expressed in monetary terms in the Babylonian records is noteworthy.¹⁰ It corresponds with the energetic monetary policy of the Arsakids and the upsurge of mints in the eastern parts of the empire immediately after their Arsakid conquests, suggesting a particular interest of both regional governments and the Arsakid courts in liquid monetary resources.¹¹

⁷ Taasob, ch. 3.B, this volume.

⁸ Fabian, vol. 1, ch. 6, 213–215 for the political changes in the Arsakid Empire.

⁹ Fabian, vol. 1, ch. 6, 221–223 for the nature of this site.

¹⁰ Whether these were actually paid in silver is another question. On the use of silver in the Babylonian records and its use as a reference point, van der Spek 2004.

¹¹ For the considerable role of coinage and uncoined precious metal in some tributary regions of the Achaemenid Empire, Briant (1996) 2002, 406–410.

II.1 Taxes and Royal Rents on Land

The land under Arsakid control in principle belonged to either the king, individuals, or a temple, as had been the case under the Seleukids and Achaemenids.¹² The temples, in turn, maintained the authority to distribute land either among their members, based on hereditary rights, or as a reward for specific work, such as astronomical services.¹³ Land taxes and rents on royal land continued to constitute the main part of royal revenue in the Arsakid period.

Land taxes were known by different names and – as under the Seleukids, once again – varied according to the category of land and its geographical location. In the Talmud, a land tax is called *tasga*; in the western provinces and Mesopotamia, its Greek term was *ekphorion*, and in Iran, it was known as *bara* or *baz*.¹⁴ Cities paid land taxes collectively in the form of a tithe (*dekate*) or tax/contribution (*ekphorion/syntaxis*) raised on the produce of the land.¹⁵ Royal income also came in the form of rents (*phoroi*) in cash and kind from the royal domains (*basilike chora*) located mostly in Babylonia and in the hinterland of Greek *poleis* in Asia Minor.¹⁶ Many royal domains in the hinterland of cities were cultivated by *laoi* ('cultivators' in this context) who paid rents to the king. The income from royal domains is generally regarded as forming a considerable source of revenue for the Arsakid kings, which helps to explain their capacity to maintain a strong military paid in cash. Rents and taxes varied considerably according to the productivity of the land. In Babylonia they could be especially high.¹⁷ In one case dating to the Hellenistic period, the king extracted 50 percent of the harvest from the Shamash temple in Sippar.¹⁸ Although the context may have been an exceptional requisition in wartime, it shows the potential of royal extraction, at least under special circumstances.¹⁹

The Nisa ostraca reflect a complex accounting system related to a number of vineyards planted on different categories of land subject to different kinds of taxes.²⁰ A differentiated set of personnel, including fiscal administrators (treasurers,

12 Van der Spek 1995 for a comprehensive treatment of property rights in Hellenistic Babylonia. He convincingly rejects any earlier claims that all land belonged to the king; see by contrast, Aperghis 2004, 148.

13 Van der Spek 1985, 548–555; 2014, 216.

14 Lukonin 1983, 744.

15 Aperghis 2004, 123–127, 148–150.

16 Rostovtzeff 1941, 1:464–469; Aperghis 2004, 139–142; Lukonin 1983, 745, though using Seleukid evidence for the Arsakid period; see also below on the royal domains around Nisa.

17 Van der Spek 1995, 194 in relation to prebends of temples.

18 Van der Spek 2007, 412, with van der Spek 1995, 239–241 (text 9). For Judaea a tax of one-third of the grain harvest during the reign of Demetrios I is mentioned by Josephus, *Anitquitates Judaica* (Joseph. AJ) 13. 49 and 1 *Maccabees* 10. 30; see also below.

19 Van der Spek, personal communication.

20 Weber in Hackl, Jacobs, and Weber 2010, 2:492–529 for a selection of texts, translations and brief commentaries.

accountants, scribes, and various other people), were in charge of the income, which was minutely recorded and carefully stored in containers of various sizes. A total of some 2350 ostraca date from ca. 150 to 10 BCE with a high concentration in the first half of the first century BCE. A land tax that was called *uzbar*, also known from the Achaemenid period when it was extracted in kind and payable to the central royal treasury, is particularly prominent in these documents.²¹ Another type of land tax, *ptbzyk*, was an in-kind payment of fruits, grapes, and wine, probably the same as the Persian **patibāži* (Greek *potibazis*). In the Nisa documents, *uzbar* and *ptbzyk* were collected not only from the royal orchards and vineyards but also from land allotted to the *hštrp/dyzpt* (*satrap*), land belonging to village communities, and land assigned to religious purposes.²² Apart from the tax/rent collected from royal vineyards, *uzbar* and *ptbzyk* payments may well have been used for local purposes.

Many of the documents from Nisa suggest that the vineyards around Mithradatkert were royal possessions rented out to private people on the basis of so-called emphyteutic land leases. These hereditary leaseholds were subject to rental payments and the condition of productivity (see below).²³ It is assumed that much, if not all, of this land was dedicated to the dynastic cult of the Arsakid kings celebrated in Nisa. Although much about the ritual life of Nisa remains obscure, some wine seems to have been set aside for *pat ruvan* services connected to particular fire temples related to the cult of the Arsakid dynasty.²⁴ The Parthian term for these payments seems to have been *trkwpy* (*tylkpyšn*).²⁵ Moreover, a number of estates and vineyards were named after living and deceased kings (*artabānukan*, [cult of] Artabanus; *mihrdātkan*, [cult of] Mithradates; *gōtharzakān*, [cult of] Gotarzes²⁶), suggesting that the revenue of these vineyards supported the ruler cult of these particular kings in the fire temples.²⁷

There also seem to have been regular or irregular contributions and specific donations to the treasury or to temples. In the Nisa ostraca, they appear to be paid by ordinary vine-growers along with the commander-in-chief of the cavalry, equestrians, and treasurers.²⁸ A donation of considerable size is attested in a text on the oldest extant ostrakon of the Nisa collection, edited by Livshits in 2003.²⁹ This statement lists a donation by the great-grandson of Arsakes I to the Nisa treasury. The donor was thus either Phraates I (176–171 BCE), Mithradates I (171–132 BCE), or Arta-

21 Lukonin 1983, 744–745; Diakonoff and Livshits 1977, 17; see also Weber in Hackl, Jacobs, and Weber 2010, 2:517; Livshits 2006, 403.

22 Lukonin 1983, 744–745.

23 Perikhaninan 1983, 659 see further below.

24 Lukonin 1983, 694. Canepa 2018, 235–239 for Arsakid dynastic fire cults celebrated at Nisa.

25 Weber in Hackl, Jacobs, and Weber 2010, 2:501.

26 This vineyard is mentioned during his lifetime, Lukonin 1983, 694.

27 Canepa 2018, 238; cf. Wiesehöfer, vol. 1, ch. 11, 482.

28 Lukonin 1983, 745.

29 Livshits 2006, 403 with translation; cf. Weber in Hackl, Jacobs, and Weber 2010, 2:495, no. 2-L.

banos II Arsakes VIII (127–126 BCE). He donated 2,000 *ephas* (= 70.000 liters) of barley.³⁰

'ršk MLK' BRY npt

'ršk Q'YLw

NDBT' ZNH Š'RN ' 2 x ILP

Arsakes, the king, son of the grandson of Arsakes accounted this offering – 2,000 *e(phas)* of barley.

The testimony is important mostly for the enormous size of the donation. Yet it is also interesting to note that the ideogram *NDBT'*, meaning 'volunteer offering' or 'gift' appears for the first time in this document. It has the Aramaic root *nadaba*, meaning 'to present as a gift,' or 'offer.'³¹

II.2 Capitation Taxes

There is very slight evidence, which dates almost entirely to the Seleukid and Sasanian periods, for capitation taxes in some regions. Yet it is not inconceivable that either the Arsakid or local governments raised poll taxes where they had been raised before and were raised by the Sasanians subsequently. Two types of capitation tax are known from the Hellenistic period: a head tax assessed at certain rates per male and female, and a salt tax levied on households in lieu of the purchase of salt for which the kings held a monopoly. Pseudo-Aristotle mentions the collection of *epi-kephalaion* (head tax) as one of the satrapal tasks.³² Josephus refers to an annual capitation tax that was rescinded under Antiochos III in Jerusalem and again under Demetrios I, and the Romans continued to raise a poll tax in the province of Syria.³³ The *Astronomical Diaries* hint at a cash tax based on a fixed assessment levied on people in Seleukid Mesopotamia.³⁴ The Babylonian Talmud also mentions both a poll tax (*kraga*) and an income tax, *mnāta d-malkā*, as a source of royal revenue collected from the inhabitants of Mesopotamia.³⁵ As far as a salt tax (*halike*) is concerned, thousands of seal impressions extant from Seleukid Uruk dating from 287/6 to 150 BCE suggest that the Seleukids raised such a tax in Babylonia from the early

³⁰ One '*ēphā*' ('yph) was about 35 litres (Livshits 2006 *ad loc*). For the dates of Artabanos II (Arsakes VIII), van der Spek personal communication.

³¹ Livshits 2006, 404.

³² Pseudo-Aristotle *Oikonomika* (Arist. [*Oec.*]) 2. 1. 4; 1346a5

³³ Joseph. *AJ* 12. 142 (Antiochos III); 13. 2. 3 (Demetrios I); Monerie 2018, 243; Aperghis 2004, 127; Lukonin 1983, 745 on Roman poll tax in Syria.

³⁴ Monerie 2018, 244, with *Lehmann tablet* (*CTMMA*) 4, 148 (time of Antiochos II) and *Astronomical Diaries* (*AD*) 2–183 A and C (184 BCE).

³⁵ Schippmann 1980, 92; Goodblatt 1979, 234–235; Lukonin 1983, 745.

third century BCE. As Aperghis has argued, the Seleukids monopolized salt panning wherever they could and in turn taxed the salt consumption of every household at a fixed annual rate.³⁶ An annual salt tax may well have been introduced by the Seleukids for a region like Babylonia, which had the degree of monetization and bureaucratic structure required for raising such a tax. Yet the administration of a regular salt tax was a costly procedure requiring the maintenance of regular census lists as well as a regular monetary income of each household. It was abandoned by the Ptolemies in the second half of the third century BCE. In Babylonia, it seems to have been abandoned 150 BCE when the seal impressions attesting a *halike* cease. There is no evidence that a salt tax was reintroduced by the Arsakids, nor indeed that it was raised down to the very year the Arsakids conquered Babylonia in 141 BCE.³⁷

II.3 Customs Duties

The Arsakids and the fiscal authorities in the regions within the Arsakid sphere also derived income from import and customs taxes, with this revenue often understood as a central component of Arsakid wealth. Details about these practices are unfortunately thin and controversial due to the profound debates about the degree of Arsakid interest in long-distance trade along the ‘Silk Route.’

Given these debates, it is again helpful to consider the evidence for preexisting practice in the region. *Kāru* and *miksu* are terms occurring quite frequently in cuneiform texts down to the time of Darios I and seem to have referred to customs duties in Babylonia.³⁸ According to Monerie, such duties were paid in silver.³⁹ They are attested only in connection with Babylonian canal transport of agricultural produce over short distances, but cargo taxes are likely to have been levied upon goods traveling longer distances as well. Briant suggests that customs posts very likely were established in the main stop-over towns along the Euphrates in the Achaemenid Empire and in other places such as Kydara on the border between Karia and Lydia,⁴⁰ as well as Ikonion, which Xenophon calls the last city in Phrygia.⁴¹

Ps.-Aristotle mentions that an ancient tax (*dekate*) on imports (*eisagomena*) along the Babylonian transit roads had fallen into oblivion after Darios I, but was reestablished by Alexander.⁴² Beside this, archaeological excavation in sanctuaries

³⁶ Aperghis 2004, 154–156.

³⁷ Thus McDowell 1932, 103; Monerie 2018, 245, n. 26 for discussion.

³⁸ Monerie 2018, 107–108; Briant (1996) 2002, 384. The last attestation of the terms is a cuneiform account dated to 487 BCE; *Vorderasiatische Schriftdenkmäler der königlichen Museen zu Berlin* 3. 159.

³⁹ Monerie 2018, 108.

⁴⁰ Herodotos (Hdt.) 7. 30; Briant (1996) 2002, 384.

⁴¹ Xenophon *Anabasis* 1. 2. 19.

⁴² Arist. [*Oec.*] 2. 34.

in Uruk as well as stamps discovered in Seleukeia affirm the existence of some customs dues in Babylonia. For example, a clay seal (*bulla*) discovered in the Great House of Seleukeia with the stamp of the royal slave office dating to 191/190 BCE is marked with the word “imported.” This might suggest the existence of a tax on imported slaves.⁴³ Another *bulla* carries the term ‘from the port’ or ‘market area’ (*limenos*), which might refer to an import tax raised at river ports, while three impressions from Uruk dating to the 160s BCE note “navigation on the Euphrates” followed by a date and proper name, which Rostovtzeff interpreted as a tax raised on ferries crossing the Euphrates.⁴⁴ Aperghis (following Ma) mentions taxes raised at city gates, satrapal boundaries, and transit points between royal and city land in Syria and Asia Minor, but these, according to Ma, had been local taxes only temporarily transformed by the Seleukids into royal revenue.⁴⁵

While it is likely that the Arsakids took over elements of the Achaemenid or Seleukid systems of extracting revenue from trade, the available evidence does not reflect a focus on either building or rebuilding such infrastructure.⁴⁶ Beyond the general sense that the Arsakids were consummate middlemen, one of the key pieces of evidence cited in favor of an aggressive Arsakid trade policy comes from a passage in the *Hou Hanshu* of Later Han, which has been read as evidence that the Arsakids monopolized the silk trade and imposed heavy taxes on empires who wanted to trade with China. Yet this overinterprets the meaning of the passage.⁴⁷ There is, in fact, no explicit evidence for a uniform system of customs duties that the Arsakids levied along their imperial borders and ports.⁴⁸ Isidoros of Charax mentions a toll station (*telonion*) in Bazigraban in Upper Media.⁴⁹ But Bazigraban was neither a town on the Arsakid border, nor is the translation of *telonion* as ‘toll station’ beyond doubt. It may have referred to the town as a place where tribute was collected, as suggested by the similarity of the name of the town to the Old Iranian term **Bāji-grabanā*, meaning tribute collection point.⁵⁰ In an anecdote preserved in Philostratos’s *Life of Apollonios of Tyana* (ca. 170–247 CE), a customs officer stationed at a bridge across the Euphrates at Zeugma asks the philosopher to declare his possessions; to which Apollonios responds with a list of virtues expressed in terms that sound like slaves’ names.⁵¹ The anecdote would not have

⁴³ McDowell 1935, 175–179.

⁴⁴ Rostovtzeff 1932; cf. Monerie 2018, 249.

⁴⁵ Aperghis 2004, 162; Ma 2000, 133 for the transformation of local taxes into imperial taxes.

⁴⁶ Hartmann 2018, 461–464 for this and the following.

⁴⁷ *Hou Hanshu* 88.32. This passage only says that the Parthians blocked the route without implying that the Parthians monopolized the silk trade by imposing heavy import taxes, Graf 2018, 459, n. 82; Schippmann 1980, 91; Lukonin 1983, 740–741; Hartmann 2018 for a recent survey of primary sources and secondary literature.

⁴⁸ Hartmann 2018, 461–464.

⁴⁹ *Stathmoi Parthikoi* 6.

⁵⁰ Hartmann 2018, n. 83.

⁵¹ Philostratos *Life of Apollonios of Tyana* 1. 20.

worked if there had been no customs stations along the Euphrates.⁵² But evidence for a toll station at Zeugma can hardly prove an imperial system of border control under the Arsakids. Strabo, finally, mentions heavy dues raised by the *phylarchai* along both sides of the Euphrates on the routes from Syria to Babylon. By contrast, the protection costs the *skenitai* (Arab tribes) demanded on the route across the Mesopotamian desert were less, hence that route would be preferable.⁵³ The passage underscores that there were custom dues raised on the trade routes along the river. But we do not know whether they were part of a centrally controlled tax collection system.

The model of Arsakid taxation we outlined above points to the prevalence of decentralization and local autonomy, with mostly land taxes and royal rents filling the treasury of the central court, as long as the court had sole authority over a region. As Hartmann rightly points out, a customs system of the type attested for imperial imports under the Romans required an elaborate administration and a firm system of governing the local metropolises and cities that collected customs duties for the state, for which we have no evidence in the Arsakid period. Under the Arsakids, local cities and districts clearly aimed to make a profit from transit trade, as did non-urban communities like the Arab *skenitai*. But against the background of the general picture of fiscal decentralization and non-interventionism, there is little evidence that centrally directed collection of custom duties in ports, bridges, or along major arteries of trade were an *imperial* business filling the treasury of the Arsakid kings.

The most important general conclusion we can draw from the patchy evidence is that the Arsakids maintained local practices of tax extraction that had developed over centuries. Without doubt, there were highly developed systems of local taxation, including taxes on sales, slaves, pasturage of cattle, use of hydraulic infrastructure, and mobile property, as well as on goods held as a royal monopoly.⁵⁴ Many such taxes are mentioned, without being further explained, in the Dura parchments. Interesting, moreover, is the evidence of penalty payments (*epitimia*) that had to be paid not only to the creditor of money but also to the *basilikon*, according to the contracts preserved in the Avroman and Dura parchments.⁵⁵ Aperghis takes such practices as an indication of the non-interventionist policy of a tax authority, which seems to be a very apt characterization of the Arsakid fiscal regime.⁵⁶ The question of what proportion of the tax income was destined for the treasury of the

⁵² Hartmann 2018, n. 88 mentions several passages in the Babylonian Talmud but, *contra* Hackl, Jacobs, and Weber 2010, 3:284–285, dates these to the Sasanian rather than Arsakid period.

⁵³ Strabo 16. 1. 27; McLaughlin 2010, 94; Cameron 2019, 236–248 for a thorough literary analysis of this passage by Strabo.

⁵⁴ Lukonin 1983; Schippmann 1980, 92 on a property tax (called *taska*) in the Babylonian Talmud.

⁵⁵ Taasob, ch. 3.B, this volume; Aperghis 2004, 162.

⁵⁶ Aperghis 2004, 162 for the Seleukid fiscal system, but actually based on Parthian-period evidence.

King of Kings and what proportion went into the treasuries of other institutions (temples, cities, royal treasuries of a more local kind) is likely to have been renegotiated from time to time, especially when Arsakid rule fragmented into several dynastic branches. Yet even local change and *ad hoc* policies, which may have been adopted at times of increased military need, will have varied considerably from king to king and in the course of the changing history of the Arsakid Empire.

III Money and Coinage

In the previous section, we noted the significant number of tax payments in cash attested especially in Babylonia but also in Nisa. The Arsakids inherited the use of money from their predecessors but seem to have developed it further, especially in the regions of the Iranian plateau. The center of monetary culture under the Seleukids had been (apart from the western regions) Babylonia and Mesopotamia, which had a long monetary tradition based on silver bullion. The use of uncoined silver as a medium for payment, exchange, and credit had developed far in Babylonia and Assyria during the first millennium BCE. Not only were tiny fractions of silver units (weighed in *shekels*) used in daily transactions, but monetary credit and the use of monetary instruments were also known. Mesopotamia in the first millennium had developed into a monetized market economy in which prices reflected supply and demand.⁵⁷ The use of coined money, however, became considerably more common in the course of Alexander's campaigns when vast amounts of precious metals seized from the Persian treasury were coined and put into circulation through the payment of soldiers and workers building new cities. The transition from bullion to coined money does not seem to have caused severe problems. Local monetary media based on their own weight systems (such as the *shekel*) were integrated into the Graeco-Macedonian monetary system and soon replaced by Greek coins.⁵⁸

To understand the developments in the Arsakid space, it is necessary to provide some specific background about the monetary situation in the Seleukid world.⁵⁹ Seleukos I established himself in Babylon in 312 BCE and maintained the heterogeneous monetary system at first. He not only struck Attic-standard Macedonian coinages for empire-wide circulation but also gold and silver coins based on the Persian standard for regional circulation. By the time of Antiochos I (281–261 BCE), however, there seems to have been an attempt to establish something like an imperial coin system based on the Attic-weight Seleukid *tetradrachm* and supplemented by small denominations in bronze for use in daily transactions. Gold coins were minted inter-

⁵⁷ Jursa 2006; 2010, 469–753 for the development of money during the first millennium; van der Spek 2007; 2014 for the Babylonian market economy.

⁵⁸ Van der Spek 2017; Monerie 2018, 264–274.

⁵⁹ See also Weaverdyck and Fabian, ch. 8.A, III, this volume.

mittently but ceased to be produced by about 240 BCE.⁶⁰ Yet foreign coins continued to circulate in the Seleukid sphere of influence.⁶¹ The royal capitals of Antiocheia-Orontes, Seleukeia-Tigris, and Ekbatana housed major mints. Those in Adiabene (Nisibis), Elymais (Susa), Persis (Persepolis), Aria (Alexandria-Aria/Herat) and Bactria (Ai Khanum or Baktra) produced smaller amounts, and under particular kings only. Numerous cities in western Asia, as well as the autonomous kingdoms in the South Pontic region, minted their own coinages based on the Attic standard and fully exchangeable with the Seleukid imperial coinage.⁶² However, despite intense money use in some regions, the numismatic pattern of production and circulation suggests that the Seleukid Empire remained only partly monetized.⁶³ Houghton notes the large discrepancy between the value of silver *tetradrachms* (worth several daily wages of a worker) and small bronze coins. Overvalued bronze coins helped to bridge the gap, but many areas of the Seleukid Empire may have been left without coins of intermediate value to convert silver *tetradrachms* into more flexible means of exchange in daily transactions.⁶⁴

Arsakid coinage evolved out of Seleukid currency. As in the autonomous kingdoms and the other breakaway empires, Seleukid influence on the denomination system, iconography, and script on the Arsakid coinage was widespread. When Mithradates I conquered the Mesopotamian core of the former Seleukid Empire, the coinages struck at Seleukeia-Tigris styled him as explicitly Hellenic. On the obverse, his bust is shown with a diadem, while the reverse bears the typically Macedonian/Seleukid seated Zeus, which is significant from both a political and monetary perspective. Equally significant is the fact that in their own Parthian core the first Arsakid kings had struck Hellenistic coins, yet with notably pre-Hellenistic local symbolism and a double Greek-Aramaic legend.⁶⁵ Eventually, Iranian iconography, including the use of increasingly specific Arsakid royal insignia, royal titles, and dress, progressively inserted itself into the eastern coinages of the Iranian plateau as well as the conquered regions of Central Asia and northwestern India.⁶⁶

Contrary to the Seleukids, the Arsakids never issued gold coins. Their most important monetary innovation was the production of large volumes of *drachms* (rather than *tetradrachms*) which were minted in Ekbatana and other eastern mints such as Susa,

⁶⁰ Houghton 2004, 51.

⁶¹ Monerie 2018, 272.

⁶² De Callatay 2012. The kingdom of Pergamon issued coins on their own weight standard.

⁶³ Houghton 2012, 235.

⁶⁴ Houghton (2012, 240) emphasizes the absence of small silver denominations, but small fractions tend to be overlooked in excavation, see Duyrat 2015, 372. Duyrat refers to two pre-Hellenistic hoards from Tyros (fifth century BCE) and Al Mina (fourth century BCE) that were dominated by small fractional silver coinage. For such fractions in the pre-Hellenistic Babylonian monetary systems, Jursa 2010.

⁶⁵ Sinisi 2012, 280. Aramaic was the Achaemenid administrative language.

⁶⁶ Sarkhosh-Curtis 2012; 2019.

Rhagae, and Mithradatkart/Nisa. *Tetradrachms* continued to be minted in Seleukeia-Tigris and seem to have been designed especially for circulation among the Hellenized population of Babylonia. Babylonia was also intimately connected with northern Mesopotamia where *tetradrachms* struck in Antiocheia continued to be used.⁶⁷ Elsewhere, the *drachm* formed the principal unit and was now based on a lighter Attic standard of around four grams. Smaller fractions, such as *obols*, *two-obol*, and *three-obol* pieces, were also struck in silver. The great mixture of *drachms* struck in very different Arsakid mints and found in the Kuhdasht hoard in western Iran show that the circulation of silver coins was not regionalized.⁶⁸ Bronze denominations, minted especially in Susa from its Arsakid conquest onward, became a principal medium for daily transactions here and elsewhere, and typically had a regional circulation pattern. By the time of Mithradates II (121–91 BCE) a differentiated set of very small denominations, such as a *chalkous* (1/48 of a *drachm*), *hemichalkoi* (1/96 of a *drachm*) as well as *dichalkoi* (1/3 of an *obol*) and *tetrachalkoi* (half an *obol*), were minted.⁶⁹ This once again suggests a certain discrepancy between a monetary economy in bronze and one in silver, where a *tetradrachm* represented almost 200 to 400 times the monetary value required for transactions in bronze in everyday life. The iconography of the bronze coins expressed local religious feelings represented by deities that had meaning in different religious systems, such as Nike, Artemis, or Tyche, as well as stags, elephants, and horses. Several polities and semi-autonomous kingdoms minted their own coinages displaying several local particularities in iconography, denominations, metals, and legends together with typically Arsakid principles.⁷⁰ Countermarked Arsakid *drachms* appear on the eastern frontiers of the Arsakid Empire in the second half of the second century BCE and have been interpreted as the coins of the pastoral tribes overthrowing the Graeco-Bactrian kings in the northern parts of their empire in 140 BCE.⁷¹

From a numismatic point of view, Arsakid coinage deteriorated from the first century CE onward. While some debasement in terms of weight and silver content is notable in the previous centuries,⁷² from this point on it accelerated.⁷³ Stylistically, the portraiture on coins appears more conventional and stylized, with the iconographies of individual kings becoming almost indistinguishable. In the second century CE, the Greek legends on coins became increasingly illegible, and the image of

67 Sinisi 2018, 480.

68 Sinisi 2018, 479–480, acknowledging also arguments to the contrary.

69 Sinisi 2012, 276, 283.

70 Examples are the coinages of Elymais, Charakene, Persis, and eventually also the Indo-Parthian dynasties based in Sistan, Arachosia, and northwest India, for which Alram 1986; 1987; 1999; Fröhlich 2008; cf. Sinisi 2012, 289–290.

71 Sinisi 2012, 284.

72 Van der Spek 2014, 206.

73 Sinisi 2018, 481–484, putting debasement into a wider perspective of similar losses in weight and precious metal notable in Roman and Kushan coins in Western and Central Asia respectively.

the archer on the reverse more abstract; the mintmarks of Ekbatana, now the only imperial mint, were simplified. From a monetary point of view such deterioration may be taken as a sign of an increasing demand for coinage – probably prompted by continuous warfare and internal power struggles – and a greater acceptability of coins at their face value. Already two hundred years earlier, the volume and frequency of the production of Arsakid coinage were phenomenal by Hellenistic standards.⁷⁴ Both the high demand for coinage and the subsequent effect of large amounts of new coinage put into circulation are likely to have increased monetization in the Arsakid Empire both in terms of regional spread and in terms of social penetration. Unfortunately, evidence for the details of both these developments is not available, but the development of Arsakid coinage is a sufficient indicator of monetary development, not decline, in the context of the many political and dynastic crises during the last two centuries of Arsakid rule in Asia.

There had developed highly advanced monetary economies both in Greek *poleis* and in Babylonia in pre-Hellenistic periods, indicated by monetary tax farming, monetary tenancy agreements, interest-bearing loans, giro-transfer of money, and deposit banking.⁷⁵ Such monetary operations indicate that money was not just a medium of payment and exchange but an instrument of profit-making and investment. Their development under the Arsakids is therefore above all an indication of institutional continuities within imperial subregions, so typical for the Arsakid period. There were, however, also real monetary innovations during the Arsakid period. First, the introduction of the *drachm* as the main unit of silver coinage, which was useful for transactions at an intermediary level of value and probably indicative of growing degrees of regional monetization and monetary payments. Second, in combination with the eastward gravitation of the Arsakid political and cultural orientation, there was a larger number of mints in the eastern Iranian regions and beyond. If the circulation of these coinages across the empire is accepted, this suggests not only greater monetization of the eastern regions but also their greater economic integration into the Arsakid commonwealth. Finally, the policy of minting Seleukid *tetradrachms* where they had circulated previously shows an interest in maintaining the Mesopotamian monetary network, which was particularly important for trade with the Syrian and the northern Iranian borderlands where also Seleukid *tetradrachms* circulated.

IV Physical Infrastructures

IV.1 Irrigation and Settlement

Due to the fertility of agricultural land and irrigated plains, the most densely populated areas in the Arsakid period were Mesopotamia and the regions across the west-

⁷⁴ Sinisi 2012, 284.

⁷⁵ Jursa 2006; and Weaverdyck and Fabian, ch. 8.A, III.1. 4, this volume

ern and eastern parts of the rivers Euphrates and Tigris.⁷⁶ Regional realignments, however, occurred sometime during the Seleukid and Arsakid periods, which saw the rise of the northern Diyala region in the vicinity of Seleukeia-Ktesiphon, supported by massive expansions of irrigation infrastructure in the region.⁷⁷ But even beyond the heartland of Mesopotamia, there was investment in irrigation infrastructure. Surveys in the Dehlorān, Susiana, and Khūzestān plains (largely belonging to the semi-autonomous region of Elymais) have shown that the region was supplied by water through both canal systems and *qanat* networks.⁷⁸ This type of irrigation and its expansion of arable land contributed to the population density of the city of Susa (refounded as Seleukeia-Eulaios in the Seleukid period) and the number of settlements in the region. In the central Zagros region, also dominated by Elymais, 340 sites with Arsakid occupation have been recorded, suggesting that local food production, and possibly commercial exchange, flourished.⁷⁹

Unlike the chronologically imprecise Babylonian evidence, the archaeology of Susa/Seleukeia-Eulaios shows that the prosperity of the city increased under the Arsakids.⁸⁰ From the second century BCE onward, residential quarters expanded, and public buildings were enlarged or renewed. Large numbers of graves attest to greater population density in Arsakid Susa. The immediate hinterland of Susa corroborates the picture. Surveys have brought to light an increase in sites and major improvements of the irrigation network.⁸¹ Such improvement was particularly effective in relation to marginal land that developed even more dramatically than the Susiana central plain in the Arsakid period.⁸²

Two honorific epigrams help to understand how agrarian development and urban growth evolved in the particular context of the city and its relationship with the Arsakid court.⁸³ Seleukeia-Eulaios had been organized as a typically Greek-style city under the Seleukids and continued to operate as such under the Arsakids. It had a body of registered citizens (*politai*), two eponymous top magistrates (*archai*), procedures for scrutinizing magistrates (*dokimasia*), and some statutes (*diegoreumena*) regulating elections. In addition, it was the seat of a *strategos* and military guards (*phrouroi*) stationed on its acropolis.⁸⁴ Seleukeia-Eulaios was the seat of a royal mint, and in 31/30 BCE, the city was officially refounded as Phraata-in-Susa

76 Adams 1965; 1981.

77 Further chronological precision is, unfortunately, not possible on the basis of this work. See Adams 1981, 192–200; see also Wilkinson and Rayne 2010, 121–122.

78 Wenke 1975, 150.

79 Hauser 2013, 735.

80 Martinez-Sève 2015 for the following.

81 Martinez-Sève 2015 with Wenke 1975, 115–131.

82 Neely and Wright 1994, with Adams 1965.

83 Martinez-Sève 2015; Potts 1989.

84 Rougement 2012, no. 3, 11–12 with discussion of these various posts.

by Phraates IV (38–2 BCE). This was a typical diplomatic act that made Susa part of a royal topography from which both city and court profited.

The king, while not interfering with the selection of Phraata's magistrates, had the authority to respond to legal appeals in political matters. In 21/22 CE, a treasurer called Histiaios, son of Asios, had been reelected to the office of treasurer before the time permitted by the statutes of the city. The matter was brought before the king, as not all citizens seem to have approved of this irregular procedure. Yet the king responded officially that Histiaios had proved himself worthy of an exception. He had always been a servant of the city, spent much money during his service, and willingly taken over diplomatic journeys that were surely costly. Apart from his personal merits, he was *ex officio* a distinguished member of the imperial court, carrying the court titles of 'most honored friend' and 'bodyguard' of the king.⁸⁵ He was also a member of a distinguished local family. His father, Asios, paid for the public inscription of the royal letter to his and the erection of a statue placed next to it. The relationship between city and king followed a typical pattern that we can also observe in Arsakid Dura and numerous other cities from the late Hellenistic period onward. The cities enjoyed a high degree of autonomy in their own affairs, controlling their internal politics, magistrates, and finances themselves. They had to accept garrisons, but these seem to have been cooperative as long as the cities remained faithful to the king. The kings entertained relationships with the city governments, while the authority structures of the city were enhanced by the authority of the imperial court. Such connections were vital for the cities' self-representation, power politics, and prosperity, as well as the incentives for individuals to serve the city.

Thus, in the early first century CE, a certain Zamaspes was honored with a bronze statue and two epigrams – one by the citizens of Phraata, one by the garrison soldiers – for having conformed to the spirit of the divine Phraates, ruler of the universe, and for having proved himself a lover of his city by conducting irrigation work for the great benefit of the city. He had increased the output of the Gondeisos (an unidentified river) by some diversion canals, which had enabled the irrigation of abandoned fields, including those belonging to the soldiers. Zamaspes had acted on behalf of fortunate Tiridates, at that time *strategos* of the city.⁸⁶ Eventually, Zamaspes was appointed *strategos* himself.⁸⁷

The example of Zamaspes shows the combined local and central involvement in infrastructural improvements of urban hinterlands under the Arsakids, a question so often posed in alternative terms.⁸⁸ Initiative, planning, and execution of such work were local; centrally appointed engineers would have lacked the knowledge

⁸⁵ Merkelbach 2002; Taasob, ch. 3.B, this volume, for these titles.

⁸⁶ Potts 1989, 328–329.

⁸⁷ Rougement 2012, no. 11–12 with commentary.

⁸⁸ Hauser 2013, 735; Wenke 1987 applying the Wittfogel model of centralized government and irrigation control, for which Manning 2010, 36–41.

of the territory and the insight into the measures required to improve infrastructure and output. In the case of the Arsakid Empire, the imperial court does not appear to have financed local projects directly, nor do we have any evidence that there were land development schemes similar to those of the Seleukids and Ptolemies.⁸⁹ Yet the structure of imperial relationships and the incentives they provided were crucial to the local projects. Arsakid Susa offers unique insights into these processes, but it is unlikely that they were unique.

IV.2 Roads and Transportation

In the Achaemenid period, a network of roads, described in the Greek tradition as ‘royal roads’ (*basilikai hodoi*) stretched across the empire.⁹⁰ One of the main routes led from Ekbatana southward, ultimately reaching the Persian Gulf; another led from Anatolia via Babylonia to Susa and Persepolis, where it swung eastward toward northwest India.⁹¹ These roads and secondary arteries allowed the quick movement of troops and workers, as well as enabling the royal family and high-ranking administrators to fulfil their ritual tasks.⁹² Additionally, so-called court pavilions associated with court life and scattered across the Achaemenid space were nodes in the Achaemenid administrative grid just like the many storage centers and other facilities mentioned in the textual sources.⁹³ Concrete details about how movement across this network was administered are preserved in the Persepolis Fortification Texts.⁹⁴ Kosmin has shown how the Seleukids appropriated the system of way stations and royal roads in principle, but directed their orientation and purpose to their own territorial and military needs. The arteries of travel most frequently mentioned extended from Babylon to Antiocheia-Orontes in northern Syria, and from there to Sardis and the coastal cities of Asia Minor. Another well-frequented route went from Seleukeia-Tigris to Ekbatana, but not much farther.⁹⁵

The Arsakids took over the Achaemenid-Seleukid concept of such roads supplied with way stations and wells but once again created their own network of connections based on new imperial geographies. Isidoros of Charax in his *Stathmoi Parthikoi* described the major one. The short treatise was probably part of a fuller, now lost *Periegesis tes Parthias* (“Travel around Parthia”), in which the geographical features of the empire were described more generally.⁹⁶ The route led from Zeug-

⁸⁹ Weaverdyck and Fabian, ch. 8.A; von Reden, ch. 12.A, this volume.

⁹⁰ Hdt. 5. 52–3; Briant 2012.

⁹¹ Potts 2008, 275–300; Henkelman 2013, 529.

⁹² Graf 1994; Briant (1996) 2002, 358; Silverstein 2007, 12–17.

⁹³ Henkelman 2013, 529.

⁹⁴ Tulpin 1998; Briant (1996) 2002, 377; 2012.

⁹⁵ Kosmin 2014, 168–169, 183–211.

⁹⁶ Hartmann 2018 for this and the following.

ma on the Upper Euphrates via Seleukeia-Tigris/Ktesiphon, Ekbatana, Ragae and Nisa to Antiocheia-Margiana, and from there southward to Alexandria-Aria (Herat), through then semi-autonomous Indo-Parthian territory, until it reached Alexandria-Arachosia.⁹⁷ Isidoros was interested in the administrative geography of the empire, its geographical markers, and imperial sites such as forts, treasure houses, and palaces, which he occasionally briefly describes. He mentions fortresses (*ochyromata*) on the western border to the Roman Empire, storehouses, and a building in Ekbatana where the royal harem lived. The long route and its capillaries served the movement of troops, as well as the travel of courtiers and couriers, as it had done in the Achaemenid and Seleukid past.⁹⁸ Parallel to earlier examples, the royal administration (either centrally or locally) was likely in charge of the waystations, supplying water, food, and animals, and may have provided some protection along the way. Possibly, travel along the route required some permission and fee, as was the case on the roads through the deserts in Egypt.⁹⁹ It was surely open to any traveler and merchants, but it was an imperial road of communication and travel, not designed as a trade route.¹⁰⁰ It is also not clear to what extent individual sections of the route were used in the period under study in this volume.¹⁰¹

The direction of trade routes followed a different logic. They were not dependent on administrative geographies nor guided by imperial interests, but straddled the boundaries between various political powers in the attempt to take advantage of anything that worked in their favor. The merchants travelling along those roads did not receive support from an imperial government, but rather used their own networks of support. Thus the Graeco-Roman geographer Strabo (late first century BCE) writes:

The route for those travelling as merchants (*emporeuomenoi*) from Syria to Seleukeia and Babylon runs through the country of the *skenitai*, now called Malians by some writers, and through the desert. Such travelers cross the Euphrates near Anthemusia, a place in Mesopotamia; and at the river, at the distance of four *schoinai* lies Bambyke, which is also called Edessa and Hierapolis, where the Syrian goddess Atargatis is worshipped. For after they cross the river, the road runs through the desert to Skenai, a noteworthy city situated on a canal towards the borders of Babylonia. The journey from the crossing of the river to Skenai requires twenty-five days. And on that road are camel drivers who keep stop-over places which sometimes are well supplied with reservoirs, generally cisterns, though sometimes the camel drivers use water brought in from other places. The *skenitai* are peaceful and moderate towards travelers in the exaction of tribute, and therefore merchants avoid the land along the river and risk the journey through the

⁹⁷ Hartmann 2018, map 1 for this route.

⁹⁸ Silverstein 2007, 9–28; Hartmann 2018, 449 n. 18.

⁹⁹ Hartmann 2018, 450.

¹⁰⁰ Morris, ch. 13, V.2.2, this volume, for the military and fiscal purposes of forts and fortresses along ‘royal roads.’ Kosmin 2014 for the Seleukid road system as part of territorial politics. We have no comparable evidence that would support similar politics under the Arsakids. For forms of cultural cohesion, Canepa 2018.

¹⁰¹ For discussion, Morris, ch. 13, V.1, this volume.

desert, leaving the river on the right for approximately a three days' journey. For the local chiefs (*phularchoi*) who live along the river on both sides occupy the country, which though not rich in resources, is less resourceless than that of others, and are interested in their own personal power (*dynasteia*), and tribute of no moderate amount. For it is hard among so many peoples, and too many of them acting in their own interest, for a common standard of tribute to be set that is advantageous to the merchants.¹⁰²

Not only does this passage describe the independence of tribute payments and protection costs from any central Arsakid control. It also shows how traders navigated different local systems, each deriving profit from the transit trade in their own ways. An empire that would set standards for the beneficial treatment of merchants would have been desirable, but such standards were not available in this part of the world.

The Palmyrene caravan inscriptions of the second and third centuries CE offer further insights into how trade routes operated beyond imperial control. The routes emerging from the texts resemble parts of the sections that Strabo also describes. Yet from the mid-second century, Palmyrenes traveled to Vologaesias (a foundation of Vologaeses I) rather than Seleukeia-Ktesiphon and Babylon on their way downriver. From there, the goods traveled to Spasinou Charax, a foundation of Alexander but refounded several times under different kings and with different names.¹⁰³ As Hartmann has argued, the journey upriver from Spasinou Charax to the Upper Euphrates was not part of the caravan route, but trade was conducted through the river Tigris via the King's canal into the Euphrates up to the city of Hit, where the cargo was loaded onto camels to pass through the desert to Palmyra. Then, it was distributed further to the Syrian coastal cities and into the Mediterranean.¹⁰⁴

Palmyrene camel drivers and merchants ensured safe travel through a network of stations and stopovers along the routes.¹⁰⁵ There is a considerable network of Palmyrenes attested in the cities along the routes from Syria to the Persian Gulf and beyond, concentrating in the first century CE in Babylon and Seleukeia, and in subsequent decades in Vologaesias, Spasinou Charax and Forat.¹⁰⁶ None of this suggests direct imperial intervention into or protection of the trade, although the trade benefited considerably from urban consumption, urban infrastructures, and the imperial mint policy of the Arsakid kings.

102 Strabo 16. 1. 27 trans. Jones with minor adaptations; see also Cameron 2019, 145–152, 237–238 for this passage.

103 First by Antiochus V (173–161 BCE) and then by Hyspaosines, the first king of Charakene, when Charakene became a vassal kingdom of the Arsakid Empire.

104 Hartmann 2018, 451 also for the following.

105 Young 2001, 136–184; Sommer 2016 for the special mechanisms of protection; Seland 2016, 78–79 for Palmyrene networks beyond Mesopotamia.

106 Hartmann 2018, 452; Seland 2016, 78–79 for Palmyrenes in the Persian Gulf and the Red Sea.

V Contractual Law and Property Rights

As in the Hellenistic and Roman Empires, there continued to co-exist several legal traditions in the empire of the Arsakids.¹⁰⁷ Already under the Seleukid kings, Greek, Babylonian, and Iranian legal traditions existed side by side and offered various possibilities for individuals to regulate their family and economic affairs. As in Ptolemaic Egypt, moreover, the language used to draw up the contract, rather than the ethnic or family background of the contractual partners, determined which legal system applied.¹⁰⁸ Contracts in Greek, and thus Greek legal practice, seem to have prevailed, as they offered the best opportunities for the wronged party to assert their rights.¹⁰⁹ Yet while extant contracts appear at first glance to be recognizably Greek or Babylonian, they contain significant particularities that show their development in a multicultural environment in which the entanglement of different traditions created something new.

Our knowledge of legal practice once again is based on a few extant examples. First of all, *P. Dura*. 18 and 19 evince two *basilikoi dikastai* ('royal judges') and an *eisagogeus*, a royal magistrate who brought actions to the court.¹¹⁰ Both indicates that the Hellenistic institution of royal courts continued to exist in the Arsakid period. In the Dura parchments, these judges carry Greek names, and the fact that they appear as witnesses rather than in their function as judges suggests that they were members of the local Greek-speaking elite rather than royal officials sent from the Arsakid court. Another indication of royal interference into local legal affairs is a letter (notably in Greek) addressed by one Artabanos to the citizens of Susa. Although this did not concern a private conflict, the letter shows that the Arsakids continued the practice, well attested in the Achaemenid and Seleukid period, of formally responding to legal appeals addressed by cities and individuals to the king.¹¹¹ Such responses might have constituted king's law. Another Seleukid institution attested in the Dura papyri is the *chrematisterion* ('record office') for the safe-keeping of contracts.¹¹² Royal ordinances, however, are not known from the Arsakid period, which does not mean that they did not exist.

107 For Iranian traditions, best attested in Sasanian sources but clearly present in Arsakid times as well, see especially Perkhmanian 1983.

108 Van der Spek 1995, 175–176; also Weaverdyck and Fabian, ch. 8.A, IV.2, this volume.

109 Van der Spek 1995, 175–176.

110 Weaverdyck and Fabian, ch. 8.A, V.1.1, this volume.

111 Capdetray 2007, 436–438 for both these roles of the Seleukid kings and their Achaemenid precedents.

112 *P. Dura* 20, l. 19.

V.1 The Avroman Parchments

Three contracts preserved as the so-called Avroman parchments constitute some of the most interesting pieces of evidence. These parchments, kept in a jar, were a chance find in a cave in the Zagros Mountains in the district of ancient Media Atropatene between Seleukeia-Tigris (called Ktesiphon at that time) and Ekbatana (in present day Kurdistan).¹¹³ The first of the three contracts is dated to November 24 BCE, the second to 43/44 CE, and the third to about December 52 CE. The first two are written in Greek and the third in Parthian. The contractual partners all bear Iranian names, and so do the majority of other individuals mentioned. The scribes of the two Greek contracts were very familiar with the Greek language and script, although the contracts are poorly presented. It is most likely that they were drawn up between Parthian-speaking partners using Greek scribes for their business.¹¹⁴ All three contracts concern the conveyance of pieces of formerly royal land.

Contracts I and II are typical double documents (one version open, one sealed), a practice known from Greek and other parallels. Potts suggests that in the region of Media-Atropatene the influence was most likely Assyro-Babylonian rather than Greek.¹¹⁵ But there is no reason to make this detour. This was a contract written in Greek, thus following Greek practice, even if this practice crossed over with other legal traditions. In the Avroman documents the Greek contractual form had developed further inasmuch as the open version did not fully agree with the sealed one.¹¹⁶ There are both formal and substantial discrepancies between the two versions, even the critically important detail of the price paid for the land.¹¹⁷ In contrast to the Greek practice, moreover, there does not seem to have been the requirement of storing one copy in a *chrematisterion*, as was required in Arsakid Dura. Otherwise, the Greek documents superficially look like Greek six-witness contracts. They start with the royal dating formula followed by the substance of the agreement, an eviction clause, a penalty clause, and a list of witnesses. But amid a number of confusions and obvious errors in these rather rough drafts, there are conceptual deviations from what may be regarded as typically Greek contracts for the sale of land. The Parthian contract, not drafted in duplicate form and not containing the

113 Wiesehöfer vol. 1, ch. 11, 484–485; Minns 1915 for first addition; Luther 2018 for the new dating of the three parchments.

114 Potts 2017, 353 for discussion. The proximity in date of the second contract in the Avroman parchments, in Greek, and the third, in Parthian, does not justify the conclusion that the language of notaries in the Parthian Empire had switched from Greek to Parthian in the first century CE (see, e.g., Wiesehöfer 2015, 315). Although the use of Parthian might have become more common in the first century, its use in contracts will still have been a deliberate choice.

115 Potts 2017, 351.

116 Accessible only in contract I. In contract II the sealed version cannot be broken without damaging the parchment; the third contract of the series was not drawn up as a double document.

117 Minns 1915, 49.

full royal dating formula, is also supported by six witnesses, but it is much shorter than the Greek versions. No right of eviction is mentioned, and no penalty in case of breach of contract stipulated. The partners simply confirm that “they swore together, before the witnesses, that there should be no accusation.”¹¹⁸ As suggested above, the chance of the wronged party to assert their rights was much more limited in non-Greek contracts.

The two Greek contracts are related and concern the sale of different parts of the same plot. In the first, two brothers, Barakes and Sobenes, acknowledge receipt of 30 *drachms* from Gathakes for a vineyard situated in the village of Kopanis and known as Dadbakanras. In the second, another individual, Aspomakes, acknowledges receipt of 55 *drachms* from Denes, son of Gathakes, for another part of what was probably the same vineyard situated also in Kopanis and called Dadbakabag.¹¹⁹ In the Parthian contract, Pätspär receives 65 *drachms* from Awil, who becomes “co-owner” of half of the vineyard called Asmak, situated within some “waste” or “plough” land.¹²⁰ Most striking in all three documents is the nature of the rights transferred by the former landholders to the new owner upon receipt of the purchase sum. In all three cases, these rights were encumbered by particular obligations, despite the fact that the plots were sold in perpetuity, a price had been paid for them, and no one ever was permitted to dispossess the new owners or their descendants of the acquired land. Yet the buyers and the former owners agree to jointly pay certain annual duties in cash and in kind, as set out in some “old agreement” (*gegrammena palaia*). At the same time, the buyers were obliged not to neglect the vineyard and keep it in good order. Additionally, contract I contains regulations about the share of water rights vis-à-vis certain co-possessors (*sunkleroi*).¹²¹ Breach of the contract was punished with high penalties for both parties. If any of the agreements were broken, double the purchase price plus 200 *drachms* had to be paid to the wronged party, plus further 200 *drachms* to the royal treasury.

Despite a number of uncertainties concerning individual clauses, the nature of the contracts can well be explained through parallels known from the Seleukid and other parts of the Arsakid Empires. There were some types of land that in times past had been granted by a king to certain individuals, soldiers, or temples as emphyteutic leaseholds.¹²² Such land was encumbered with the obligation that it was cultivat-

118 Haruta 2001 for the translation.

119 Possibly another rendition of the same name. It is uncertain whether this was another part of the same vineyard belonging to the two brothers or two separate ones. Minns (1915) suggests that they were two parts of the same plot, of which Sobones sold his part while Barakes retained his share until it was sold 60 years later to Gathakes’s son Denes.

120 Livshits 2010; Haruta 2001 for slightly different translations; the meaning of the term translated as either ‘as brothers’ or ‘co-owners’ is controversial; see also Potts 2017.

121 Minns 1915; a good summary of the meaning of each clause is given by van der Spek 2014, 217–219.

122 *P. Dura* 25, 180 CE. Van der Spek 2014, 218 also for the following.

ed and that a tithe was paid to the king. The land was divided into plots, which the recipients possessed in perpetuity. The grants also foresaw from the beginning that the parcels could be sold and, once sold, be possessed by the new owner in perpetuity.¹²³ This conveyance was then a transfer of possession rather than full ownership, and the obligations attached to the land were transferred to the new owner. The kings maintained their claims on these lands in perpetuity, repeated the grants and the obligations attached to them at times. They also continued to play a role in their conveyance, for example, by taking a share in the (high) penalties to be paid if the terms of the grant were not respected by any of the parties involved in the conveyance. The royal grants had introduced a new type of landholding in the local agrarian systems, which required new contractual formulations to be inserted into old contractual forms. The fact that this type of landholding is attested in places as far apart as Dura, Avroman, and Nisa shows its importance across the Arsakid Empire and the widespread need to adapt contractual law to it.

It has been argued that in pre-Seleukid Babylonia, full property rights in land were known and transferred. We also know from Seleukid western Asia that the Seleukids maintained private property rights in the context of cities that held the rights over land subject to tax. The conveyance of royal land held in emphyteutic lease was a step in the direction of its privatization. The ability to mold the obligations attached to the land into contractual forms helped to stabilize evolving conceptions of ownership. In their capacity to reduce uncertainty concerning future obligations, as well as the threat of eviction, the buyer could assert his rights vis-à-vis third parties. At the same time, the vendor was protected against arbitrary prosecution by formally agreeing to the partition of the duties attached to the land. And finally, by imposing high penalties in case of poor cultivation, these contracts helped to maintain the productivity of the land as well as its fiscal and market value. Safer contractual forms, royal juridical infrastructures, and safer property rights were institutional improvements that enhanced the economic potential of the Arsakid agrarian economy. Yet these institutional improvements only played out in combination with the long-term authority of the kings over this kind of land.

VI Conclusion

Fiscal regime and coin politics under the Arsakids show a great degree of continuity, but also change and transformation in the course of the 470 years of their rule. Despite considerable mint activity and some notable state policy in the production

¹²³ A grant of this kind by Antiochos II to the “Babylonians, Borsippaeans, and Cuthaeans” is preserved in the cuneiform *Lehmann Text*, for which Wallenfels and van der Spek 2014; for similar conveyances of such emphyteutic lease holds the *P. Dura* 25 and 26 from 180 and 227 CE respectively.

of particular coinages, state power in general seems to have been much weaker than in the Seleukid period. As a result, local practices re-emerged, while overarching fiscal or monetary structures become much harder to discern.

The evidence of physical and legal infrastructure also supports the model of imperial localization. Cities and local economies seem to have benefited from the continuity of some central royal institutions, an imperial symbolic system, and relatively weak imperial interference. There were imperial diplomatic relationships, physical infrastructures, and means of communication that facilitated and encouraged economic activity, be that at the level of trade, agriculture, or tax collection.¹²⁴ Yet Arsakid imperial influence on such developments seems to have been quite indirect, and economic initiative above all local. This may explain the continued prosperity that was sustained in the Arsakid Empire even when the dynasty was riddled with internal dynastic conflicts and crises. The incentive structures inherited from imperial pasts allowed local infrastructures to develop and to expand.

References

- Adams, R. M. 1965. *Land behind Baghdad: A history of settlement on the Diyala plains*. Chicago, IL: University of Chicago Press.
- . 1981. *Heartland of cities: Surveys of ancient settlement and land use on the central flood plain of the Euphrates*. Chicago: University of Chicago Press.
- Aram, M. 1986. "Arsacids iii. Arsacid coinage." In *Encyclopaedia Iranica*. Vol. 2.5, 536–540. Available online at <http://www.iranicaonline.org/articles/arsacids-iii>.
- . 1987. *Die Vorbildwirkung der arsakidischen Münzprägung*. Vienna: Österreichische Akademie der Wissenschaften.
- . 1999. "Indo-Parthian and early Kushan chronology: The numismatic evidence." In M. Aram, D. Klimburg-Salter (eds.), *Coins, art and chronology. Essays on the pre-Islamic history of the Indo-Iranian borderlands*, 19–48. Vienna: Österreichische Akademie der Wissenschaften.
- Aperghis, G. G. 2004. *The Seleukid royal economy: The finances and financial administration of the Seleukid Empire*. Cambridge: Cambridge University Press.
- Briant, P. (1996) 2002. *From Cyrus to Alexander: A history of the Persian Empire*. P. T. Daniels (trans.). Winona Lake, IN: Eisenbrauns. Originally published as *Histoire de l'Empire perse: De Cyrus à Alexandre*.
- . 2012. "From the Indus to the Mediterranean: The administrative organization and logistics of the great roads of the Achaemenid Empire." In S. E. Alcock, J. Bodel, and R. J. A. Talbert (eds.), *Highways, byways, and road systems in the pre-modern world*, 185–201, Malden, MA: Blackwell.
- Caley, E. R. 1955. *Chemical composition of Parthian coins*. New York, NY: American Numismatic Society.
- Cameron, H. 2019. *Making Mesopotamia: Geography and empire in a Roman-Iranian borderland*. Leiden: Brill.

¹²⁴ See Fabian and Weaverdyck, ch. 3.A; von Reden, ch. 12.A; and Fabian, ch. 12.B, this volume.

- Canepa, M. P. 2018. *The Iranian expanse: Transforming royal identity through architecture, landscape, and the built environment, 550 BCE–642 CE*. Oakland, CA: University of California Press.
- Capdetray, L. 2007. *Le pouvoir séleucide: Territoire, administration, finances d'un royaume hellénistique (312–129 avant J.-C.)*. Rennes: Presses Universitaires de Rennes.
- De Callataÿ, F. 2012. "Royal Hellenistic coinages: From Alexander to Mithradates." In W. F. Metcalf (ed.), *The Oxford handbook of Greek and Roman coinage*, 175–191. Oxford: Oxford University Press.
- Diakonoff, I. M. and V. A. Livshits. 1977. *Corpus inscriptionum iranicarum*. Part 2. Vol. 2.1, *Parthian Economic Documents from Nisa*. London: School of Oriental and Asian Studies.
- Duyrat, F. 2015. "The circulation of coins in Syria and Mesopotamia in the sixth to first centuries BC." In R. J. van der Spek, B. van Leeuwen, and J. L. van Zanden (eds.), *A history of market performance. From Babylonia to the modern world*, 363–395. London: Routledge.
- Fröhlich, C. 2008. *Monnaies indo-scythes et indo-parthes du département des Monnaies, Médailles et Antiques. Catalogue raisonné*. Paris: Bibliothèque Nationale de France.
- Goodblatt, D. M. 1979. "The poll tax in Sasanian Babylonia: The Talmudic evidence." *Journal of the Economic and Social History of the Orient* 22, 233–295.
- Graf, D. F. 1994. "The Persian royal road system." In H. Sancisi-Weerdenburg, A. Kuhrt, and M. C. Root (eds.), *Achaemenid history*. Vol. 8, 167–189. Leiden: Nederlands Instituut voor het Nabije Oosten.
- . 2018. "The Silk Road between China and Syria." In A. Wilson and A. Bowman (eds.), *Trade, commerce and the state in the Roman world*, 443–531. Oxford: Oxford University Press.
- Hackl, U., B. Jacobs, and D. Weber, eds. 2010. *Quellen zur Geschichte des Partherreiches: Textsammlung mit Übersetzungen und Kommentaren*. 3 vols. Göttingen: Vandenhoeck & Ruprecht.
- Hartmann, U. 2018. "Wege durch Parthien – Straßen, Handelsrouten und Kommunikation im Arsakidenreich." In B. Woytek (ed.), *Infrastructure and distribution in ancient economies*, 28–31. Vienna: Österreichische Akademie der Wissenschaften.
- Haruta, S. 2001. "A new translation of the Avroman parchment no. 3 (British Library Or. 8115)." *Bulletin of the Society for Near Eastern Studies in Japan* 44.2, 17–36.
- Hauser, S. R. 2006. "Was there no paid standing army? A fresh look on military and political institutions in the Arsacid Empire." In M. Mode and J. Tubach (eds.), *Arms and armour as indicators of cultural transfer: The steppes and the ancient world from Hellenistic times to the early Middle Ages*, 295–320. Wiesbaden: Reichert.
- . 2013. "The Arsacids (Parthians)." In D. T. Potts (ed.), *The Oxford handbook of ancient Iran*, 728–750. Oxford: Oxford University Press.
- Henkelman, W. F. M. 2013. "Administrative realities: The Persepolis Archives and the archaeology of the Achaemenid heartland." In D. T. Potts (ed.), *The Oxford handbook of ancient Iran*, 528–546. Oxford: Oxford University Press.
- Houghton, A. 2004. "Seleucid coinage and the monetary policy of the 2nd c. BC: Reflections on the monetization of the Seleucid economy." *Topoi Orient-Occident* Suppl. 6, 49–79.
- . 2012. "The Seleucids." In W. E. Metcalf (ed.), *The Oxford handbook of Greek and Roman coinage*, 235–294. Oxford: Oxford University Press.
- Jursa, M. 2006. "Agricultural management, tax farming and banking: Aspects of entrepreneurial activity in Babylonia in the late Achaemenid and Hellenistic periods." In P. Briant and F. Joannès (eds.), *La transition entre l'empire achéménide et les royaumes hellénistiques (vers 350–300 av. J.-C.)*, 137–222. Paris: De Boccard.
- Kosmin, P. 2014. *The land of the elephant kings: Space, territory and ideology in the Seleucid empire*. Cambridge, MA: Harvard University Press.

- Livshits, V. A. 2006. "Three new ostraca documents from Old Nisa." In M. Compareti, P. Raffetta, and G. Scarica (eds.), *Ērān ud Anērān. Studies presented to Boris Il'ič Maršak on the occasion of his 70th birthday*, 403–406. Venice: Cafoscarina.
- . 2010. "The Avroman parchment in Parthian." *Anabasis* 1, 159–174.
- Lukonin, V. G. 1983. "Political, social and administrative institutions: Taxes and trades." In E. Yarshater (ed.), *The Cambridge history of Iran*. Vol. 3.2, 681–746. Cambridge: Cambridge University Press.
- Luther, A. 2018. "Zu den Dokumenten aus Avroman." *Gymnasium* 125, 155–177.
- Ma, J. 1999. *Antiochos III and the cities of western Asia Minor*. Oxford: Oxford University Press.
- Manning, J. G. 2010. *The last pharaohs: Egypt under the Ptolemies (305–30 BC)*. Princeton: Princeton University Press.
- Martinez-Sève, L. 2015. "Susa iv.: The Hellenistic and Parthian periods." In *Encyclopaedia Iranica*, online edition. <http://www.iranicaonline.org/articles/susa-iv-hellenistic-parthian-periods>.
- McDowell, R. H. 1935. *Coins from Seleucia on the Tigris*. Ann Arbor: University of Michigan.
- McLaughlin, R. 2010. *Rome and the distant east: Trade routes to the ancient lands of Arabia, India and China*. London: Bloomsbury.
- Merkelbach, R. 2002. "Der Brief des Artabanos an die Stadt Susa (= Seleukeia am Eulaios)." *Epigraphica Anatolia* 34, 173–177.
- Minns, E. H. 1915. "Parchments of the Parthian period from Avroman in Kurdistan." *Journal of Hellenic Studies* 35, 22–65.
- Monerie, J. 2018. *L'économie de la Babylonie à l'époque hellénistique*. Berlin: De Gruyter.
- Neely, J. A. and H. T. Wright. 1994. *Early settlement and irrigation on the Deh Luran Plain: Village and early state societies in Southwestern Iran*. Ann Arbor, MI: University of Michigan Museum of Anthropology.
- Olbrycht, M. J. 2003. "Parthia and nomads of Central Asia: Elements of steppe origin in the social and military developments of Arsacid Iran." In I. Schneider (ed.), *Militär und Staatlichkeit. Beiträge des Kolloquiums am 29. und 30. 04. 2002*, 69–109. Halle (Saale): Orientalwissenschaftliches Zentrum, Martin-Luther-Universität Halle-Wittenberg.
- . 2016. "Manpower resources and army organization in the Arsakid Empire". *Ancient Society* 46, 291–338.
- Perikhanian, A. 1983. "Iranian society and law." In E. Yarshater (ed.), *The Cambridge history of Iran*. Vol. 3.2, 627–680. Cambridge: Cambridge University Press.
- Potts, D. T. 1989. "Gundešapur and the Gondeisos." *Iranica Antiqua* 24, 323–335.
- . 2008. "The Persepolis Fortification Texts (PFTs) and the Royal Road: Another look at the Fahliyan area." In P. Briant, W. F. M. Henkelman, and M. W. Stolper (eds.), *L'archive des Fortifications de Persépolis: État des questions et perspectives de recherches*, 275–300. Paris: De Boccard.
- . 2017. "The sale and lease of vineyards in Media Atropatene." In P. S. Avetisyan and Y. H. Grekyan (eds.), *Bridging times and spaces: Festschrift in honour of Gregory E. Areshian in occasion of his 65th birthday*, 349–365. Oxford: Archaeopress.
- Rostovtzeff, M. 1932. *Caravan cities*. Oxford: Clarendon Press.
- . 1941. *Social and economic history of the Hellenistic world*. 3 vols. Oxford: Clarendon Press.
- Rougement, G. 2012. *Corpus inscriptionum iranicae*. Vol. 1, *Inscriptions in non-Iranian languages*. London: School of Oriental and African Studies.
- Sarkhosh-Curtis, V. 2012. "Parthian Coins: Kingship and divine glory: The Parthian Empire and its religions." In P. Wick and M. P. Zehnder (eds.), *The Parthian empire and its religions studies in the dynamics of religious diversity*, 67–81. Gutenberg: Computus.
- . 2019. "From Mithradat I (c. 171–138 BCE) to Mithradat II (c. 122/1–91 BCE): The formation of Arsacid Parthian iconography." In Y. Moradi (ed.), *Afarin Nameh: Essays on the archaeology of Iran in honour of Mehdi Rahbar*, 25–30. Tehran: The Research Institute of Cultural Heritage and Tourism.

- Schippmann, K. 1980. *Grundzüge der parthischen Geschichte*. Darmstadt: Wissenschaftliche Buchgesellschaft.
- Seland, E. H. 2016. *Ships of the desert and ships of the sea: Palmyra in the world of trade of the first three centuries CE*. Wiesbaden: Harrassowitz.
- Silverstein, A. J. 2007. *Postal systems in the pre-modern Islamic world*. Cambridge: Cambridge University Press.
- Sinisi, F. 2012. "The coinage of the Parthians." In W. E. Metcalf (ed.), *The Oxford handbook of Greek and Roman coinage*, 275–294. Oxford: Oxford University Press.
- . 2018. "Some remarks on Parthian coin production." In B. Woytek (ed.), *Infrastructure and distribution in ancient economies*, 473–496. Vienna: Österreichische Akademie der Wissenschaften.
- Sommer M. 2016. "The Venice of the sands: Palmyrene trade revisited." In J. J. Meyer, E. H. Seland, and N. Anfinset (eds.), *Palmyrena: city, hinterland and caravan trade between Orient and Occident*, 11–18. Oxford: Archaeopress.
- Tulpin, C. 1998. "The seasonal migration of Achaemenid kings: A report on old and new evidence." In M. Brosius and A. Kuhrt (eds.), *Studies in Persian history: Essays in memory of David M. Lewis*, 63–114. Leiden: Nederlands Instituut voor het Nabije Oosten.
- van der Spek, R. J. 1985. "The Babylonian temple during the Macedonian and Parthian domination." *Bibliotheca Orientalis* 42, 541–562.
- . 1995. "Ownership in Babylonian cuneiform archives." In M. J. Geller and H. Maeler (eds.), *Legal documents of the Hellenistic world*, 173–245. London: Warburg Institute.
- . 1998. "Cuneiform documents on Parthian history: The Rahimesu Archive materials for the study of the standard of living." In J. Wiesehöfer (ed.), *Das Partherreich und seine Zeugnisse / The Arsacid Empire: Sources and documentation*, 205–258. Stuttgart: Franz Steiner.
- . 2004. "Palace, temple and market in Seleucid Babylonia." In V. Chankowski and F. Duyrat (eds.) *Le roi et l'économie. Autonomies locales et structures royales dans l'économie de l'empire séleucide*, 303–332. Paris: De Boccard.
- . 2007. "The Hellenistic Near East." In W. Scheidel, I. Morris, and R. Saller (eds.), *The Cambridge economic history of the Greco-Roman world*, 409–433. Cambridge: Cambridge University Press.
- . 2014. "Factor markets in Hellenistic and Parthian Babylonia (331 BCE–224 CE)." *Journal of the Economic and Social History of the Orient* 57, 203–230.
- . 2017. "Manûtu ša Bābili – The Babylonian subdivision of the mina." *Nouvelles assyriologiques brèves et utilitaires* 1, 33–37.
- Wallenfels, R. and R. J. van der Spek. 2014. "Copy of record of entitlement and exemptions to formerly royal lands." In I. Spar and M. Jursa (eds.), *The Ebabbar temple archive and other texts from the fourth to the first millennium BC, Text no. 148*, 213–227. Winona Lake, IN: Eisenbrauns.
- Wenke, R. J. 1975. *Imperial investment and agricultural development in Parthian and Sasanian Khuzestan: 150 BC–AD 640 Mesopotamia*. PhD diss., University of Michigan.
- . 1987. "Western Iran in the Partho-Sasanian period: The imperial transformation." In: F. Hole (ed.), *Archaeology of Western Iran: Settlement and society from pre-history to the Islam conquest*, 251–281. Washington, D.C.: Smithsonian Institute.
- Wiesehöfer, J. 2015. "Greek poleis in the Near East and their Parthian overlords." In A. Kemezis (ed.), *Urban dreams and realities in antiquity*, 328–346. Leiden: Brill.
- Wilkinson, T. J. and L. Rayne. 2010. "Hydraulic landscapes and imperial power in the Near East." *Water History* 2, 115–144.
- Young, G. 2001. *Rome's eastern trade*. London: Routledge.

Lauren Morris

9 Tools of Economic Activity from the Greek Kingdoms of Central Asia to the Kushan Empire

I Introduction

Economic actors in Bactria and Gandhāra under the Greek Kingdoms of Central Asia (the Graeco-Bactrian and Indo-Greek Kingdoms, ca. 250 BCE–10 CE) to the Kushan Empire (ca. 50–350 CE) developed and used a range of tools to facilitate their activities. For example, upper imperial elites developed fiscal regimes and prompted monetization especially through the medium of royal coinage production. Institutional frameworks for regulating transactions and resolving disputes – whether in the realms of loans, land transfer, or marriage – were cultivated through the development of increasingly codified legal systems on imperial, local, and religious bases. It was especially, but not exclusively, imperial agents who played an important role in driving the usage of certain languages, calendars, and weights and measures in the realms of their activities. Despite these changes, there is a limited sense of the development of physical transport infrastructure by states in this period, while agricultural processing, water management, and mineral extraction were still activities characterized by the use of traditional methods and technologies. Some new technologies were, however, developed in craft production. An increasing use of written documentation, especially in official contexts, and devices like split tally sticks can also be observed. This chapter looks more closely at these tools, which actors developed and utilized them, and ultimately what kinds of economic activity these tools impacted and facilitated.

II Fiscal Regimes

For all of the commanding presence imperial rulers and their inner circles hold as prolific consumers, resource extractors, and distributors of wealth in the period under study,¹ we tend to be poorly informed about the details of the fiscal regimes they operationalized – including administrative apparatuses – to generate, collect,

¹ Morris, ch. 4, II, this volume.

Note: I am appreciative to Stefan Baums, Omar Coloru, and Joe Cribb for their comments on previous versions of parts of this chapter. In developing its content, I benefited immensely from discussions with all, as well as Luca Maria Olivieri.

manage, and spend state income. Before looking more closely at our sparse patchwork of surviving evidence, we can begin with some generalizations about what to expect from it. Broadly, as tributary empires, the Greek Kingdoms and Kushan Empire were probably centrally sustained by revenue extracted from a basis of agricultural surplus production. However, this revenue was most likely drawn both in cash and in kind, and from a diverse range of internal and external sources, including rents from royally-owned land, tribute, and taxes levied in both direct and indirect manners.² More specifically, tribute may be understood a blunt levy on dominated communities which does not necessitate the imposition of an administrative apparatus, while taxation requires more in-depth local knowledge about the subjects upon which taxes are assessed.³ Taxation can be classified in different ways: as those levied on people or households, trade, or production; as fixed or variable; or as direct or indirect.⁴ Critically, tax collection in tributary empires is often most effectively managed through collaboration with local elites with varying degrees of autonomy – whether they were tax farmers in a strict sense or not – despite the tendency for such elites to siphon off resources for their personal enrichment.⁵

We are a long way from a comprehensive perspective on the fiscal regimes of the Greek Kingdoms and Kushan Empire – comparably, cases like the obscurity of tax assessment in the Seleukid Empire should temper our expectations.⁶ But ultimately, looking at the shape of fiscal regimes is also interesting because they are related to the characters of states which utilized them.⁷ Accordingly, thinking about the measures by which the Greek Kingdoms and the Kushan Empire generated and managed revenue can help us to sharpen our understanding of the logic, operation, and extent of these empires, and the ways in which they are similar as well as differ to each other.

It is important to note here that much information about administrative apparatuses would *appear* to exist within the plethora of titles accompanying the names of many officials – spanning from imperial elites to minor officeholders – manifesting in donative epigraphy from the first century BCE onwards from India to Bactria.⁸ However, the context of such inscriptions determines that we only see these figures engaging in religious activity, so their roles and positions as officials have to be assessed on the basis of their titles. Of course, this can produce interesting insights, but also has the potential to be something of a red herring, bogging one down in philological weeds – what is the origin of any specific term? How do the roles of

² On general traits and models relevant to premodern states and tributary empires, Monson and Scheidel 2015; Bang 2015; Monson forthcoming.

³ Monson forthcoming.

⁴ Monson and Scheidel 2015, 16.

⁵ Bang 2015, 550–551.

⁶ See Weaverdyck and Fabian, ch. 8.A, II.1.2, this volume.

⁷ Bang 2015.

⁸ Morris, vol. 1, ch. 9, III.5.

satraps and *kṣatrapas* change over time? What exactly is a *karalrang*? – and diverting attention away from the larger administrative apparatuses at play. These are what I focus on first below, drawing on some evidence for official titles but in reference to larger administrative structures. Then (sec. II.2), I consider the forms of revenue extracted especially in taxation and tribute contexts, the scale at which this occurred, and how this revenue might have been managed. Finally, I look at monetization as the outcome of the use of coinage as an instrument of state finance, which also came to have other functions and effects (sec. II.3).

II.1 Facilitating Extraction: Administrative Apparatuses

Three components of the administrative apparatuses utilized by the Greek Kingdoms and the Kushan Empire which made extraction possible can be drawn out here: First, there is the role of ‘traditional’ structures and environmental affordances in providing the building blocks of an administrative landscape, i.e., river valleys in areas of southern Central Asia with sedentary populations which had already developed local aristocracies. Such local elites most likely played important roles in facilitating imperial extractive regimes, particularly in the Kushan period. Second, there is the probable longstanding influence of Achaemenid administrative structures, as found in other Hellenistic kingdoms of the Near East, as well as the Arsakid Empire,⁹ although it certainly must be stated that – even with an enormous body of data to work with and a highly developed body of scholarship – the precise role and impact of Achaemenid administration in Bactria also remains subject to debate.¹⁰ Third, documentary texts relating to the Greek Kingdoms give the impression of a thicker imperial administrative apparatus than in the Kushan period. Instead, the Kushan Empire appears to have relied more on a decentralized superstructure of limited imperial officials, who must have collaborated to a large degree with local elites who ruled and governed within preexisting power structures. I will now clarify these components a little more below.

Within their *satrapal* administrative hierarchies (see Jacob’s scheme of Great, Main and Minor Satrapies during the time of Darius III),¹¹ the Achaemenids most probably built on traditional structures of the landscape in southern Central Asia. In particular, the *hyparchs* of the Achaemenids met during Alexander’s campaigns

⁹ In particular, Mairs’s discussion of administration in Bactria until the Hellenistic period (2014, 27–56) stresses patterns of retention in administrative personnel and structures between regime changes. This was especially true in the transition between Achaemenid and early Hellenistic rule, allowing for “business as usual” (Mairs 2014, 43). See also Fabian and Weaverdyck, ch. 3.A, III.1, von Reden, ch. 12.A, VI, and Taasob, ch. 3.B, I.1, this volume.

¹⁰ Compare, e.g., recent perspectives in Wu 2018; Henkelman 2018; Briant 2020. See also Morris, ch. 13, III.3, this volume.

¹¹ Jacobs 1994; 2011.

in Central Asia often appear to correspond territorially to the limits of river basins, perhaps corresponding to Jacobs's 'Minor Satrapies,'¹² and should probably be interpreted as local dynasts who exercised autonomy as well as operating in a subordinate relationship to the *satrap*.¹³ These men, as local elites, controlled territories organized around the residence on a fortified acropolis, could impose taxes in kind on the territory's farm produce, and mobilize its inhabitants into militias,¹⁴ and ultimately collaborated with imperial powers to facilitate the latter's extractive regimes. Mairs has also stressed the significant role played by these "big men" in imperial power structures.¹⁵

An Achaemenid through line of administrative structures and logic into the Hellenistic period was clear. It was the Seleukid *satrap* of Bactria, Diodotos,¹⁶ who enabled the secession of his territory by growing so powerful, and we later hear that these rebellious Greeks divided their territory into *satrapies*.¹⁷ Note, however, that the terms *satrap* and *satrapy* were polysemous and referred to different levels of power and spatial territories within Achaemenid and Hellenistic administrative hierarchies, and are thus best understood as signifying something like 'governor' and 'province' respectively.¹⁸ How much this supposedly new initiative of the independent Graeco-Bactrian kingdom had to do with preexisting Seleukid structures is not clear.¹⁹ The Seleukids had also introduced something new, which is seen even more clearly in the period of Graeco-Bactrian rule: dividing and controlling Bactria through two halves, i.e., western Bactria, with the traditional capital at Bactra (Balkh), and eastern Bactria, with a new capital at Ai Khanoum.²⁰ Perhaps following a similar phenomenon in the Seleukid Empire,²¹ Graeco-Bactrian kings may have also withdrawn financial administrative responsibility from *satraps*, establishing parallel civic-military and financial administrations separately answerable to the king himself.

Indeed, as the Seleukids replaced *satraps* with *strategoï* – originally generals, but becoming civic-military governors – the same was probably done in the Greek Kingdoms. From around the beginning of the first century CE, i.e. in the transitional period, a number of figures titled as such appear in connection with the local Apraca royal family (Bajaur?),²² who were also variously client rulers of the Indo-

12 Rapin 2018, 276.

13 Briant 2020, 39.

14 Briant 2002, 748.

15 Mairs 2014, 32–33.

16 Justinus *Epitome* of Pompeius Trogus 41. 4. 3–5.

17 Strabo 11. 11. 2.

18 Jacobs 2011.

19 They probably did not deviate substantially in shape, for which see Coloru 2009, 265.

20 Martinez-Sève 2015, 30.

21 Aperghis 2004, 290.

22 I.e., Vaga the *strategos*, brother of king Viṣuvarma (*Catalog of Kharoṣṭhī Inscriptions* 242 in Baums and Glass 2002 [CKI]; 265), the prince Iṃdravarma I later named as *strategos* (CKI 405), then

Scythians and Indo-Parthians. Lower on the rungs were *meridarchs*, governors of a smaller administrative subdivision, the *meridarchy*, which are attested only in one other Seleukid *satrapy*, that of Coele Syria.²³ Strangely, they are amply attested in donative epigraphy of Gandhāra in the period of Indo-Greek rule (all with Greek names, when the name is preserved), and afterwards in the transitional period.²⁴ The office also crept into the early Kushan period in Gandhāra: an inscription of an Oḍi king of Swat, who clearly was a client king to Kujula Kadphises, “great king, chief king of kings,” was ‘manufactured’ by the son of a *meridarch*.²⁵ All of this is very interesting, but probably no more can be said about the role of a *meridarch* than the point they were simply governors of a small administrative subdivision. To make things more complicated, though, *satraps* (Gāndhārī [G.] *kṣatrava/kṣatrapa*, loanword from O. Pers. *xšaçaṭpāvan*)²⁶ turn up in Gandhāra in this transitional period too and persist into the Kushan period, apparently referring to rule or governance of only small areas (in contrast to the importance of *satrapies* of old). If we read this term as a governing title (i.e., not just an assumed title of nobility), a certain reliquary inscription (29/30 CE, Bajaur) gives the impression that the relic-establishing *satrap* was subordinate to a *strategos* (Iṃdravarma I, ‘master of Gandhāra’).²⁷

We probably should not too militantly expect these titles to fall into a clear administrative hierarchy. However, they do give the impression of a relatively thick administrative apparatus installed under the Greek Kingdoms, as well as the incorporation of both Greeks and moreover local elites into these roles, although with a strong sense that Greeks held higher positions of power.²⁸

Comparatively, references to officials beyond the highest elite contexts most likely installed on Kushan authority – who tend to have non-Indic names even in northern India up until Mathura – are thin on the ground (although our evidence is essentially restricted to epigraphy in religious contexts). As I have mentioned elsewhere,²⁹ we primarily see titled upper imperial elites under the Kushans linked to the king’s inner circle. In Bactrian language inscriptions, they included *ambou-*

strategos and ‘master of Gandhāra’ (CKI 257, as interpreted in Baums 2012, 217, n. 37), the son of Iṃdravarma I, Aśpavarma as *strategos* (CKI 358; CKI 190), and a Viśpavarma as *strategos*, the father of prince Iṃdravarma II (CKI 241). See comments in Coloru 2009, 265.

²³ Aperghis 2004, 281. Coloru (2009, 266) suggests that this office also might have been a Seleukid-period import into Bactria.

²⁴ Of the Indo-Greek period, and all bearing Greek names, in Bajaur (CKI 552, Falk 2009a, nos. 2 and 4), in Swat, and Taxila (CKI 32; CKI 33). Examples from the transitional period are found in Dir and Bajaur with Indic names, and connected to the Apraca kings (CKI 454; CKI 265).

²⁵ CKI 249, lines 13–14, trans. Baums 2012, no. 24.

²⁶ Salomon 1974.

²⁷ CKI 257, lines 1 and 5, as interpreted in Baums 2012, 217, n. 37.

²⁸ Coloru 2009, 263; Mairs 2014, 52–53, with more hesitance.

²⁹ Morris, ch. 4, II, this volume.

kao, *hasht-walg*, and *karalrang*.³⁰ The latter office was clearly the highest, and it is later seen in the Sasanian period (MP *kanārang*) as a title given to a hereditary commander of the empire's northeastern frontier province, rather than the usual *marzbān*.³¹

Hence, *karalrangs* have come to be interpreted as frontier wardens, a 'lord of the marches' or 'margrave'³² although in practice we only them really helping to found royal temples and refresh (ritual) infrastructure at Rabatak and Surkh Kotal. However, it seems quite possible that *karalrangs* in Kushan Bactria were originally simply the highest *satrapal*-level civic-military governors of the empire, like *strategoī*. At the risk of conflating too many problematic sources, their roles were perhaps similar to Kushan upper imperial elites who are referenced in donative contexts in the vicinity of Mathura. For example, a donor of a perpetual endowment's father is *kharāsalerapati* ('chief of the army chiefs?') who also acted as *bakanapati/vakanapati* (i.e., responsible for services to the gods?).³³ Chinese standard histories also make clear references to the generals – *jiang* 將, or at least that is how they were interpreted from a Chinese perspective – who facilitated Kushan governance:

His son, Yan Gaozhen [Vima Taktu], became king in his place. He returned and defeated Tianzhu [northwestern India] and installed a general to supervise and lead it. The Yuezhi then became extremely rich.³⁴

Juandu [Shendu, roughly north India]³⁵ has several hundred other towns. An administrator is placed in each town. There are several dozen other kingdoms. Each kingdom has its own king. Although the kingdoms differ slightly, they are still called Juandu. Now they are all subject to the Yuezhi. The Yuezhi killed their kings and installed a general to govern them.³⁶

Bracey has also recently ruminated on the problem of the administration of the Kushan Empire.³⁷ Compiling and discussing the available evidence (including many titles) and its limits, he notes the heterogeneity of models across different regions and the probability of local autonomy in certain regions, but reiterates the difficulty in reconciling this all into a coherent bigger picture of the empire's structure and limits. However, I would like to stress that such heterogeneity is not a bug but a common feature of tributary empires,³⁸ and clearly a characteristic that was strong-

³⁰ See Morris, vol. 1, ch. 2, 86–87.

³¹ For *kanārang*s in the Sasanian Empire and the Kanārangiyān family under Yazdgird III, see Pourshariati 2008, 265–278. On *marzbāns*, see also Taasob, ch. 3.B, I.1, this volume.

³² Henning 1965.

³³ Interpretations of titles from Falk 2010, 78.

³⁴ *Hou Hanshu* 88.2921, trans. Hill 2015, §15.

³⁵ The term is not geographically precise here. It is described by this time as another name for Tianzhu in *Hou Hanshu* 99.2921, trans. Hill 2015, §15.

³⁶ *Hou Hanshu* 88.3166, trans. Hill 2015, §15.

³⁷ Bracey 2020, 115–132.

³⁸ As Bang (2015, 549) puts it, "in these circumstances, it is an open question as to how to delimit the state."

er in the Kushan Empire than under the Greek Kingdoms. These observations suggest the decentralized nature of the Kushan Empire, its reliance on a superstructure of limited imperial officials, its preservation of local administrative units, and its collaboration with local elites in extractive contexts.

Referring back to the *hyparchs* discussed above, a similar arrangement between local elites and empires is represented in the later (fourth–eighth century CE) part of the archives of the *khar* of Rōb in the Bactrian Documents. The *khar* was a local dynast who ruled with his relatives (the Kharagans) from a valley in the northern Hindu Kush, who however were entangled with the various extractive regimes of a number of successive empires throughout this period of Late Antiquity.³⁹ We will look further at the role of these elites in revenue collection, assessment, and management below.

Again, many more details in this system could be speculated about, but it is possible that the factors outlined above constituted the essential components of administrative apparatuses under the Greek Kingdoms and the Kushan Empire, with implications for how we conceive of their fiscal regimes more broadly.

II.2 Extracted Revenue: Forms, Scale, and Fiscal Management

Revenue extraction and fiscal management under the Greek Kingdoms built on the relatively thick administrative apparatus they operationalized.⁴⁰ Revenue was probably broadly coordinated by a *dioiketes* operating at a *satrapal* level, and an *epi ton prosodon* (controller of revenues) and/or *oikonomoi* at more regional levels. Taxes were gathered by a *logeutes* (tax collector). At least, an *epi ton prosodon*, as well as a *logeutes* are attested in the Asangorna parchment, confirming their existence in the Greek Kingdoms.⁴¹ Presumably, tax and rents on agricultural produce were at least partially extracted in kind. We have no direct evidence on this point, although to cite a comparative example, the Seleukid-period granary at Marakanda-Afrasiab – with a capacity of at least 450 tons – implies mass state extraction elsewhere in southern Central Asia in the Hellenistic period.⁴² Other taxes or tribute could be extracted in coined silver, as implied by the processing of incoming revenue documented in the Ai Khanum treasury texts.⁴³ Such revenue was probably collected in the local centers

³⁹ Discussed in Morris, ch. 4, V.2, this volume, and see especially King 2020 on the relationship between such local elites and imperial rule in Bactria in Late Antiquity. Recently, Miyamoto (2019) has also considered the units of administrative geography of the region as represented by these documents, suggesting that the *khar* controlled the *shahro* (city/region), while the Kharagan local aristocracy ran the unit of *lizo* (fortress).

⁴⁰ Consult also the discussion in Mairs (2014, 46–54) which follows the contours of the available evidence.

⁴¹ Rea, Senior, and Hollis 1994; Bernard and Rapin 1994.

⁴² For the granary, see Baratin and Martinez-Sève 2013, and Morris, ch. 4, VII.1.1.

⁴³ For these texts, Rapin and Grenet 1983; Rougemont 2012.

of administrative districts before it was transferred to the royal treasury. Here, it was documented as incoming, checked, and sealed in round sums – 500 *drachms* or 10,000 *kārṣāpaṇas* – by officials bearing both Greek and local names. Another official in the treasury, a *dokimastes*, appears to have verified the legal tender of incoming coin.⁴⁴

Presumably, such documents with standardized figures speak to a regular context of extraction (taxation), but it is not possible to be certain – the *kārṣāpaṇas* could well constitute consolidated and processed tribute captured from treasuries in northwest India during Eukratides I's campaigns into the region (see further below). Although we should be cautious in attributing too much weight to an incomplete dataset, it seems that silver from northwest India (from Taxila, Gandhāra?) was being consolidated at a far higher rate than Bactrian *drachm*-using territories. Even after adjusting the value of the *kārṣāpaṇas* – probably being silver debased with copper, judging from the find of a mint-fresh hoard of such in Ai Khanum's palace – to silver of high fineness, the revenue documented from Indian *kārṣāpaṇa*-using territories was consolidated in far higher proportions than that from Bactrian *drachm*-using territories: perhaps ca. 24 kg to only ca. 1.2 kg worth of silver, i.e., a ratio of 20:1.⁴⁵ Whatever the precise numbers involved, these numbers at the very least reiterate the immense wealth of northwestern India and the substantial contribution to state revenue entailed in the capture of this region under the reign of Eukratides I.

Lacking precise evidence about imperial revenue assessment, management, and collection for the Kushan period, we can go local instead. Judging from the comparative basis of Bactrian Documents (dating from the fourth–eighth centuries CE),⁴⁶ we might imagine that revenue extraction organized by blocs of local elites was managed in the following way. Agricultural produce and secondary products were probably extracted as taxes (as well as rents) in kind – being particularly staples like grain and wine from local agricultural estates – and collected at a central storehouse by a local region's ruling family (like the Kharagans at Rōb), and may have been then sent to imperial storehouses. Such a context may be implied by one document, a list of “the wine (produced) from Golg” as units of one or two accompanying a long list of individuals, families, and even “the Persian satrap” (who contributed four), coming to fifty-seven units.⁴⁷ The limited number of units implies a fairly simple method of assessment. As later contracts refer to land by yield,⁴⁸ it is plausible that production taxes were fixed rates assessed on productive capacity.

⁴⁴ Picard 1984. On fiscal practices here, see also Bernard 1979 and Coloru 2009, 268.

⁴⁵ This calculation following the assumption that the 2.4 g Indo-Greek silver Indian-standard *drachm* was intended to provide the equivalent silver value of ca. 2.9 g debased punch-marked coins i.e., *kārṣāpaṇas* (following Cribb 2020, 667).

⁴⁶ See remarks in Morris, ch. 4, V.1.

⁴⁷ Document ag and trans. in Sims-Williams 2012a.

⁴⁸ See below, sec. III.1.

The meaning of references to wheat, wine, and onions (?) on the split tally sticks of this corpus is not clear,⁴⁹ but could refer to production taxes assessed on harvest output, or perhaps payments of rations or wages in kind. The Kharagans also disbursed resources such as flour, grain, wine, sieves, straw, lucerne, and chickens,⁵⁰ as well as gold coins,⁵¹ which were minted by the imperial powers they collaborated with. Apparently, animals – namely, sheep – could also be requisitioned from the local population too.⁵² Additionally, a list of animals (cows and a horse) is given in one document against the names of individuals and families, accompanied by monetary units of one *dinar* (a cow) and ten *dinars* (for the horse),⁵³ implying that this levy could be paid for in coin if needed. A similarly-structured document instead listing men against individuals and families reiterates the capacity of local elites to muster manpower for labor or war.⁵⁴

It is possible that a crown tax might have been extracted by successive empires from households (rather than a poll tax), to judge from the local practice of fraternal polyandry, which may have been a strategy to lessen its financial pressure. Indeed, the practice of polyandry dissolved centuries later following the implementation of a poll tax.⁵⁵ Interestingly, the Bactrian Documents give a strong impression of the economic burden demanded by official resource extraction on even wealthy individuals – so much that a number of individuals cite these burdens as reasons for selling their land.⁵⁶

As noted above with respect to the Greek Kingdoms, tribute payments from conquered territories probably contributed significantly to imperial finance in this period. This, at least, would help to explain the repeated drive of military campaigns of both the Greek Kingdoms and the Kushan Empire toward the wealth of India. Although we can sometimes see that both empires established official presences there (notably, the Kushans in Mathura), I have also mentioned elsewhere (ch. 4, sec. II.2) that the sources providing accounts or faded memories of such campaigns beyond, and into Gangetic India, tend to be hard to square with the apparent scantiness of any evidence for a long-lasting imperial presence of both polities on the ground. The possibility of the presence of booty taken in cash and in kind at Ai Khanum's treasury deriving from Eukratides I's campaigns into India has already been raised by Rapin.⁵⁷

49 Documents am1–38 in Sims-Williams 2012a. See also the discussion in Sims-Williams 2008.

50 Document B, Sims-Williams 2012a.

51 Documents Aa and B, Sims-Williams 2012a.

52 See a list of individuals and the sheep requisitioned from them in Document ak, Sims-Williams 2012a.

53 Document aj in Sims-Williams 2012a.

54 Document af in Sims-Williams 2012a.

55 See Azad 2016 and discussion in Morris, ch. 4, VI, this volume.

56 Under the Hephthalites and Turk *qaghan*, see King 2020, 250, n. 31 and Documents I, II, and N in Sims-Williams 2012a.

57 Rapin 1992.

There is even stronger suggestive evidence for the role of this form of revenue extraction in the Kushan period. Kanishka's campaigns against the Gangetic plains's old cities are documented in the Rabatak inscription.⁵⁸ In addition, we know that Kanishka spent six years on campaign in India,⁵⁹ pacifying the cities of the Gangetic plain, among which was Pāṭaliputra, the famed metropolis of the Magadha *jana-pada* and the former core of the Mauryan Empire. A memory of booty or tribute extraction in this context may be preserved – if typically ahistorically garbled – in later Chinese Buddhist narratives: here, Kanishka, the Yuezhi king, besieged Pāṭaliputra with the demand for an enormous monetary ransom from the king, variously given as 900 or 300 million gold pieces. The king more piously settled for the Buddha's alms bowl, the famous playwright Aśvaghōṣa, and (in one version) a compassionate chicken, altogether equivalent to the value of the requested booty.⁶⁰ Finally, there is an unprovenanced silver dish inscribed by the command of one of Kanishka's inner circle (Nukunzük). Apparently, it had been dedicated as a votive offering at a temple in Bactria (“at the court[?] of Wesh”), after “the (king) of kings, the son of the gods, [returned] from India to Tokhwarstan in the tenth year with the spoils(?) of victory(?)”.⁶¹

Finally, although we have no direct evidence for the extraction of indirect taxes – such as sales taxes, customs duties, and tolls – the prevalence of this form of revenue and its exploitation in other states across Afro-Eurasia strongly suggests that it likewise comprised part of the income generated under the Greek Kingdoms and the Kushans. Indeed, there are references to the extraction of customs duties, especially at rivers, as experienced by monastics in the *Mūlasarvāstivāda-vinaya*, although this corpus is difficult to use as a historical source.⁶²

II.3 Monetization

On the basis of the surviving evidence, the most important instrument implemented by states or rulers in this period to facilitate both revenue extraction as well as expenditure is coined money, the production of which was usually a matter of royal prerogative. From the Greek Kingdoms to the Kushans, coinage was struck in gold, silver, and copper alloys,⁶³ and by the end of the period under study, it became a

⁵⁸ Rabatak, lines 6–7, Sims-Williams 2004 [2008].

⁵⁹ Silver dish of Nukunzük, line 4; edition and trans. Sims-Williams 2015, 257.

⁶⁰ See *Fufazang yinyuan zhuan* 付法藏因緣傳, T 2058.315b; *Maming pusa zhuan* 馬鳴菩薩傳, T 2046.183c–184a. Translations are provided in Kuwayama 2002, 32–33 (although for the version in *Maming pusa zhuan* Kuwayama gives 900 million rather than 300 million).

⁶¹ Edition and trans. Sims-Williams 2015.

⁶² These references are collected and discussed in Pagel 2014, 21–30. On the *Mūlasarvāstivāda-vinaya* as a source, Morris, ch. 4, IV.2, this volume.

⁶³ On these coinages and their study, see also the overview in Morris, vol. 1, ch. 9, 393–400.

predominant form of money in both urban and rural contexts. I say this, however, in acknowledgment that – despite the immense amount of research undertaken in Central Asian and Indian numismatics – most attention has been paid to the clear utility this body of evidence has with respect to interpreting chronology, political history, and broader monetary history, rather than a providing a more concerted focus on the potential fiscal and monetary functions of these coinages.

The precise sources used to mint these massive quantities of coinage are still not entirely clear. Central Asia, Afghanistan, and northeast Pakistan have many dispersed sources of ore, often polymetallic in nature. At least one major gold source must have been in Bactria, and the modern Takhar province in particular has a number of gold-bearing alluvial placer deposits, of which Samti (i.e., on the Panj river, upstream of Ai Khanum) is the most important.⁶⁴ Likewise, there are placer deposits in modern Pakistan, including in the upper Indus, Chitral and Gilgit, which are still today exploited by ‘gold washing’ panning techniques.⁶⁵ Conceptions of these sources perhaps survive in a blurred fashion in Greek texts.⁶⁶ Compositional analysis of a range of gold coins – Seleukid issues from Bactria, Graeco-Bactrian staters, Kushan *dinars* – places them into two clusters according to their trace elements. The primary group was hypothesized to be Bactrian in origin and linked with placer deposits, and the second group which included Kushan gold from the reign of Vasudeva onwards was tentatively called “Indian” (as this was the period in which the Kushans lost control of Bactria),⁶⁷ although its origin is uncertain. Future research will undoubtedly clarify the precise origins of the gold used. On silver, among a number of possible sources, it tends to be presumed that a major silver source was found in the galena deposits in Panjshir valley and Farenjal in Ghorband (Hindu Kush, in the vicinity of Begram).⁶⁸ On copper, Mes Aynak possibly came to be a major source for coinages produced in Kapisa, Arachosia, and Gandhāra after the second century BCE onwards,⁶⁹ but again this is unclear, and it is plausible that multiple sources were being exploited. The diverse use of sources, for example, helps to explain the otherwise perplexing cupronickel issues of the Graeco-Bactrian kings Euthydemus II, Pantaleon and Agathokles, were produced from a nickeliferous copper ore but apparently intended to function as regular copper alloy coins.⁷⁰

⁶⁴ Chirico et al. 2011.

⁶⁵ See, e.g., Shah and Khan 2004.

⁶⁶ E.g., in a reference to the Oxus bringing down massive lumps of gold in *De mirabilibus auscultationibus* 46, and tales of gold-digging ants, griffins, and links with ‘Derdai,’ discussed with references in Morris, vol. 1, ch. 9, 387–388.

⁶⁷ Blet-Lemarquand 2011. These results were presented in relation to the contents of the unique Alexander medallion, which belonged to the second group.

⁶⁸ On these sources, Thomalsky et al. 2013.

⁶⁹ As coins of this age have been found at the site. See Marquis 2016.

⁷⁰ Cowell 1989, see also Morris, vol. 1, ch. 9, 399.

Although we are characteristically ill-informed about exactly why coinage was minted in this period, it is possible to lay out a range of scenarios. Indeed, in this period, the shifting functions of coinage from a state perspective can be perhaps charted along a kind of spectrum: from a theoretical, purely political function (i.e., as potential media for communicating power), to a theoretical, purely fiscal function (i.e., as media to facilitate convenient payments and extraction of revenue). In reality, both functions were balanced through choices about the designs, denominations, and metals used, and the amount of coinage minted. These choices may have served to communicate messages about the party (almost always kings) responsible for minting them, but moreover had the function of integrating these coinages into the wider coinage tradition and thus improving their potential to be accepted as money by local populations.⁷¹ In principle, coinage may have been minted to pay soldiers, pay for labor, facilitate the convenient provision of capital, to collect revenue in a convenient form by demanding it through taxes and duties, to regulate trade, and to participate in trade via wider monetary exchange networks. Gold coinages in particular may have been used as largesse for a sovereign's redistribution of wealth (e.g., among elites after a successful military campaign), and minting parties could also profit from its manipulation. The minting of base metal coinages might have been achieved with a sense of needing to implement a monetary system which facilitated a wider range (i.e., lower value) of transactions, including small retail payments or local taxes. It tends to be presumed that, while precious metal coinages may circulate widely through their commodity value as bullion, base metal coinages do not circulate outside of the area under the control of the power that minted them, because of their fiduciary value.⁷² This raises some interesting problems with respect to the presence of Graeco-Bactrian, Indo-Greek, and Kushan copper alloy coinages in areas thought to be outside of imperial control, discussed further below.

The introduction of coined money in Bactria and Gandhāra far predates the emergence of the Greek Kingdoms, and is subject to ongoing research. For the present purposes, it is sufficient to simply observe that the diverse landscape of coined money in the Achaemenid period – Achaemenid *sigloi*, Archaic and Classical Greek silver issues, locally coined silver from Gandhāra in denominations of *sigloi*, as well as jewelry probably to be interpreted as hacksilber, all documented in hoards from Kabul to Puṣkalāvati⁷³ – speak to their utility in a restricted range of transactions. Certainly, some of these transactions must have been official contexts,

⁷¹ There is some debate as to the interpretation of coin designs among numismatists, i.e., those who see its role to communicate messages of propaganda versus those who see design from a functional perspective which speaks to continuing coinage traditions and improving acceptability (Bracey 2020, 123–124). On the concept of the coinage tradition and the theme of acceptability in India and Central Asia, see Cribb 2005; 2007.

⁷² An idea expressed also in relation to Central Asian numismatics in Zeimal' 1978, 178.

⁷³ Schlumberger 1953; Boppearachchi 2009; 2017.

such as tribute extraction, or perhaps these coinages also facilitated the provision of credit to external agents for procuring resources (such as merchants). Later, some silver and bronze coinages minted according to both the Attic standard and an apparently 'local' standard were produced at a small scale by minor rulers following the conquests of Alexander.⁷⁴ The Seleukids set up mints for a bimetallic silver and bronze monetary system according to the Attic standard in Bactria and Sogdiana. This, as well as the higher volume of coins minted, implies the increase of state transactions conducted in coin in this space as well as the establishment of a more comprehensive fiscal regime envisaged for the region.

A significant component of state expenditure that has been linked to Hellenistic coinage production is the military, and more specifically the need to pay soldiers,⁷⁵ with the same function seen as probable for coinage minted by Graeco-Bactrian kings,⁷⁶ who primarily issued coinage according to the bimetallic silver/bronze system as the Seleukids had, although with occasional gold issues. In principle, this is not surprising, as the reigns of the rulers of the Greek Kingdoms appear to have been characterized by frequent civil and external expansionary wars. Although the data for the volume of coin production for each king is still incomplete, Glenn's comparison of die study data indicates that the amount of silver minted under Graeco-Bactrian kings sometimes rivalled that of contemporary Hellenistic kings (i.e., the coinages of Euthydemus I and Eukratides I), but mostly fell at the lower end of the spectrum, which can, however, be explained by the smaller area covered by the Greek Kingdoms and the lower number of mints involved.⁷⁷ That being said, the continued use of the Attic standard in Bactria probably helped to facilitate the region's participation through trade in wider monetary networks of the Hellenistic world by lowering transaction costs.⁷⁸ Additionally, the Ai Khanum treasury texts and the Amphipolis parchment respectively attest to incoming and outgoing payments calculated in silver *drachms*, reiterating the role of coined silver in both state revenue collection and expenditure in Bactria. The function of the occasional gold *staters* (and multiples thereof) of the Graeco-Bactrian kings is less clear; they may have possessed some symbolic function in expressing royal legitimacy,⁷⁹ but moreover could have been minted to facilitate payment for significant objects of state expenditure, including military campaigns, the distribution of largesse, or the procuring of resources through trade. Trade and military campaigns have at least been

⁷⁴ See, e.g., the case of Sophytos in Bordeaux 2021.

⁷⁵ Weaverdyck and Fabian, ch. 8.A, III.2, this volume.

⁷⁶ Glenn 2015, 320.

⁷⁷ Glenn 2015, 316–317.

⁷⁸ A point reiterated by finds of Alexander types, Attalid and Seleukid issues among the hoards of Ai Khanum, e.g., in Petitot-Biehler and Bernard 1975; Holt 1981.

⁷⁹ Highlighted by Bordeaux (2018, 98) in reference to Diodotus I's activity after securing independence from the Seleukids.

proposed to explain the hoard of Graeco-Bactrian gold *staters* said to be found at Vaiśali in the Gangetic valley.⁸⁰

On the other hand, the Indo-Greek kings (i.e., those ruling south of the Hindu Kush) seem to have first attempted to strike silver coinage in a weight both convertible to the Attic standard and corresponding with the value of contemporary Indian coinage circulating in the northwest. However, they soon replaced this system with a lower-weight one which appears to have more closely approximated the silver value of contemporary Indian coins (i.e., late Mauryan debased silver punch-marked *kārṣāpaṇas*), but utilizing the divisions of Attic denominations.⁸¹ The adaptation of this system was probably intended to improve local acceptance of these coinages and their integration in the region's preexisting monetary economy, perhaps with the effect of lowering transaction costs for trade within Indic monetary spheres, although there are other plausible goals.⁸² The use of two distinct monetary zones within the empire probably slightly complicated interregional trade to a degree (i.e., by requiring conversion), especially because we very rarely see Indian-weight coinage in regular use contexts in southern Central Asia. However, these systems may not have functionally impeded imperial revenue collection, as the treasury texts of Ai Khanum (discussed above) demonstrate the processing of incoming payments in forms of *kārṣāpaṇas*.

In the transitional period, local rulers in Bactria – probably including the heads of mobile groups – minted imitations of Graeco-Bactrian coinage, namely debased silver-reduced Attic *tetradrachms* and *obols*, and copper-reduced Attic *tetradrachms* and *drachms*.⁸³ This very act indicates acknowledgment of both the fiscal and symbolic utility coinage had for a ruling polity. Indeed, the major hoard of coins found in post-Hellenistic Kunduz (Bactria) including issues (unusually) minted to the Attic standard by Indo-Greek kings point to a state context of exchange, and may possibly be explained as tribute extracted by the territory's new nomadic rulers.⁸⁴ In regions south of the Hindu Kush, coinage minted by Indo-Scythian and Indo-Parthian rulers likewise replicated the Indo-Greek denominational system of Indian-weight *tetradrachms* and *drachms*, progressively debasing the silver content of these coins until there was almost nothing left by the time the Kushan king Kujula Kadphises arrived on the scene. Kujula then reduced the remaining weight of the copper coinage. Although this 'Great Debasement' of the first century BCE–first century CE has been

⁸⁰ See the discussion in Glenn 2015, 102–104.

⁸¹ Cribb 2020, 667. The shift in weight standard under Apollodotos I is detailed in Boppearachchi 1991, 62–63.

⁸² Daffinà (2017, 570–571), for example, explains the use of a lower silver standard for coins circulating in Indian territories as a deliberate effort to prevent the collapse the preexisting local monetary system.

⁸³ See Cribb and Bracey forthcoming.

⁸⁴ See Boppearachchi 1990, who however considers the hypothesis that this was currency minted for commercial exchange with Bactria as equally plausible.

traditionally interpreted as the result of a monetary crisis (e.g., instigated by the loss of a silver source or another catastrophe),⁸⁵ a recent study has pointed out that this same period in Gandhāra experienced clear economic prosperity, and accordingly that this phase of progressive debasement probably rather indicates local monetary policies to increase supplies of coinage without increasing state expenditure, all to the profit of minting rulers.⁸⁶

The product of this longstanding monetary policy as encountered by Kujula Kadphises was, however, perhaps a dysfunctional coinage system with heavy inflation, and the first Kushan king's reign is marked by clear attempts to intervene in this downwards trend.⁸⁷ This action probably indicates that people had lost trust in the utility of coinage as a medium of exchange, and perhaps Kujula's interventions may be interpreted as something like an act of *euergetism* that also legitimized his political power as a new ruler. Ultimately, at the end of his reign, a new type of 'Soter Megas' coinage was introduced as an imperial coinage throughout Kushan territory, which reinstated the Attic standard,⁸⁸ and ultimately probably lowered transaction costs for exchange across this wider space. From this point on, Kushan coinage sees somewhat regular experimentation finetuning the weight standards and denominations of coinage, as well as the crystallization of a set of imperial mints, although their locations are still somewhat hypothetical.⁸⁹ Most importantly, in the reign of Vima Kadphises, gold coinage (the *dinar*) was introduced to a reduced Attic standard in multiple denominations, which, however, neither precisely matched the standard used previously by Graeco-Bactrian kings nor contemporary Roman *aurei*. Nonetheless, the idea for adding gold to the Kushan coinage system may well have been partially inspired by encounters with Roman *aurei*, but was neither oriented toward facilitating external transit trade with Roman merchants, nor produced from melted down Roman *aurei*.⁹⁰ Any transaction involving the Kushan ca. 8 g *dinar* and the Roman ca. 7.75 g *aureus* would still have necessitated a conversion process (i.e., a transaction cost), also probably taking fineness into account. Instead, the creation of the Kushan *dinar* was probably oriented toward the necessity of more conveniently facilitating higher-value payments, and here probably (at least) initially intended for use in limited state contexts, including the distribution of largesse,⁹¹ while copper probably remained the key medium for most

85 MacDowall 2007.

86 Coloru, Iori, and Olivieri forthcoming.

87 On the development of Kushan coinage, see Jongeward, Cribb, and Donovan 2015; Cribb and Bracey forthcoming.

88 Cribb 2014.

89 Cribb and Bracey forthcoming.

90 As has been often assumed in scholarship since the late nineteenth century, see Morris, vol. 1, ch. 16. The insufficient correspondence between the two coinages has also been stressed in Bracey 2009.

91 This function of Vima Kadphises's gold coinage has been suggested by Cribb and Bracey (forthcoming, §C.3) as examples thereof are often found in pristine condition.

transactions. One function of gold *dinars* may have been to conveniently assemble a large amount of capital by state or nonstate agents for provision to merchants in order to procure luxury goods in long-distance trade contexts,⁹² with a wider utility of *dinars* at least suggested by their demand in slightly later records of taxation and fines.⁹³ In the meantime, by the reign of Huvishka, copper coins were only minted in a single unit (ca. 16 g). After a major fall in the weight of this unit midway through Huvishka's reign to ca. 12 g, which is perhaps indicative of an economic crisis, the unit then gradually dropped in weight to under 3 g by the end of Kushan rule in the fourth century CE.⁹⁴

Ultimately, the picture throughout the period under study demonstrates the development of a cohesive and widely used coinage system across an increasingly expansive space, stretching at its largest extent from Bactria to northern India. This process probably emanated from the initial needs of state expenditure and revenue collection alongside acknowledgment of the added political and symbolic power of coinage, but the monetary system was both intentionally manipulated (probably to meet increased state expenditure) as well as fine-tuned and revised at many points, presumably to improve its acceptance throughout wider society. The results of these policies are reflected in the increasing use of low-denomination copper coins in transactions even within rural and remote contexts in Hellenistic Bactria, a phenomenon which became widespread under the Kushans. Here, we see the circulation of silver Indo-Greek coinage beyond imperial frontiers in India,⁹⁵ as well finds of Graeco-Bactrian silver and a small amount of bronzes in Sogdiana.⁹⁶ Here, the utility of coinage minted in Hellenistic Bactria is reflected by the influence it had in the development of Sogdiana's monetary systems.⁹⁷

Likewise, the transregional impact of Kushan copper coinage as a medium of exchange and in creating wider monetary networks is reflected by varying finds of these coins, as well as imitations, outside the putative frontiers of the empire in Chorasmia, Sogdiana, the Tarim Basin, and parts of northern and eastern India.⁹⁸ In Chorasmia, they were countermarked and circulated alongside locally minted

⁹² See, for example, the interesting case of the Debra Damo hoard of ca. 105 Kushan gold *dinars* and double *dinars* found in Ethiopia. Whitfield (2018, 57–80) discusses the find and considers that it may have been a diplomatic gift. Cribb and Bracey (forthcoming, §5.F.6) offer that it may have been a large mercantile payment.

⁹³ Struck gold coins are ubiquitous as units demanded in fines in the Bactrian Documents. However, the amounts cited are apparently so prohibitively high that other explanations (use as a unit of account?) may need to be forwarded.

⁹⁴ Jongeward, Cribb, and Donovan 2015, 91, 136, 151; Cribb and Bracey forthcoming.

⁹⁵ See the well-known reference to Indo-Greek coins of Apollodotus and Menander on the market of Barygaza in the *Periplus Maris Erythraei* (PME) 47.

⁹⁶ Presented in Naymark 2005.

⁹⁷ See the case of Nakhshab in Naymark 2016.

⁹⁸ See, e.g., in Chorasmia, Vainberg 1977, 176–186; in Sogdiana, Gorin 2015; in the Tarim Basin, Cribb 1984; in Gangetic India, Sharma 2012, 71–75; along the Oxus valley, Rtveladze 2012, 164–168.

silver,⁹⁹ and in Khotan in the Tarim Basin they could co-circulate with the locally minted so-called Sino-Kharoṣṭhī coins that were inspired in weight and design by coinages of Gandhāra (including Kushan coins) of the first century CE.¹⁰⁰ In Gangetic India, they circulated alongside the local copper alloy issues of ‘tribal’ groups and ‘city-states,’¹⁰¹ heavier issues were perhaps sold at profit,¹⁰² and their designs were imitated for centuries later, presumably being weighed as needed in transactions.¹⁰³ The reality of the participation of these different regions in a wider monetary network is underpinned by the find of a Kushan copper alloy coin in the Gangetic valley that had previously been countermarked in faraway Chorasmia.¹⁰⁴

Finally, it should be noted that coinage was probably also referred to as a unit of account. For example, fragments of an early second-century CE Gāndhārī ledger, presumably from a Buddhist monastic context, features a list of numbers prefaced by the notation *ka*, facing a list of what has been interpreted as records of donations of certain commodities to a Buddhist monastery. It is likely that this notation is correctly interpreted as shorthand for *G. kahapaṇa/kahavaṇa* (Skt. *kāṣāpaṇa*).¹⁰⁵ Rather than indicating a physical exchange of coined money, the term here may function as a unit of account to record the value of the donations occurring in kind in the terms of a standard value system.

III Legal Systems

The period under study also sees the emergence of a range of institutional frameworks for regulating transactions and economic activity, as well as resolving disputes, including those in respect to landownership, loans, and marriage. These institutional frameworks are what can be broadly referred to as ‘legal’ systems, which were structured on imperial, local, as well as religious bases. These systems were plural in nature, and could probably also intersect. Little evidence informs us explicitly about legal systems in use under the Greek Kingdoms; at least, a reference to a *nomophylax* (guardian of the laws)¹⁰⁶ on the Asangorna tax receipt indicates

⁹⁹ Vainberg 1977.

¹⁰⁰ Cribb 1984.

¹⁰¹ Dwivedi, ch. 10, III.2, this volume.

¹⁰² Cribb and Bracey forthcoming.

¹⁰³ See Dwivedi, ch. 10, III.3, this volume.

¹⁰⁴ Discussed in Cribb and Bracey forthcoming.

¹⁰⁵ Allon 2019, 16. Here, Allon is probably incorrect in assuming that this must have referred to gold rather than copper coins, which relies on his interpretation of the text as indicative of direct royal patronage from Vima Kadphises.

¹⁰⁶ Rea, Senior, and Hollis 1994; Bernard and Rapin 1994.

the use of a Hellenistic legal system for at least civic matters. Judging from law in other Hellenistic kingdoms, we may expect that the legal system was pluralistic, utilizing preexisting structures and institutions of each region, perhaps adding an allowance for the legal authority of the king and his provincial governors as required.¹⁰⁷ Additionally, observing the structural importance of traditional minor territorial units in this period that were governed by local aristocrats and dynasts, everyday cases perhaps largely continued to be heard and settled within the framework of these units.

Particular local beliefs and norms underpinned these legal systems. For example, the early marriage contract in the Bactrian Documents (ca. 332 CE), protects the rights of the bride Ralik in a fraternal polyandry arrangement, stipulating that she will not be treated as a slave, but as “a lady possessing authority, as (is) the established custom in the land.”¹⁰⁸ As Yakubovich points out, this implies a most traditional form of marriage similar to the “*pādixšāy*-marriage” of Sasanian law,¹⁰⁹ involving a specific set of matrimonial and inheritance rights, and guarantees about the legitimate status of children. Just as the desire to circumvent the division of a family’s inherited property probably partly motivated the practice of fraternal polyandry,¹¹⁰ it is probable that *xwēdōdah* (i.e., incestuous next-of-kin marriage justified by Zoroastrian belief)¹¹¹ was practiced for similar economic reasons.¹¹²

An important case of a religious ‘legal’ system can be observed in the use and development of codified rules of discipline (*vinaya*) in the various Buddhist sects of this period. As discussed elsewhere in this volume,¹¹³ these codes negotiated rules for, justified, and even encouraged the participation of monastics and monasteries in a range of economic activities. Ideologically facilitated by such instruments, monasteries would develop into major organizers of economic activity in this period.¹¹⁴ In the following sections, I look more closely at examples of legal systems in Bactria and Gandhāra, and the ways in which they regulated economic activity and resolved disputes.

III.1 Family Law, Property Rights, and Jurisprudence in the Early Bactrian Documents

A number of earlier texts among the Bactrian Documents (i.e., relating to the fourth century CE) show that a robust local legal system existed in the region of Rōb. As

107 See discussion in Weaverdyck and Fabian, ch. 8.A, V.1.1, this volume.

108 Document A, line 17, trans. Sims-Williams 2012a.

109 Yakubovich 2005.

110 See also Morris, ch. 4, VI, this volume.

111 Observed already during Alexander’s campaign in Sogdiana, at least among noble families, in Q. Curtius Rufus 8. 2. 19, for which see Grenet 2015, 142.

112 See Yakubovich 2005.

113 Morris, ch. 4, IV.2, this volume.

114 See Morris, ch. 13, this volume.

noted elsewhere,¹¹⁵ the apparently sudden emergence of these written documents, the continuity they show throughout centuries, and their highly formulaic legal language – as well as references to ‘established customs’ – suggest that they probably shed light on legal systems in the Kushan period of Bactria too. Four early legal documents – a marriage contract, two deeds of sale, and a gift of land – interestingly exhibit shared, formulaic structures and language, although they speak to two different realms of jurisprudence (family law and property rights). In the following, I highlight the main features of these documents.

The marriage contract (ca. 332 CE) is really two agreements. The first is an agreement made between a father (Bag-farn) and his two sons (Bab and Piduk) and the parents (Far-wesh and Nog-sanind) of the bride (Ralik), in which Bab and Piduk are married to Ralik in an arrangement of fraternal polyandry according to the “established custom of the land,” a clause reiterating the traditional quality of this agreement.¹¹⁶ In the document, it is further clarified that Bab and Piduk are currently in free service at Ninduk Okhshbadugen’s household, so the pertinent members of that household (Ninduk and his three sons) also make an agreement that they have no right to Ralik or her progeny. The document also describes the contents of Ralik’s dowry.

By comparison, in the deeds of sale of land (ca. 312–380 CE), the first has a certain Lad-Guzg declare that he has sold his land “and the water which (is) adjacent thereto” in Frumuha-marg to a certain Froduk, being compelled to do so because of pressure from an unpaid debt.¹¹⁷ In the other, the preserved section has a Wesh-lad declare that his land and adjacent water has been sold to Froduk (perhaps the same as in the former document).¹¹⁸ Interestingly, neither of these documents state the amount for which the land was sold, solely that the “full value” has been received,¹¹⁹ nor the measurements or productive capacity of the land. Comparably, a land sale contract perhaps from around the fourth century CE in the vicinity of Kashmir (?), as well as later examples of the Bactrian Documents (of the sixth to eighth centuries) refer to agricultural land in terms of the seed required to sow it (i.e., its yield).¹²⁰ The Bactrian deed of gift (ca. 380 CE) has Shar-wanind give land and (again) adjacent water from his “ancestral estate” to Yamsh-spal for “services rendered,”¹²¹ but otherwise virtually does not differ from the deeds of sale. All three

115 Morris, ch. 4, V.1, this volume.

116 Document A, trans. Sims-Williams 2012a.

117 Document aa, trans. Sims-Williams 2012a.

118 Document ab in Sims-Williams 2012a.

119 Documents aa line 21, ab line 5, trans. Sims-Williams 2012a. This practice, however, changes in later documents; see, e.g., the sixth-century CE Document J in Sims-Williams 2012a, referring to a selling price of eight *dinars* of struck gold.

120 Respectively, Falk 2021, 11; Documents J, L, W in Sims-Williams 2012a, and discussed in King 2020, 255–256.

121 Document C, trans. Sims-Williams 2012a.

documents involving the transfer of land include (in extant parts) some interesting shared features: first, they have a description of the general (regional) location of the land and its general boundaries (e.g., “the water of the stream,” “to the north the vineyard of Mir-bandag”).¹²² Importantly, it appears that ‘land and water’ (e.g., “the land described herein and the water which (is) adjacent thereto”) are always transferred together, with the meaning of ‘irrigated land.’¹²³ Finally, all three deeds contain clauses declaring that the new owner’s descendants are entitled to retain the land in perpetuity.

The structure and language of these documents feature many similarities. For example, the extant parts of these four documents all give the same opening section: a detailed date, the location where the document was drawn up (city/region and microregion), a list of several persons acting as witnesses, usually featuring local men of import (ranging from four to six), and details about the key party of the contract. Likewise, they all finish with the same closing text, which includes an assertion that whoever breaches the agreement (Document A) or challenges the new owner’s ownership of the property (Documents C, aa, ab) will not have a valid claim, and must pay a fine of variously twenty gold *dinars* (Documents A, C, ab) or five of the same (Document aa) to the “royal treasury”¹²⁴ as well as the opposite party. Finally, details about who wrote the contract (i.e., the scribe) are given.

These gold *dinars* must refer to issues minted by the Kushano-Sasanians, but the royal treasury referred to here is, according to the local context of these contracts, presumably that of the *khar* of Rōb.¹²⁵ The questions of the amount demanded by these fines raise a problem – they seem prohibitively expensive. In later examples of the Bactrian Documents, these fines tend to be set at twice as much of the value of the land being transferred.¹²⁶ Perhaps, at least, these figures functioned to deter breaches of contract.

Other general conceptions of landownership and property rights of economic interest also emerge from these and other examples among the Bactrian Documents. Primarily, it is clear that private landownership was quite prevalent (among elites) and presumably *a priori* ‘ancestral,’ although ownership could be sold or transferred as gift with the appropriate legal documents. Additionally, a number of the landowners mentioned obviously did not live on their land. For example, a certain Mir-bandag, who owns a vineyard in Wadod, is described as an “inhabitant of Istakhirs,”¹²⁷ and thus must have had tenants who worked the land and paid some form of rent. Furthermore, from the letters among this corpus of documents, it ap-

¹²² Documents aa, ab, C, trans. Sims-Williams 2012a.

¹²³ See glossary entry in Sims-Williams 2007, 182.

¹²⁴ Once described as “their excellencies” in document ab, lines 17–18, trans. Sims-Williams 2012a.

¹²⁵ King 2020, n. 37.

¹²⁶ Documents J, L, V in Sims-Williams 2012a, observed by Falk 2021, 12.

¹²⁷ Document C, trans. Sims-Williams 2012a.

appears that more arable land could be developed and acquired with appropriate high-level approval, for example by clearing (?) it, seen in a certain Nawaz Kharagan's request for a piece of land that was "formerly a hayfield."¹²⁸ However, as this letter reveals bureaucratic difficulties faced by a member of the Kharagan family, this process was probably fairly uncommon and accessible (economically and socially) to only comparably high-status local elites.

Generally, some legal disputes in Rōb were apparently heard and resolved by members of the Kharagan family. Namely, one letter (ca. 350 CE)¹²⁹ sent from a Kushano-Sasanian princess, Dukht-anosh, to Khwadew-wanind of the Kharagan family (elsewhere titled as a fortress commander) seeks clarification and justice regarding the spoiling of grain she was responsible for, and an injury allegedly caused to her men by Khwadew-wanind's own. Disbelieving the claim of her eunuch about how events transpired, Dukht-anosh writes that she has sent the brother and nephew of her eunuch into Khwadew-wanind's presence, "so you should make judgement [*lado*] for Dasthsh-mareg's brother and for (his) nephew in respect of the eating and spoiling of the corn and in respect of the injury (which they received) from the shepherds."¹³⁰ However, she continues that, if Khwadew-wanind knows that she "ought not to take notice" of their claim (i.e., that it is false), then he ought to send his shepherds into Dukht-anosh's presence, and she will punish her servants. Otherwise, if his shepherds have done wrong, then she will:

order (a letter) to be written to you, and then you should impose a judgement against the shepherds (and) for (my) servants; and if anything [should be] otherwise, please write to me now, so that I may know that I should demand compensation for the damage from (my) servants.¹³¹

Although clearly a special case, the language in this letter uses consistent terms for 'judgement' and 'claim' throughout. The term for 'judgement' appears with much more frequency in later documents in the sense of more formal "lawsuit, trial, court,"¹³² and the term for 'claim' is found in the contracts and deeds described above,¹³³ implying a wider set of standardized legal terminology and jurisprudence. Additionally, with the references to writing, it is clear that formal written documents played an important part in legal proceedings. We see this later (ca. 370 CE) in another curious letter, where an official of unclear status (*hostig*) writes to a superior, who had apparently ordered a piece of land to be given to Nawaz Kharagan (another commander of the fortress), with the admonishment:

128 Document ci, trans. Sims-Williams 2007.

129 Document ba in Sims-Williams 2007.

130 Document ba, lines 10–12, trans. Sims-Williams 2007.

131 Document ba, lines 17–19, trans. Sims-Williams 2007.

132 Glossary entry for *lado* Sims-Williams 2007, 225.

133 Glossary entry for *khoan/khoēn-*, Sims-Williams 2007, 225.

Your lordship yourself ought to know that they do not give one quart of grain from the lord's house, nor one gallon of wine, to (anyone) who does not bring a sealed document, let alone a piece of land! But if Nawaz brings me a document with two seals from the lord, then I will not do him any injury, but will give him the land immediately.¹³⁴

However, as the lord had apparently attempted to give away the land without appropriate documentation, this may represent a tension between earlier, traditional oral agreements among the elite and a growing bureaucracy increasingly concerned with adequate documentation. Most importantly for the present purposes, the letter from Dukht-anosh raises the possibility that at this early stage, local rulers or governors (like the commander of the fortress) held judicial authority over their territorial jurisdiction, rather than formal courts, which are absent from the early documents. At least, a good part of the commander's time (also indirectly, via his steward) appears to be involved with resolving conflicts among a network of elites, using the same legalistic language.¹³⁵

III.2 Loans, Land, and Law in Gandhāra

Above, I have clarified that the legal system possibly in use in Bactria under the Kushans was probably largely local in scope, but with a tendency toward standardized practices and terminology. There were probably similar patterns in civic law in Gandhāra, although local legal practice was likely influenced by *śāstric* categories and terminology in some respect. Two recently published documents appear to indicate intersections between Buddhist monasteries and laypeople in the practice of civic law.

The first document is Fragment 15 (ca. 50–150 CE) from the Bajaur manuscript collection, which was not officially excavated, but reportedly found in a square stone chamber within a cell of a Buddhist monastery in the Bajaur area.¹³⁶ Within this collection, Fragment 15 is the only non-Buddhist text, and – very unusually for surviving Gāndhārī manuscripts – a private document. According to preliminarily published information, the document is concerned with a loan given by a Bhudamitra, son of Kaṭhea, to a Saṃghaśrava, to be paid back by the latter with interest (*G. samulaka*). The document had been witnessed by several people who had signed the text with their full or abbreviated names. Finally, a reading of the address line, written on the exterior of the closed document, was provided “Going to Bhudamitra, son of Kaṭhea, inhabitant of Mitrathaṇa.”¹³⁷ Thus, Fragment 15 has been described variously as a private document, judicial document, and a letter, and Strauch notes

¹³⁴ Document ci, lines 8–14, trans. Sims-Williams 2007.

¹³⁵ See documents bb, bc, bd, bh in Sims-Williams 2007.

¹³⁶ Nasim Khan and Sohail Khan 2004, 10.

¹³⁷ *Catalog of Kharoṣṭhī Manuscripts (CKM)* 278 in Baums and Glass 2000– ; Strauch 2008, 65.

that the conditions of the transaction and the connections between this document and Indian and Central Asian documents (here, referring to Kharoṣṭhī-script Prakrit documents of the Kroraina kingdom in the southeast Tarim Basin) remain to be clarified.¹³⁸

An edition and tentative translation of this document has recently been made available by Melzer,¹³⁹ and it is now clear that it is not a loan contract proper, but a contract insisting upon the repayment of a loan which had not been returned as agreed. The document itself is a text that the debtor Saṃghaśrava had made, that was to be forwarded to Bhudamitra, the creditor. Originally, ‘capital’ of 200 *kahavāṇas* (here, presumably referring to locally circulating copper alloy coinage, under Kushan production by this period) was borrowed from a Bhudamitra, resident of Ṇagara, at an interest rate of two percent, by a Saṃghaśrava, resident of Mitrathaṇa. Violating the agreement, Saṃghaśrava is instructed to pay back the original amount and interest, and (if Melzer’s tentative interpretation is correct), a female camel is to be given as security. Among other details, the first contract may have been produced in a ‘court of justice (?)’ and it is signed by a number of witnesses.

Why was this document found in a monastery? The personal names Bhudamitra and Saṃghaśrava have explicit Buddhist rings to them.¹⁴⁰ However, neither are qualified as monks, but described as residents of Ṇagara and Mitrathaṇa, indicating that they were probably laypeople. A safe interpretation for now is that monasteries were clearly involved in some way in providing legal – specifically, scribal or archival – services to laypeople for everyday contracts, for which having written versions seems to have become more important (and accessible) in the period under study. The monastic provision of such services is documented in comparative historical contexts, such as among the third-fourth century CE Kharoṣṭhī documents from Niya in the Tarim Basin.¹⁴¹

A similar function may be indicated in a recently published land sale contract written on silk, which perhaps was produced around the fourth century CE in the vicinity of Kashmir. Although the find context of the text is frustratingly not known (Falk suggests that it was an inspection copy of a contract kept elsewhere), the scribe’s name (Saṃghamitra) is Buddhist, and it is plausible that the document likewise reflects the role of Buddhist monasteries in providing clerical, banking, and legal services.¹⁴² However, the document still existed in a legal sphere presided over

138 Strauch 2008, 65.

139 Melzer 2020.

140 Bhudamitra might be a misspelling for Budhamitra (Skt. Buddhamitra). Baums (forthcoming) has observed that the second element in Saṃghaśrava’s name (-śrava), although unusual, is found in a number of Gāndhārī manuscripts and inscriptions, including among the scribes all three known Gāndhārī colophons. He suggests that the element might be a calque on Greek names ending in -kles and characteristic of a scribal class.

141 See discussion in Morris, ch. 4, IV.2, this volume.

142 *CKM* 340; Falk 2021, 10–15.

by royalty.¹⁴³ Indeed, the violation of this contract by the seller stipulated a fine to be given to the local king of the time (the king of the Palola dynasty), and the transfer was accompanied by a fee of a gold *sadera* (stater) to be given to Kṣatrapa Anekaśāra, perhaps as a local royal representative.¹⁴⁴ This contract is thus an interesting example of how a legal system and property transfer might have been negotiated with respect to the intersecting organizations of a kingdom and a Buddhist monastery – a point again preceded by documentary discoveries from Niya.¹⁴⁵

IV Standardization

Imperial actors implemented the usage of certain languages, calendars, and weights and measures in the realms of their activities. However, the wider use and replication of these systems – and hence their ability to possibly lower transaction costs – also depended on their utility to other individuals and organizations, particularly Buddhist monasteries.

IV.1 Language

Under the Greek Kingdoms and the Kushans, the requirements of empire had a clear impact on the prevalence of languages, their written forms, and the differing spheres within which they were used.¹⁴⁶ Just as ‘Official Aramaic’ had been used in other parts of the Achaemenid Empire, the language was employed also at its eastern frontiers, seen directly from its use as a chancellery language in Bactria,¹⁴⁷ and indirectly from the later choice to inscribe various of the Aśokan edicts (third century BCE) using the Aramaic language (Taxila, Laghman, and the Kandahar Greek-Aramaic bilingual) and script (the so-called ‘Indo-Aramaic’ inscriptions at Pul-i Darunta and Kandahar).

Under the Greek Kingdoms, Greek was predominantly employed in official contexts, and probably came to be relatively widely understood, at least among an elite portion of the population. The native idiom of Bactria was the Eastern Middle Iranian language now referred to by modern scholars as ‘Bactrian.’ However, although Bactrian must have been a primary spoken language, the textual record of Bactria in this period – dedicatory inscriptions, funerary inscriptions, coin legends, docu-

143 Falk interprets the word or sequence *rayakaiūaku* as referring to the “king’s permanent loan” (Line 3, trans. Falk 2021, 13). Baums (forthcoming) argues that this is phonetically impossible.

144 Falk 2021, 10–15.

145 See Morris, ch. 4, IV.2, this volume.

146 For further details on these languages and their contexts of use, Morris, vol. 1, ch. 9, 407–412.

147 Naveh and Shaked 2012.

mentary records – are all written in Greek, and probably reflect the activities of a relatively restricted group of actors.¹⁴⁸ After the collapse of the Greek Kingdoms in Bactria, Greek continued to be used in the region in all contexts requiring written language (e.g., dedicatory inscriptions, coin legends). Its demise began with the development of a written form of the Bactrian language by the early second century CE which utilized a modified Greek script, and was adopted in official contexts under the Kushans (see below).

By contrast, the local vernacular of the northwestern frontier regions of India was a Middle Indo-Aryan Prakrit now referred to as Gāndhārī. By the third century BCE, the new Kharoṣṭhī script had also been developed from the Aramaic script to write this language, thus appearing in the Aśokan major rock edicts at Shahbazgarhi and Mansehra. Hence, the Achaemenid introduction of Aramaic and its local impact first through official contexts had a clear influence on later writing habits. Therefore, by the time that the Greek Kingdoms expanded from Bactria to Gāndhārī-speaking territories (early second century BCE), these kings chose to present the legends of their coins bilingually (in Greek and Gāndhārī) suggesting the preexisting local importance of written records in the latter, and predicating the later usage of Gāndhārī in further official contexts. Bilingual Greek and Gāndhārī coin legends continued to be used by Indo-Scythian and Indo-Parthian kings in the vicinity of Gandhāra between the periods of Greek and Kushan rule.

In the early Kushan period, i.e., at least by the reign of Vima Taktu, Bactrian in written form was being developed into an official language of the burgeoning empire. The fact that its first known usage is an official inscription of Vima Taktu (ca. 90–113 CE), i.e., the trilingual Dasht-i Nawur rock inscription (alongside Gāndhārī and the so-called unknown language in the unknown script),¹⁴⁹ raises the possibility that the development of a written form of Bactrian was an imperial initiative of the Kushans. Prior to the reign of Kanishka, Greek and Gāndhārī still appear to have functioned as official languages. The two appear bilingually as legends on coinage issued by Kujula Kadphises minted to circulate in Gāndhārī-speaking areas, although the ‘Soter Megas’ coinage – which has been interpreted as the first attempt at an imperial standardized coinage – featured only Greek legends.¹⁵⁰ As Gandhāra was a core region of the Kushan Empire, the use of Gāndhārī in official, imperial contexts adjacent to the region was appropriate. However, during the reign of Kanishka, Greek and Gāndhārī were virtually abandoned in official, imperial contexts (i.e., on coins and in dynastic inscriptions) in favor of Bactrian, a clear decision of imperial policy. This decision appears to have even applied for the legends of coins produced at the mint opened at Mathura, operating for a brief period in the

148 This corpus and its implications are discussed in Mairs 2014.

149 Sims-Williams 2012b.

150 See Cribb 2014.

reigns of Huvishka and Vasudeva I,¹⁵¹ although the numerous Buddhist donative inscriptions in this area (some of which were dedicated by imperial officers) were, as expected for the region, written in Epigraphical Hybrid Sanskrit (EHS). Likewise, despite this policy shift, Gāndhārī also certainly remained to be used in its long-standing and highly visible written forms, i.e., as a literary language of Buddhism and tool of donative epigraphy and everyday documentation within the sphere of Buddhist communities, as the Buddhist *saṃgha* expanded from Gandhāra into Bactria in the first-second centuries CE.

Thus, although multiple languages were in use in different regions and spheres under the Greek Kingdoms and the Kushans, the continued use of Greek and then Bactrian as imperial languages, as well as the spread of the use of Gāndhārī with the expansion of the Buddhist *saṃgha* created supraregional contexts of shared languages which must have helped to facilitate communication between different areas.¹⁵²

IV.2 Calendars

The calendrical systems utilized in Bactria and Gandhāra have a complex genealogy. From the Achaemenid period in Bactria, the lunisolar Babylonian calendar and the Egyptian calendar were incorporated to provide the basis for a Bactrian form of the Zoroastrian calendar. This calendar came to be in predominant official use probably later in the period under study.¹⁵³ The lunisolar Macedonian calendar (based on the Babylonian calendar) was in use in Bactria under the Greek Kingdoms as well as by the Indo-Scythians and Indo-Parthians in the transitional period in Gandhāra, and remained in use in Bactria and Gandhāra under the Kushan Empire until at least the second century CE. This is seen from numerous references to Macedonian month names in Gāndhārī and Bactrian inscriptions from both official and donative contexts.¹⁵⁴ The Macedonian calendar was also used at least by imperial officials of the Kushans in Mathura, as seen in an EHS donative inscription.¹⁵⁵ Of the three variants of the Macedonian calendar, the Seleukid variant was probably used in Bactria under the Greek Kingdoms, while the Arsakid variant (beginning not in autumn but spring) appears to have been adopted in Gandhāra under the Indo-Scythians in the transitional period,¹⁵⁶ perhaps forming the standard of the Macedonian calendar applied under the Kushan Empire.

¹⁵¹ Cribb and Bracey forthcoming, §E.C4, F.C2.

¹⁵² See also Morris, ch. 13, V.2.3, this volume.

¹⁵³ For this calendar and its development, Sims-Williams and De Blois 2018, 21–29, 109–112.

¹⁵⁴ See Falk and Bennett 2009, 210.

¹⁵⁵ Pillar inscription at Mathura, year 28, see Skinner 2017, no. 58.

¹⁵⁶ Falk and Bennett 2009, 204, 210–211.

In Gandhāra and Mathura, the local Indic calendrical vocabulary and systems were sometimes merged with the Macedonian system, a process attested in a few donative contexts. For example, Indian month names are provided equally often in Gāndhārī donative inscriptions as Macedonian ones, appearing to be interchangeable with a clear concordance between the two.¹⁵⁷ Furthermore, calendar dates on EHS donative inscriptions from Mathura and the Gangetic valley of the period of Kushan rule (as well as the former Saka period) are given according to the season (of which there were three), the number of the month in the season, and day of the month, amalgamating the Indian tradition of three seasons with one from the ‘northwest’ of counting 29 or 30 days to a month.¹⁵⁸

In sum, general trends of convergence toward standard or amalgamated calendars in official and donative spheres can be detected. This theoretically could have facilitated processes of financial administration, given precision to legal documents, coordinated high and low frequency periodic markets, and helped to coordinate donations in ritual spheres, particularly Buddhist relic deposits, which were heavily informed by auspicious dates.¹⁵⁹ That being said, using some of these calendars (i.e., figuring out what day it officially was) also could require specialist knowledge, and their everyday practical use for coordinating activity among ordinary people cannot simply be assumed.¹⁶⁰

IV.3 Weights and Measures

Relatively strong trends of standardization in weights and measures can be detected in Bactria and Gandhāra under the Greek Kingdoms and the Kushans, and the effectiveness and utility of the systems in use can be seen clearly in their uptake in neighboring regions as well as their longevity. The three main units of weight in transregional currency – the *stater*, *drachm*, and *dhane* – probably all also functioned initially as denominations of coinage and appear to have remained in popular use for weighing precious metals, as they are primarily attested to us inscribed alongside marks of ownership on finished objects of precious metalware recovered in hoards, but also less commonly on jewelry and ingots.¹⁶¹ The units of *stater* and *drachm* (of Greek origin) were probably introduced into Bactria the third centu-

157 Baums 2018, 67, appendix 2.

158 Pingree 1982, 357.

159 Baums 2018, 67, appendix 2.

160 Note, for example, that the Asangorna tax receipt is dated in the month of Loios, but no day is given. One set of the parchment’s editors explain this by observing that “the lack of a day number with the Macedonian month is common in Ptolemaic Greek documents. The probable reason is that it was too difficult to work out the day, which depended on precise observation of the state of the moon” (Rea, Senior, and Hollis 1994, 264).

161 See, e.g., *CKI* 241; Vorob’eva-Desiatovskaia 1976; Falk 2001, 309–314; 2009a, 35.

ry BCE and are attested at least until the eighth century CE in Sogdiana.¹⁶² With minor fluctuations over time, a weight roughly close to the Attic standard was retained throughout this period. Similarly, the rarer *dhane* (as in Gāndhārī) derives from the *danak/danake* used under the Achaemenids as a unit for a silver coin and had come to be seen as roughly equivalent to a silver *obol* in the Hellenistic period, i.e., one-sixth of a *drachm*. Three units appear inscribed on the gold ingots found at Dal’verzintepe (Bactria), and the standards for each were clarified by weighing the ingots themselves (with some deviation): a *stater* was about 17.4 g (around four *drachms*), a *drachm* between 4.22 and 4.52 grams, and the *dhane* between 0.73 and 0.75 g (thus one-sixth of a *drachm*).¹⁶³ Very slightly lower values reflecting a standard in use in the vicinity of Gandhāra have been calculated for the seven inscribed silver vessels in the Buner hoard.¹⁶⁴ Bactrian inscriptions on silverware from after the period under study, which may show a shift in practice in the earlier Kushan period, drop the unit abbreviation entirely, giving only *ua*, probably meaning “weight,” followed by a number.¹⁶⁵ However, the resulting numerical value can be clearly understood as a *stater* or *drachm* value upon weighing such surviving inscribed dishes.¹⁶⁶ Thus these units of measurement were implicitly prevalent, standardized, and widely understood.

References to these units in documents found in the Tarim Basin help to illuminate potential further uses for these weight standards in transregional contexts connected to Bactria and Gandhāra. First, in the Sogdian ancient letters (fourth century CE), *stater*s in all cases either explicitly or implicitly refer to silver,¹⁶⁷ presumably in coined money. However, among the Prakrit documents of the Kroraina kingdom, most references to the units of *stater* (*sadera*) and one to *drachm* appear to be understood in the sense of weighed precious metal,¹⁶⁸ as the kingdom did not utilize any coinage recognizable as such. However, another document that lists commodities apparently given as a gift clearly has these as units of weight for food and spices, i.e., four *stater*s of sugar, one *drachm* of ginger, two *drachms* of pepper pipali, and three *dhane* of pepper marica, one *dhane* of small cardamoms, and one *dhane* of *tvaca*.¹⁶⁹

162 Inscribed as weights on silverware, and encountered in inscriptions of merchants, for which see Vaissière 2005, 53–55.

163 Pugachenkova 1976, 69–70.

164 Falk 2001, 314.

165 Term analyzed in Sims-Williams 2009 [2013], 191.

166 Sims-Williams 2009 [2013], 191. See also Dan, Grenet, and Sims-Williams 2014 [2018], 215.

167 See especially letters II and V in Livšic 2009.

168 Hence two golden *stater*s in docs. 12 and 43; two golden *stater*s and two *drachms* in doc. 324; a golden *stater* in doc. 419; and the queen’s request for one golden *stater*, which was matched with a carpet thirteen hands long, as “there is no gold,” doc. 431–432, all in Burrow 1940. See also Atwood 1991, 191–192.

169 Doc. 702, Burrow 1940.

A set of traditional Indic units of weight likewise related to coinage as well as precious metals evidently remained in use in Gandhāra throughout the period under study, including the *kahapaṇa/kahavaṇa* (Skt. *kārṣāpaṇa*) and *maṣa* (Skt. *māṣa*), 16 of which making a *kahapaṇa*.¹⁷⁰ These units have thus far been found inscribed on silverware as weight measurements, and were also used alongside the foreign weight units described above.¹⁷¹ In other written contexts (see sec. II.3 and III.2 above), it seems that references to *kahapaṇas* could be interpreted as either coins of any metal, or function as a unit of account by representing the monetary value of goods.

Standardized measures referring to commodities also are attested in the Bactrian Documents which were also perhaps used in the Kushan period. For example, there is *mido* used as a measure for flour and grain in two fourth-century CE documents, the latter being a receipt from the disbursement of goods in an official context (see also sec. II.2 above).¹⁷² The unit of measurement for grain in the Niya Prakrit documents, *milima*, may be a loanword from the Bactrian term.¹⁷³ Likewise, in the early Bactrian receipt, the reference to jars of wine probably indicates a roughly standard volume.¹⁷⁴

Ultimately, although the available evidence referring to weights and measures used in the Greek Kingdoms and Kushan Empire is patchy and biased toward certain types of objects (i.e., inscribed precious metal), by comparing these records with later and external documents utilizing the same units of measurement, we can see a standardized set of weights and measures emerge. The evidence suggests that these weight standards created common intraregional and interregional languages for the description of volumes and goods, which probably helped to lower transaction costs in trade across these interconnected spaces.

V Infrastructure and Technology

Limited evidence is at our disposal to examine the infrastructure and technologies utilized to facilitate economic activity in the period under study. Nonetheless, as explored in more detail in the section below, it may be noted that overall, the devel-

170 On the *kārṣāpaṇa* especially in relation to coined money, see Dwivedi, ch. 10, III.1, this volume.

171 See, e.g., an inscribed silver vessel from Sirkap, Taxila (*CKI* 63), with the abbreviation *ka* 191, identified as indicating a weight rather than a date in Cribb 1999, 196–197. For use of standards of different origins, see “28 *stater*s, 4 *dhānakas*(?), 2 *māṣas*” on the silver goblet *CKI* 241, trans. Baums 2012, 233.

172 Documents A, line 35, and B, line 5 in Sims-Williams 2012a.

173 Sims-Williams 2007, 232.

174 Document B in Sims-Williams 2012a.

opment of transportation and water management infrastructure in this period does not give the sense of immense state involvement. In a similar way, fundamental activities like mineral extraction and grain processing were apparently characterized by the use of conservative technologies, with increases in production in this period to be explained by increasing mobilization of manpower. A number of new technologies were introduced in respect to craft production, but while some of these contributed toward the improvement in quantity and quality of goods, others also reflect mobility and demographic shifts more than considerations of efficiency. Still other technologies created products that featured certain visual qualities which were attractive to consumers in the culturally and demographically dynamic societies of Bactria and Gandhāra. Finally, the period under study sees the increasing use of documentary texts in a range of transactions and their association with authority, as well as the possible use of tally sticks to lower transaction costs in contexts of interaction between state and nonstate actors.

V.1 Transportation Infrastructure

Interestingly, it is difficult to track state interest in the development of physical transportation infrastructure in Bactria and Gandhāra during this period. Bactria and Gandhāra had certainly been incorporated into the old Achaemenid royal road network,¹⁷⁵ but this rather primarily entailed the establishment of storehouses and stations with provisions for the use of official travelers,¹⁷⁶ rather than the laying of paved roads. However, the numerous fortresses that was established in Hellenistic Bactria may be interpreted as having served a similar networking function, if probably oriented toward security as well as the collection and safe transport of extracted revenue.¹⁷⁷ Monasteries, however, perhaps could provide accommodation to travelers.¹⁷⁸

Indeed, much regional travel and transport in these regions would have been conducted through marginal terrain, and managed with horses, camels, and mules, when waterways could not be exploited.¹⁷⁹ Rtveladze has posited, however, that the Oxus was developed into a major shipping route in the Kushan period, facilitated by specialist boatmen.¹⁸⁰ As rivers also had to be crossed, and the locations of these

175 On this network, Briant 2012.

176 Wu 2017, 266–269.

177 Discussed in Morris, ch. 13, III.3, V.2.2.

178 Morris, ch. 4, IV.2, this volume.

179 There is little direct information about modes of transport, especially of cargo, in the period under study. Acknowledging trends of conservatism, a useful comparative perspective can be found in Law's (2006) study on the transport of resources, including rocks and minerals, within the Indus Valley Civilization (ca. 2600–1700 BCE).

180 Rtveladze 2012, 168–184.

crossing points were largely determined by natural affordances and convenience, as well as seasonality (i.e., fording the Indus in Gandhāra in winter when the water was low). A number of fortresses at crossing points along the Oxus in Bactria also appear to have been founded or enlarged in the Hellenistic period, and probably played an important role in providing security for these important nodes of transport, as well as creating sites for the extraction of duties. These fortresses included Kampyrtepa and Old Termez as new foundations in the middle Oxus, while Kelif, Kerki and Mirzabek Kala continued to function as this time. Other Hellenistic fortresses in east Bactria were established at crossing points along the upper Oxus, such as at Arab Kakul, Kanum, and Kugan Tepe.¹⁸¹ These were presumably accompanied with the use of ferries, the structures of which are rarely attested. Kampyrtepa, however, had a wharf, and functioned also as a port.¹⁸²

Information from the fifteenth century and a bit of philological ingenuity provide evidence for the presence of a somewhat unexpected institution in the ancient landscape of transport infrastructure in Bactria: a *pandocheion* ('inn,' literally "accepting all comers").¹⁸³ Hafiz-i Abru's *Geography* includes a description of the crossings of the Oxus, and takes some time to describe the history of one particular crossing point. This one was said to have been founded by Iskandar, to have a Greek name from that time "with the meaning of a guest-house," that the boatmen responsible for the crossing were located there, and that the kings took care of these inhabitants protecting the river crossing and gave them tax breaks – resulting in a rich population who were generous and competitively hospitable to travelers.¹⁸⁴ Although this information is clearly blurred by oral tradition, the name of this crossing point was Pardagwi, apparently a Sogdian transformation of *pandocheion*.¹⁸⁵

This information gives the impression of a settlement at a crossing known for its famous inn (the *pandocheion* proper) but the precise location of the crossing remains unconfirmed. It could be Kampyrtepa, as Rtveldadze has argued, although there are other possibilities.¹⁸⁶ Still less clear is the function of a *pandocheion* in Bactria (the settlement should be distinguished from the inn proper), although some possibilities can be proposed from comparative cases of the institution in the Graeco-Roman world. Foremost, inns were profit-seeking institutions which served travelers and provided lodging and food for payment. They could be found in both cities and villages. Some were famous, they could also take in sick travelers and function as important meeting places, and some had bad reputations for crime or iniquity.¹⁸⁷ The information provided by Hafiz-i Abru, which is surely imprecise, implies the

181 See Leriche 2007, 131, 133.

182 Bolelov 2018.

183 For an overview of *pandocheions* well into Late Antiquity, Constable 2004, 11–39.

184 Trans. in Minorsky 1967, 46–47.

185 Minorsky 1967, drawing also on correspondence with Henning.

186 See discussion and references in Rtveldadze 2012, 93–98.

187 For the above, Constable 2004, 11–22.

inn on the Oxus was a public civic work, perhaps founded by governors or local officials to lodge travelers (particularly officers of the state) and subject to official oversight, rather than a work installed by private citizens.¹⁸⁸ Interestingly, this observation mirrors the way in which some of Kampyrtepa's recent excavators have interpreted a state presence at Kampyrtepa in the Kushan period, with a good portion of the fortress-town's population perhaps engaged in trade-related activity but employed by the state.¹⁸⁹

V.2 Water Management Infrastructure

In the period under study, irrigation canals in Bactria were probably (as ever) constructed and maintained on a community basis rather than directly by state agents. However, empires must have maintained interest in the extensification of arable land witnessed in this period, for example with respect to amplifying the surplus agricultural production they were able to extract.¹⁹⁰ In principle, the technology utilized in the water management infrastructure necessary for irrigation was conservative. Nonetheless, the construction of main feeder canals in particular required careful and expert engineering, especially to achieve remarkable ascents into the piedmonts, which were managed through gravity alone.¹⁹¹ While there is a lack of evidence for the use of irrigation in the lower plains of Gandhāra, the construction of a number of wells, aqueducts, and barrage works in proximity to Buddhist monasteries in the Kandak valley (a tributary of the Swat river) indicates these organizations were directly involved in water management in such fertile highland areas, thus facilitating the extensification and intensification of agricultural production in the region.¹⁹² Otherwise, we also have evidence for local individuals and associations (*sahaya* groups) in Gandhāra piously facilitating the construction of wells.¹⁹³

V.3 Mineral Extraction Technology

Throughout the history of Central Asia, members of both sedentary and mobile communities were probably involved with the extraction of a variety of minerals, metals, and semiprecious stones, with mining sites – often with polymetallic ores – distributed widely through the mountains and deserts of this landscape. Although specific

188 See comparative cases in Constable 2004, 22–24.

189 Bolelov 2018, 327–334.

190 See further discussion in Morris, ch. 13, III.3, this volume.

191 On the construction techniques utilized for these canals, see, e.g., Gentelle 1989, 87–89, 100; Gardin 1998, 131–133, 179 (Schéma 4).

192 Olivieri and Vidale 2006; Olivieri forthcoming.

193 Falk 2009b, discussed also in Morris, ch. 4, VIII, this volume.

data relating to historical extraction is ordinarily very limited, ongoing research suggests a long-term pattern of small-scale extraction and processing, as well as technological conservatism.¹⁹⁴ Direct archaeological data for mining practices in this period of antiquity remain extremely scarce. A recent study undertaken with respect to extraction at the major copper source of Mes Aynak, however, does not thus far indicate the use of major new technologies (such as, for example, the use of pumps), although further exploration could change this picture.¹⁹⁵ Indeed, the sense of conservatism in mineral extraction methods is underlined by the probability that major sources of gold in this period – such as the Samti placer deposit in east Bactria, or the upper Indus – were all alluvial deposits, and most likely exploited by traditional techniques of gold panning.¹⁹⁶ Presumably, the large amount of gold extracted in this period that was made into jewelry and coinage was probably facilitated by an increase in the scale of extraction: the ability and resources to mobilize more workers.

V.4 Grain Processing Technologies

Despite the extensification and intensification of agricultural production in the period under study, the processing of grain into flour in Bactria was still mainly performed with traditional technology: saddle querns. The introduction of more efficient rotary querns only appears to have occurred around the third to fourth centuries CE, being an innovation popularized in the Kushano-Sasanian period.¹⁹⁷ Olynthus millstones had been introduced into Bactria in the Hellenistic period; nine were found in the sanctuary of the temple with indented niches at Ai Khanum (alongside saddle querns)¹⁹⁸ apparently in the context of grain processing undertaken on a bulk scale.¹⁹⁹ Yet, this technology was not widely adopted. Moreover, as few finds of querns are reported in larger ‘urban’ centers, it appears that most grain processing was undertaken in rural settlements.²⁰⁰

Comparably, rotary querns were introduced and replaced or supplemented saddle querns in Gandhāra somewhat earlier. This technology is understood as non-indigenous, probably originating in the Mediterranean, and was imported into South Asia by the late first century BCE, from which it spread northwards into India’s northwestern frontier regions.²⁰¹ Rotary querns thus start appearing in Taxila

194 See especially Sverchkov 2009, 142.

195 Eley, Marquis, and Noori 2016 [2019].

196 See above, sec. II.3.

197 See the data and important comments on dating in Stančo 2018.

198 Francfort 1984, 85–88.

199 Discussed in Morris, ch. 4, IV.1, this volume, and Francfort 2013, 177–178.

200 Stančo 2018.

201 De Chiara, Micheli, and Olivieri 2019.

in the transitional period, and were (for example) subsequently introduced to Barikot, before appearing to fall out of use with the collapse of the urban settlement in the third century CE.²⁰²

V.5 Craft Production Technologies

A number of new technologies were introduced with respect to craft production in the period under study. While some facilitated the production of increased volumes of higher-quality goods, namely pottery,²⁰³ most technological changes were not necessarily oriented toward more efficiency. Rather, they demonstrate the movement of people in this period, as well as goals of producing certain kinds of goods.

For example, in the Hellenistic period, alternative weaving technologies were introduced, as indicated by the emergence of pyramidal loom weights at sites in Bactria, and in Gandhāra (in the Indo-Greek period), which came from the west.²⁰⁴ These differing tools imply both changes in looming technique, as well as the presence of weavers specialized in the new technique, usually presumed to be women. However, this change in technique probably did not entail improved efficiency, and already in the Kushan period in Gandhāra and Swat, traditional biconical loom weights (which had been used since the Bronze Age) became prevalent again.²⁰⁵

In the sculpture adorning Buddhist sacred areas in Gandhāra, some tools and carving techniques deriving from the Hellenistic world also began to be used. Those detected (thus far) include the bow drill and strap drill. The introduction of these new techniques and tools seems to imply the presence of nonlocal skilled artisans and sculptors in the region, as well as the goals of achieving certain stylistic and formal qualities.²⁰⁶ In a similar way, gold-working and jewelry-making techniques were considerably developed throughout the period under study; products of both Bactria and Gandhāra employed traditional techniques, as well as others probably imported from the Hellenistic world, such as granulation and filigree. These created products with visually distinctive qualities that were clearly popular among local consumers.²⁰⁷ Finally, an important technique of pottery production from Gangetic India, the ‘paddle and anvil technique,’ became highly prevalent in Gandhāra in the Kushan period, which shows a flow of influence and practice that coincided with imperial connections between the regions.²⁰⁸

202 De Chiara, Micheli, and Olivieri 2019.

203 For an overview of the pottery production including the development of kilns in Bactria during antiquity, see Bolelov 2010.

204 Olivieri 2020, 389.

205 Coloru, Iori, and Olivieri forthcoming.

206 Brancaccio and Olivieri 2019, 139–141; Coloru, Iori, and Olivieri forthcoming.

207 See, e.g., Guerra et al. 2009; Belaňová 2016.

208 Olivieri and Vidale 2006, 136.

V.6 Texts and Tally Sticks

An important technology popularized in the period under study is the use of written documents in a range of official and legal contexts. Although the documentary record remains patchy, cases discussed above (sec. III) from both Bactria and Gandhāra highlight the increasing authority that was given to written records – to the extent that the ability to produce a written document was expected in the resolution of legal disputes, in contexts of land transfer, and contract writing. Indeed, Baums has shown that scribal practice and document preparation in Gandhāra has clear links to the practices producing Aramaic documents in the Achaemenid period, indicating the gradual development of the Gāndhārī documentary tradition.²⁰⁹ This accelerating use of written contracts may imply a gradual shift away from the power of oral contracts, the validity of which must have been particularly dependent on the cultivation of interpersonal bonds. On the other hand, illiteracy was probably still extremely prevalent within wider society, and the languages used in state contexts may not always have been spoken by actors that the state engaged with. The use of a relatively simple technology, split tally sticks, could help to overcome the transaction costs involved in interaction between such actors. Split tally sticks are already attested in Bactria in the fourth century BCE, and from the fourth century CE,²¹⁰ and were most likely to have been used in between these periods too. Henkelman and Folmer have highlighted the function of such devices as credit records that necessarily imply the interaction between state and nonstate actors.²¹¹

VI Conclusion

Economic actors in Bactria and Gandhāra from under the Greek Kingdoms to the Kushan Empire utilized a range of tools to facilitate their economic activity. Fiscal regimes in use by imperial elites enabled regular extraction of revenue through the development of administrative structures drawing from the power of local elites. Monetization was a major tool used to facilitate state extraction and expenditure, and also eased a wider variety of transactions in the period under study, including those across imperial boundaries. A range of legal systems in play in this period helped to negotiate transactions as well as disputes, and were organized within intersecting royal, local, and monastic spheres. Standardization in the realms of language, calendars, and weights and measures was given a strong impetus by the needs of empire, but also helped to enable and lower transaction costs within other

²⁰⁹ Baums 2014.

²¹⁰ For the Achaemenid period and the late antique examples, see respectively Henkelman and Folmer 2015; Sims-Williams 2008.

²¹¹ Henkelman and Folmer 2015.

activities coordinated by monasteries and merchants. The development of physical transportation infrastructure was probably most visibly seen in respect to the construction of fortresses providing security for state supply networks, while water management, mineral extraction, and grain processing were characterized by the use of conservative, traditional technologies. New technologies incorporated into craft production created some improvements in quality and efficiency, but also produced goods that were specifically appealing to local consumers. The growing importance of the use of written documents in a variety of state and nonstate transactions is also clear, and the use of certain devices like tally sticks could help to mitigate transaction costs in contexts of interaction between state and nonstate actors.

References

- Allon, M. 2019. "A unique Gāndhārī monastic ledger recording gifts by Vīma Kadphises." *Journal of the International Association of Buddhist Studies* 42, 1–46.
- Aperghis, G. G. 2004. *The Seleukid royal economy: The finances and financial administration of the Seleukid empire*. Cambridge: Cambridge University Press.
- Atwood, C. P. 1991. "Life in third-fourth century Cadh'ota: A survey of information gathered from the Prakrit documents found north of Minfeng (Niyä)." *Central Asiatic Journal* 35.3/4, 161–199.
- Azad, A. 2016. "Living happily ever after: Fraternal polyandry, taxes and 'the house' in early Islamic Bactria." *Bulletin of the School of Oriental and African Studies*, 79.1, 33–56.
- Baratin, C. and L. Martinez-Sève. 2013. "Le grenier grec de Samarkand." In J. Bendezu-Sarmiento (ed.), *L'archéologie française en Asie centrale. Nouvelles recherches et enjeux socioculturels*, 373–389. Paris: De Boccard.
- Baums, S. 2012. "Catalog and revised texts and translations of Gandharan reliquary inscriptions." In D. Jongeward, E. Errington, R. Salomon, and S. Baums, *Gandharan Buddhist Reliquaries*, 200–251. Seattle WA: University of Washington Press.
- . 2014. "Gandhāran scrolls: Rediscovering an ancient manuscript type." In J.-U. Sobisch, D. Bondarev, and J. Quenzer (eds.), *Manuscript cultures: Mapping the field*, 183–226. Berlin: De Gruyter.
- . 2018. "A framework for Gandhāran chronology based on relic inscriptions." In W. Rienjang and P. Stewart (eds.), *Problems of chronology in Gandhāran art: Proceedings of the first international workshop of the Gandhāran Connections Project, University of Oxford, 23rd–24th March, 2017*, 53–70. Oxford: Archaeopress.
- . Forthcoming. "The earliest colophons in the Buddhist Northwest." In G. Giotti, M. Delhey, N. Balbir (eds.), *The syntax of colophons in Indic Poṭhi manuscripts*.
- Bang, F. 2015. "Tributary empires and the New Fiscal Sociology: some comparative reflections." In A. Monson and W. Scheidel (eds.), *Fiscal regimes and the political economy of premodern states*, 537–556. Cambridge: Cambridge University Press.
- Belaňová, P. 2016. "Ancient adornments of Central Asia influenced by the Greek jewellery of the Classical and Hellenistic Period." *Studia Hercynia* 20.1, 111–126.
- Bernard, P. 1979. "Pratiques financières grecques dans la Bactriane hellénisée." *Bulletin de la Société française de Numismatique* 34/35, 517–520.
- Bernard, P. and C. Rapin. 1994. "Un parchemin gréco-bactrien d'une collection privée." *Comptes rendus des séances de l'Académie des Inscriptions et Belles-Lettres* 138.1, 261–294.

- Blet-Lemarquand, M. 2011. "The origin of the gold." In F. Holt and O. Vopearachchi (eds.), *The Alexander Medallion: Exploring the origins of a unique artefact*, 82–92. Rouqueyroux: Imago Lattara.
- Bolelov, S. V. 2010. "Гончарные производства Бактрии античного периода" [Pottery of Bactria of the ancient period]. In *Древние цивилизации на Среднем Востоке. Археология, история, культура. Материалы международной научной конференции, посвященной 80-летию Г.В. Шишкиной*, 26–28. Москва: Государственный музей Востока.
- . 2018. Кампыртепа — кушанская крепость на Оксе. Археологические исследования 2001–2010 гг. [*Kampyrtepa – Kushan fortress on the Oxus: Archaeological investigations 2001–2010*]. Москва: Нестор-История.
- Vopearachchi, O. 1990. "Graeco-Bactrian issues of later Indo-Greek kings." *Numismatic Chronicle* 150, 79–103.
- . *Monnaies gréco-bactriennes et indo-grecques: Catalogue raisonné*. Paris: Bibliothèque nationale.
- . 2009. "Premières frappes locales de l'Inde du Nord-Ouest: Nouvelles données." In P. Gignoux, C. Jullien, and F. Jullien (eds.), *Trésors d'Orient. Mélanges offerts à Rika Gyselen*, 39–50. Paris: Association pour l'Avancement des Études Iraniennes.
- . 2017. "Achaemenids and Mauryans: Emergence of coins and plastic arts in India." In A. Patel and T. Daryaee (eds.), *India and Iran in the longue durée*, 15–48. Leiden: Brill.
- Bordeaux, O. 2018. *Les Grecs en Inde. Politiques et pratiques monétaires (IIIe s. a.C.–Ier s. p.C.)*. Bordeaux: Ausonius.
- . 2021. "Sôphytos et Andragoras. Deux cas de monnayages autonomistes entre Bactriane et Parthie séleucides." *Monuments et mémoires de la Fondation Eugène Piot* 99, 77–154.
- Briant, P. 2012. "From the Indus to the Mediterranean: The administrative organization and logistics of the Great Roads of the Achaemenid Empire." In S. E. Alcock, J. P. Bodel, and R. J. A. Talbert (eds.), *Highways, byways, and road systems in the pre-modern world*, 183–201. New York: Wiley-Blackwell.
- Bracey, R. 2009. "The coinage of Wima Kapdhises." *Gandhāran Studies* 3, 25–74.
- Brancaccio, P. and L. M. Olivieri. 2019. "Regional workshops and small stūpas in the Swat Valley: An analysis of the evidence from Gumbat, Saidu Sharif, and Pānṛ." In W. Rienjang and P. Stewart (eds.), *The geography of Gandhāran art: Proceedings of the Second International Workshop of the Gandhara Connections Project, University of Oxford, 22nd–23rd March, 2018*, 121–142. Oxford: Archaeopress.
- Briant, P. 2002. *From Cyrus to Alexander: A history of the Persian Empire*. Winona Lake, IN: Eisenbrauns.
- . 2020. "Bactria in the Achaemenid Empire: The Achaemenid central state in Bactria (again)." In R. E. Payne and R. King (eds.), *The limits of empire in ancient Afghanistan: Rule and resistance in the Hindu Kush, circa 600 BCE–600 CE*, 21–44. Wiesbaden: Harrassowitz.
- Burrow, T., trans. 1940. *A translation of the Kharosthi documents from Chinese Turkestan*. London: Royal Asiatic Society.
- Chirico, P. G., R. G. Stamm, T. W. Moran, and A. Chaihorsky. 2011. "Summary of the north Takhar placer gold area of interest." In S. G. Peters, T. V. V. King, T. J. Mack, and M. P. Chornack (eds.), *Summaries of important areas for mineral investment and production opportunities of nonfuel minerals in Afghanistan*, 951–968. Reston, Virginia: U. S. Geological Survey.
- Coloru, O. 2009. *Da Alessandro a Menandro. Il regno Greco di Battriana*. Pisa: Fabrizio Serra.
- Coloru, O., E. Iori, and L. M. Olivieri. Forthcoming. "Swat after the Indo-Greeks. The city, the sanctuary and the economy: An archaeological overview." In G. Lindström (ed.), *Ritual matters: Archaeology and religion in Hellenistic Central Asia: Proceedings of the second meeting of the Hellenistic Central Asia Research Network, Berlin, November 2017*, *Studia Hercynia*.

- Constable, O. R. 2004. *Housing the stranger in the Mediterranean world: Lodging, trade, and travel in Late Antiquity and the Middle Ages*. Cambridge: Cambridge University Press.
- Cowell, M. R. 1989. "Analyses of the cupro-nickel alloy used for Greek Bactrian coins." In Y. Maniatis (ed.), *Archaeometry: Proceedings of the 25th International Symposium*, 335–345. Amsterdam: Elsevier.
- Cribb, J. 1984. "The Sino-Kharosthi coins of Khotan: Their attribution and relevance to Kushan chronology: Part 1." *Numismatic Chronicle* 144, 128–152.
- . 1999. "The early Kushan kings: New evidence for chronology. Evidence from the Rabatak inscription of Kanishka I." In M. Alam and D. E. Klimburg-Salter (eds.), *Coins, art, and chronology. Essays on the pre-Islamic history of the Indo-Iranian borderlands*, 177–205. Vienna: Verlag der Österreichischen Akademie der Wissenschaften.
- . 2005. *The Indian coinage tradition: Origins, continuity and change*. Nashik: Indian Institute of Research in Numismatic Studies.
- . 2007. "Money as a marker of cultural continuity and change in Central Asia." In J. Cribb and G. Herrmann (eds.), *After Alexander. Central Asia before Islam*, 333–376. Oxford: Oxford University Press.
- . 2014. "The Soter Megas coins of the first and second Kushan kings, Kujula Kadphises and Wima Takto." *Gandhāran Studies* 8, 79–122.
- . 2020. "Greekness after the end of the Bactrian and Indo-Greek Kingdoms." In R. Mairs (ed.), *The Graeco-Bactrian and Indo-Greek world*, 653–681. London: Routledge.
- Cribb, J. and R. Bracey. Forthcoming. *Kushan coins and history – A type catalogue of Kushan, Kushano-Sasanian and Kidarite Hun coins based on the British Museum Collection*. London: British Museum Press.
- Daffinà, P. 2017. "L'economia dell'India antica." In P. Cannata and P. Daffinà (eds.), *Eurasica: Scritti scelti*, 535–575. Rome: Scienze e Lettere.
- Dan, A., F. Grenet and N. Sims-Williams. 2014 [2018]. "Homeric scenes in Bactria and India: Two silver plates with Bactrian and Middle Persian inscriptions." *Bulletin of the Asia Institute* 28, 195–296.
- De Chiara, M., R. Micheli, and L. M. Olivieri. 2019. "Pašto mečān مېچن 'hand-mill, quern': Linguistic and archaeological notes on rotary querns." In S. Badalkhan, G. P. Basello, and M. De Chiara (eds.), *Iranian studies in honour of Adriano V. Rossi*, 255–271. Naples: UniorPress.
- de la Vaissière, É. 2005. *Sogdian traders: A history*. J. Ward (trans.). Leiden: Brill.
- Eley, T., P. Marquis, and N. A. Noori. 2016 [2019]. "Archaeometallurgical evidence at Mes Aynak, Logar province, Afghanistan." *Archäologische Mitteilungen aus Iran und Turan* 48, 265–281.
- Falk, H. 2001. "Annexe: Names and weights inscribed on some vessels from the silver hoard." *Journal des Savants* 2.1, 308–319.
- . 2009a. "Greek style dedications to an Indian god in Gandhara." *Indo-Asiatische Zeitschrift* 13, 25–42.
- . 2009b. "The pious donation of wells in Gandhara." In G. J. R. Mevissen and A. Banerji (eds.), *Prajñādhara: Essays on Asian art, history, epigraphy and culture in honour of Gouriswar Bhattacharya*, 23–36. New Delhi: Kaveri.
- . 2010. "Names and titles from Kuṣāṇa times to the Hūṇas: The Indian material." In M. Pfisterer, M. Alam, M. Inaba, and D. Klimburg-Salter (eds.), *Coins, art and chronology*. Vol. 2, 73–89. Vienna: Österreichische Akademie der Wissenschaften.
- . 2021. "Two fragmentary Kharoṣṭhī inscriptions." *Annual report of the International Research Institute for Advanced Buddhism at Soka University for the academic year 2020* 24, 7–16.
- Falk, H. and C. Bennett. 2009. "Macedonian intercalary months and the era of Azes." *Acta Orientalia* 70, 197–216.
- Francfort, H.-P. 1984. *Fouilles d'Ai Khanoum*. Vol. 3, *Le sanctuaire du temple à niches indentées. Part 2, Les trouvailles*. Paris: De Boccard.

- . 2013. “Habitat rural achéménide, hellénistique et kouchan dans la plaine d’Aï Khanoum-Shortughai.” In G. Lecuyot, *Fouilles d’Aï Khanoum*. Vol. 9, 157–178. Paris: De Boccard.
- Gardin, J.-C. 1998. *Prospections archéologiques en Bactriane orientale (1974–1978)*. Vol. 3, *Description des sites et notes de synthèse*. Paris: Éditions Recherche sur les Civilisations.
- Gentelle, P. 1989. *Données paléogéographiques et fondements de l’irrigation*. Vol. 1, *Prospections archéologiques en Bactriane orientale (1974–1978)*. Paris: De Boccard.
- Glenn, S. 2015. “Royal coinage in Hellenistic Bactria: A die study of coins from Euthydemus I to Antimachus I.” PhD diss., Oxford University.
- Gorin, A. N. 2015. “Кушанские монеты из Бухарского Оазиса [Kushan coins from Bukhara Oasis].” In A. V. Omelchenko and D. K. Mirzaakhmedov (eds.), *Бухарский оазис и его соседи в древности и Средневековье. На основе материалов научных конференций 2010 и 2011 гг.* Труды Государственного Эрмитажа 75, 53–62. St Petersburg: Изд-во Гос. Эрмитажа.
- Grenet, F. 2015. “Zoroastrianism in Central Asia.” In M. Stausberg, Y. Sohrab-Dinshaw Vevaina, and Tessmann (eds.), *The Wiley Blackwell companion to Zoroastrianism*, 129–146. Malden, MA: Wiley Blackwell.
- Guerra, M. F., G. Demortier, M. L. Vitobello, S. Bobomullov, D. Bagault, T. Borel, and I. Mirsaidov. 2009. “Analytical study of the manufacturing techniques of Kushan gold jewellery (National Museum of Antiquities of Tajikistan).” *ArcheoSciences. Revue d’archéométrie*, no. 33, 177–185.
- Henkelman, W. F. M. 2018. “Bactrians in Persepolis – Persians in Bactria.” In J. Lhuillier and N. Boroffka (eds.), *A millennium of history: The Iron Age in southern Central Asia (2nd and 1st millennia BC): Proceedings of the conference held in Berlin (June 23–25, 2014): Dedicated to the memory of Viktor Ivanovich Sarianidi*, 223–255. Berlin: Reimer.
- Henkelman, W. F. M. and M. L. Folmer. 2015. “Your tally is full! On wooden credit records in and after the Achaemenid Empire.” In K. Kleber and R. Pirngruber (eds.), *Silver, money and credit: A Tribute to Robertus J. van der Spek on the Occasion of his 65th Birthday on 18th September 2014*, 113–239. Leiden: Nederlands Instituut voor het Nabije Oosten.
- Henning, W. B. 1965. “Surkh-Kotal und Kaniška.” *Zeitschrift der Deutschen Morgenländischen Gesellschaft* 115.1, 75–87.
- Hill, J. E. 2015. *Through the Jade Gate – China to Rome: A study of the silk routes 1st to 2nd centuries CE*. New updated and expanded edition. Vol. 1, *Text translation and notes*. Self-published, CreateSpace.
- Holt, F. L. 1981. “The Euthydemid coinage of Bactria: Further hoard evidence from Aï Khanoum.” *Revue Numismatique* 6/23, 7–44.
- Jacobs, B. 1994. *Die Satrapienverwaltung im Perserreich zur Zeit Darius’ III*. Wiesbaden: Reichert.
- . 2011. “Achaemenid satrapies.” *Encyclopaedia Iranica*, online edition. www.iranicaonline.org/articles/achaemenid-satrapies.
- Jongeward, D., J. Cribb, and P. Donovan. 2015. *Kushan, Kushano-Sasanian, and Kidarite coins: A catalogue of coins from the American Numismatic Society*. New York, NY: American Numismatic Society.
- King, R. 2020. “Local powerbrokers in Iranian and post-Iranian Bactria (ca. 300–800 CE): Aristocrats, dependents, and imperial regimes.” In R. E. Payne and R. King (eds.), *The limits of Empire in ancient Afghanistan: Rule and resistance in the Hindu Kush circa 600 BCE–600 CE*, 245–270. Wiesbaden: Harrassowitz.
- Kuwayama, S. 2002. “The Buddha’s Bowl in Gandhara.” In S. Kuwayama (ed.), *Across the Hindukush of the first millennium: A collection of the papers*, 20–43. Kyoto: Institute for Research in Humanities Kyoto University.
- Law, R. 2006. “Moving mountains: The trade and transport in rocks and minerals within the greater Indus Valley region.” In E. C. Robertson, J. D. Seibert, D. C. Fernandez, and M. U. Zender (eds.), *Space and spatial analysis in archaeology*, 301–313. Calgary: University of Calgary Press.

- Leriche, P. 2007. "Bactria, land of a thousand cities." In J. Cribb and G. Hermann (eds.), *After Alexander: Central Asia before Islam*, 121–153. Oxford: Oxford University Press.
- Livšić, V. A. 2009. "Sogdian 'Ancient Letters' (II, IV, V)." *Scrinum* 5.1, 344–352.
- MacDowall, D. W. 2007. "Coinage from Iran to Gandhāra. With special reference to divinities as coin types." In D. M. Srinivasan (ed.), *On the Cusp of an Era: Art in the Pre-Kuṣāṇa World*, 233–265. Leiden; Boston: Brill.
- Mairs, R. 2014. *The Hellenistic Far East: Archaeology, language, and identity in Greek Central Asia*. Oakley, CA: University of California Press.
- Marquis, P. 2016. "The site of Mes 'Aynak." In M. Tisucká, L. Stančo, D. Stefanović, L. Novák, and R. Frečer (eds.), *Afghanistan. Rescued treasures of Buddhism*, 50–59. Prague: National Museum.
- Martinez-Sève, L. 2015. "Ai Khanoum and Greek domination in Central Asia." *Electrum* 22, 17–46.
- Melzer, G. 2020. "A loan contract from Gandhāra. Bajaur Collection Kharoṣṭhī fragment 15." http://130.223.29.184/editions/melzer_bc15_202006.pdf.
- Minorsky, V. 1967. "A Greek Crossing on the Oxus." *Bulletin of the School of Oriental and African Studies* 30.1, 45–53.
- Miyamoto, R. 2019. "Étude préliminaire sur la géographie administrative du Tukhāristān." *Studia Iranica* 48.2, 163–186.
- Monson, A. Forthcoming. "Taxation and tribute." In S. von Reden (ed.), *Companion to the Greek economy*. Cambridge University Press.
- Monson, A. and W. Scheidel. 2015. "Studying fiscal regimes." In A. Monson and W. Scheidel (eds.), *Fiscal regimes and the political economy of premodern states*, 3–28. Cambridge: Cambridge University Press.
- Nasim Khan, M. and M. Sohail Khan. 2004. "Buddhist Kharoṣṭhī manuscripts from Gandhāra. A new discovery." *The Journal of Humanities and Social Sciences* 12.1–2, 9–15.
- Naveh, J. and S. Shaked. 2012. *Aramaic documents from ancient Bactria (fourth century BCE) from the Khalili Collections*. London: The Khalili Family Trust.
- Naymark [Naimark], A. 2005. "Находки греческих монет в Согдиане" [Finds of Greek coins in Sogdiana]. *Нумизматика и Эпиграфика* 17, 116–138.
- . 2016. "The coinage of Nakhshab during the first–fourth centuries CE: Towards a new systemization of Sogdian coinages and the political history of Sogd during antiquity." *Journal of Inner Asian Art and Archaeology* 7, 55–77.
- Olivieri, L. M. 2020. "Gandhāra and North-Western India." In R. Mairs (ed.), *The Graeco-Bactrian and Indo-Greek World*, 386–415. London: Routledge.
- . Forthcoming. "Double-crop pocket zones and empires: The case of Swat." In M. Dwivedi, L. Fabian, K. Leese-Messing, L. Morris, E. J. S. Weaverdyck (eds.), *Economies of the edge: Frontier zone processes at regional, imperial, and global scales (300 BCE–300 CE)*. Heidelberg: Heidelberg University Press.
- Olivieri, L. M. and M. Vidale. 2006. "Archaeology and settlement history in a test area of the Swat Valley: Preliminary report on the AMSV project (1st phase)." *East and West* 56.1/3, 73–150.
- Petitot-Biehler, C.-Y. and P. Bernard. 1975. "Trésor de monnaies grecques et gréco-bactriennes trouvé a Ai Khanoum (Afghanistan)." *Revue Numismatique* 17, 23–69.
- Picard, O. 1984. "Sur deux termes des inscriptions de la trésorerie d'Ai Khanoum." In H. Walter (ed.), *Hommages à Lucien Lerat*. Vol. 2, 679–690. Paris: Les Belles Lettres.
- Pingree, D. 1982. "A note on the calendars used in early Indian inscriptions." *Journal of the American Oriental Society* 102.2, 355–359.
- Pourshariati, P. 2008. *Decline and fall of the Sasanian Empire. The Sasanian-Parthian confederacy and the Arab conquest of Iran*. London: I. B. Tauris.
- Pugachenkova, G. A. 1976. "К открытию надписей кхарошти на золотых предметах Дальверзинского клада" [On the discovery of Kharoshthi inscriptions on gold objects from the Dal'verzin treasure]. *Вестник древней истории* 135.1, 64–71.

- Rapin, C. 1992. *Fouilles d'Aï Khanoum*. Vol. 8, *La Trésorerie du palais hellénistique d'Aï Khanoum. L'Apogée et la chute du royaume grec de Bactriane*. Paris: De Boccard.
- . 2018. “On the way to Roxane 2: Satraps and hyparchs between Bactra and Zariaspa-Maracanda.” In J. Lhuillier and N. Boroffka (eds.), *A millennium of history. The Iron Age in southern Central Age (2nd and 1st millennia BC)*, 257–298. Berlin: Dietrich Reimer.
- Rapin, C. and F. Grenet. 1983. “Inscriptions économiques de la trésorerie hellénistique d'Aï Khanoum: L'onomastique iranienne à Aï Khanoum.” *Bulletin de correspondance hellénique* 107, 315–381.
- Rea, J. R., R. C. Senior, and A. S. Hollis. 1994. “A tax receipt from Hellenistic Bactria.” *Zeitschrift für Papyrologie und Epigraphik* 104, 261–280.
- Rougémont, G. 2012. *Inscriptions grecques d'Iran et d'Asie centrale*. London: School of Oriental and African Studies.
- Rtveladze, E. V. 2012. Великий индийский путь: Из истории важнейших торговых дорог Евразии [*The Great Indian Road. From the history of the most important trade routes of Eurasia*]. Санкт-Петербург: Нестор-История.
- Salomon, R. 1974. “The Kṣatrapas and Mahākṣatrapas of India.” *Wiener Zeitschrift für die Kunde Südasiens* 18, 5–25.
- Schlumberger, D. 1953. “L'argent grec dans l'empire achéménide.” In D. Schlumberger and R. Curiel, *Trésors monétaires d'Afghanistan*, 3–62. Paris: Imprimerie Nationale.
- Shah, M. T. and H. Khan. 2004. “Exploration and extraction of placer gold in the terraces of Bagrot valley, Gilgit, northern Pakistan.” *Geological Bulletin of the Punjab University* 37, 27–40.
- Sharma, S. 2012. “Recent discovery of copper coins hoard of Kushan period from Basani, Varanasi.” In V. Jayaswal (ed.), *Glory of the Kushans: Recent discoveries and interpretation*, 57–76. New Delhi: Aryan Books International.
- Sims-Williams, N. 2004 [2008]. “The Bactrian inscription of Rabatak: A new reading.” *Bulletin of the Asia Institute* 18, 53–68.
- . 2007. *Bactrian documents from northern Afghanistan*. Vol. 2, *Letters and Buddhist Texts*. London: The Nour Foundation.
- . 2008. “Bactrian tallies.” In B. Huber, M. Volkart, and P. Widmer (eds.), *Chomolangma, Demawend und Kasbek, Festschrift für Roland Bielmeier zu seinem 65. Geburtstag*. Vol. 2, 525–532. Halle: International Institute for Tibetan and Buddhist Studies.
- . 2009 [2013]. “Some Bactrian inscriptions on silver vessels.” *Bulletin of the Asia Institute* 23, 191–198.
- . 2012a. *Bactrian documents from northern Afghanistan*. Revised ed. Vol. 1, *Legal and economic documents*. London: The Nour Foundation.
- . 2012b. “Bactrian historical inscriptions of the Kushan period.” *The Silk Road* 10, 76–80.
- . 2015. “A new Bactrian inscription from the time of Kanishka.” In H. Falk (ed.), *Kushan histories: Literary sources and selected papers from a symposium at Berlin, December 5th to 7th, 2013*, 255–264. Bremen: Hemen.
- Sims-Williams, N. and F. De Blois. 2018. *Studies in the chronology of the Bactrian documents from northern Afghanistan*. Vienna: Verlag der Österreichischen Akademie der Wissenschaften.
- Skinner, M. C. 2017. “Marks of empire: Extracting a narrative from the corpus of Kuṣāṇa inscriptions.” PhD diss., University of Washington.
- Stančo, L. 2018. “Getting rotary: Introduction of rotary quern stones in Ancient Bactria.” In A. S. Sagdullaev (ed.), *Проблемы истории, археологии и этнологии центральной Азии*, 118–128. Ташкент: Министерство высшего и среднего специального образования Республики Узбекистан, Национальный университет Узбекистана им. Мирзо Улугбека.
- Strauch, I. 2008. “The Bajaur collection of Kharoṣṭhī manuscripts: A preliminary survey.” *Studien zur Indologie und Iranistik* 25, 103–136.

- Sverchkov, L. M. 2009. "A history of research on ancient mining in Uzbekistan." *Archäologische Mitteilungen aus Iran und Turan* 41, 141–164.
- Thomalsky, J., J. B. Bräutigam, M. Karaucak, and S. Kraus. 2013. "Early mining and metal production in Afghanistan: The first year of investigations." *Archäologische Mitteilungen aus Iran und Turan* 45, 199–230.
- Vainberg, V. I. 1977. Монеты древнего Хорезма [*Coins of ancient Khorezm*]. Москва.
- Vorob'eva-Desiatovskaia, M. I. 1976. "Надписи письмом кхароштки на золотых предметах из Дальверзин-тене" [Kharoshthi inscriptions on gold objects from Dal'verzin-tepe]. Вестник древней истории 135.1, 72–79.
- Whitfield, S. 2018. *Silk, slaves, and stupas. Material culture of the Silk Road*. Oakfield, CA: University of California Press.
- Wu, X. 2017. "Land of the unruly-ables: Bactria in the Achaemenid period." In K. O. Weber, E. Hite, L. Khatchadourian, and A. T. Smith (eds.), *Fitful histories and unruly publics: Rethinking temporality and community in Eurasian archaeology*, 258–287. Leiden: Brill.
- . 2018. "Exploiting the Virgin Land: Kyzyltepa and the effects of the Achaemenid Persian Empire on its Central Asian frontier." In J. Lhuillier and N. Boroffka (eds.), *A millennium of history: The Iron Age in southern Central Asia (2nd and 1st millennia BC): Proceedings of the conference held in Berlin (June 23–25, 2014); dedicated to the memory of Viktor Ivanovich Sarianidi*, 189–214. Berlin: Dietrich Reimer.
- Yakubovich, I. 2005. "Marriage i. The marriage contract in the pre-Islamic period." *Encyclopaedia Iranica*, online edition. <http://iranicaonline.org/articles/marriage-contract-in-the-pre-islamic-period>.
- Zeimal', E. V. 1978. "Политическая история Трансоксианы по нумизматическим данным [Political history of Transoxiana according to numismatic data]." In *Культура Востока. Древность и раннее средневековье, 192–214*. Ленинград: Аврора.

Mamta Dwivedi

10 Tools of Economic Connectivity in Early Historic South Asia

I Introduction

This chapter discusses various institutions, both physical and ideological, that linked actors vertically and horizontally and facilitated the movement of people, goods, and ideas in early historic South Asia. Between 300 BCE and 300 CE, the region saw the emergence of various standardized institutions despite the lack of political cohesion. The development of the *śāstric* literary tradition is a clear evidence for this. It is true that a majority of these institutions presuppose a state structure, but their adoption was not limited to one dynasty or a particular type of polity. The organizing factor of these institutions, rather, is a network of ideas and ideals within which various actors negotiated with each other at different levels.

This chapter, therefore, is organized to emphasize the cohesiveness of the tools that transcended political boundaries. The first section describes the fiscal structures mentioned in different sources. The dominant fiscal systems presuppose the presence of a state structure in which the processes of resource appropriation were shaped by negotiations between various participants. The next section outlines the monetary systems in India, which were shaped by the involvement of multiple actors. These actors were able to issue coins that often cocirculated and served as media of communication. The third section concerns legal systems. These were fundamentally predicated on the presence of a monarchical polity, but they were not limited to it. Rather, the normative texts recognize a variety of semiautonomous legal spheres. The fourth section discusses the process of standardization itself, which affected the three previous domains. The geographical spread of scripts and languages, particularly Sanskrit, highlights the need to consider the normative texts as products of and participants in the process of standardization, while archaeological evidence attests to the spread of normative ideals about expenditure on luxury items and *euergetic* practices. At the same time, local diversity persisted. The fifth and final topic, infrastructure, focuses on the variety of ways that people responded to their environment as they practiced agriculture, built cities, and transported goods.

II Fiscal Regime

The political situation in early historic South Asia did not exhibit a uniform political system, which has been discussed in volume one.¹ Arguably, a variety of complex polities would function with a variety of fiscal regimes.² Much of the information on politico-economic regime of the northern polities is derived from ancient scholarly treatises, namely the *Kauṭīliya Arthaśāstra* and various *dharmaśāstras*. The history of the Deccan and southern fiscal systems is derived from epigraphic evidence, which does not provide any stark difference to the *śāstric* models of governance. However, within the *śāstras* the authors offered different opinions and acknowledged local practices and systems that may be taken as evidence for plurality in fiscal practices in different regions and reigns.³

Economic-history writing of early India has always been dominated by textual evidence. The *Kauṭīliya Arthaśāstra*, a treatise on statecraft, has sparked many debates and publications about the normative definitions and functions of the ancient fiscal system.⁴ In addition to the *Arthaśāstra*, various *dharmaśāstras* (prescriptive texts on duties) throw light on the issues of administration, such as types of taxes, recommended rates of taxation, exceptions, and monopolistic control over some resources.⁵ Epigraphic material also elucidates the types of taxes, but more particularly, records the grants of exemptions from taxation (see below).

Even though the geographical size of South Asia and political pluralities within make it unfair to generalize and argue for uniform fiscal organization, it is possible to suggest some dominant trends and ask questions that may be relevant to the region. Keeping the longevity of certain consumptive behavior and values in consideration, this section will discuss fiscal systems as economic tools that established greater channels of connectivity that were both physical, for the appropriation of resources, and ideological, including the agreements made with those taxed. Addi-

1 See Dwivedi, vol. 1, ch. 3.

2 Various articles in the edited book by Monson and Scheidel (2015a) have argued for a plurality of institutional organizations that can shape a fiscal regime. One of the interesting studies in that volume is about the Incas by D'Altroy (2015), who makes a compelling argument that we must not assume a single kind of economic rationality that may have governed the economic policies of early states, instead it is important to focus on a society's subjective definitions of economic goals, opportunities, and constrains.

3 The importance of taking into account the regional practices and traditions is also seen in the context of legal structures, which has been discussed below, sec. IV.

4 Ghoshal 1929; Altekar 1955; Kane (1946) 1973; Sarkar 1978; Tripathi 1985; Sharma (1959) 2012; Thapar 1992; 2013; Kangle (1969) 2014c. For a discussion on importance of the *Arthaśāstra* in economic history writing of ancient India, see Dwivedi, vol. 1, ch. 10.A, 645–646.

5 Even though the texts are prescriptive, the tradition of commentary (*tika*, *bhāṣya*, and *nibandha*) on these normative texts even centuries after their compilation suggests the prevalence of discussion on various subject matters of administration and governance. For more on the nature the *śāstras* (treatises) as sources, see Dwivedi, vol. 1, ch. 10.A.

tionally, the relationship between the taxed and the taxpayer will be discussed as indicated by the channels of distribution of collected revenue and the purpose of resource mobilization.

II.1 Revenue Collection in Money, Kind, and Services

The Kauṭilyan model is among the most discussed ancient Indic models of economic state, and recommends revenue collection to sustain the treasury (*koṣa*). The treasury is considered the primary focus of the king, as all undertakings presuppose the treasury.⁶ Kauṭilya gives detailed instructions for what should go into the treasury, what constitutes it, measures that may be fruitful for the expanse in revenue, and caveats against measures that may result in depletion.⁷ The economic activities that constitute the ‘income’ (*āya*) are mainly from seven broad sources of revenue, which are “fort, province, pit mines, irrigation works, forests, herds, and trade routes.”⁸ Together, these are called *āyaśarīraṃ* (‘the corpus of revenue’).⁹ These categories are further explained by Kauṭilya, as they are comprised of activities and bodies as sources of income. For example, the fort as a revenue-generating unit consists of duties, fines, mints, various offices involved in regulating crafts, service, and commercial establishments, unions of artisans and craftsmen, etc.¹⁰

Tapping of resources thus was important and crucial for both the ruling king and the prince planning to rule by acquiring treasure and army (*koṣadaṇḍa*).¹¹ There are six kinds of taxes mentioned in the treatises: (1) annual tribute paid on land (*bali*), (2) tax on earnings (*bhāga*), (3) income tax (*veśya*), (4) sales tax (*vaṇik*), (5) any tax levied on top of the regular *bhāga* or *bali* (*kara*), and (6) custom duty and fees (*śulka*).¹² It would not be wrong to say that the difference between (state) taxes and (imperial) tributes, as we understand them in English, is not easy to discern in the early historic context. The income of the state is to be assessed at different ‘accounting periods’ (*vyaṣṭa*) depending on the source of the income and

6 Kauṭilya *Arthaśāstra* (KA) 2. 8. 1–2.

7 KA 2. 8. 3–4.

8 *Durga, rāṣṭra, khani, setu, vana, vraja, vaṇikpatha*, respectively. KA 2. 6. 1. Trans. Olivelle 2013, 109.

9 KA 2. 6. 9. There is an anthropomorphic representation of state and its administration by the author of the *Arthaśāstra* and metaphors are often used. One such instance is the representation of the corpus of revenue in two parts, the *āyaśarīraṃ/vyayaśarīraṃ* (‘body of income’/‘body of expenditure’) and the *āyamukham* (‘head of the income’). Such representations allow the author to give a very terse representation of the relative importance of the various sources of income and expenditure.

10 KA 2. 6. 2. For the detailed list of constituents of the seven categories mentioned above, see KA 2. 6. 1–10.

11 KA 1. 18. 7.

12 Pagel 2017, 107.

expenditure. The accounting period can be daily, weekly, fortnightly, monthly, quarterly, and yearly.¹³

II.1.1 Taxation

Taxes levied were both in cash (*deya*) and kind (*meya*).¹⁴ Taxes in cash were mostly octrois, tolls, and import duties, fees, and fines. Tolls and import duties could be collected at the city gates, highways, river harbors, etc.¹⁵ Taxes in kind were common on agricultural produce, however, we also learn about taxes collected in kind from herdsmen, fishermen, forest dwellers, and villages responsible for provisions to the army.¹⁶ The textual sources account for both variable and fixed levies. Nevertheless, a majority of recommended taxes (*bali* and *bhāga*) appear to be variable taxes that recommended collection based on a fixed rate of share in the produce, such as a sixth, eighth, or twelfth, rather than a fixed volume.¹⁷ The prevalence of variable taxes is important to note, as such models are often indicative of a specific type of fiscal machinery. The variable taxes could make it important to measure production every year, though perhaps not in every case. For agricultural produce, an alternate model could be that a portion of land and what it produces was demarcated for taxes. A farmer may not have harvested his field before the share of the state was ascertained, then the collected grain was also measured by the officer at the state storehouse.¹⁸ Moreover, the taxes levied on agriculture varied from region to region based on the type of irrigation facility, so the irrigation tax (*udakabhāgam*) also played a role in the calculation of tax due.¹⁹

We are aware of the payment of taxes through services. Texts show recommendations for artisans, craftsmen, and self-employed Śūdras (socioritual group of manual workers) to contribute one day's work each month as tax.²⁰ *Viṣṭi*, also found in

¹³ KA 2. 7. 30.

¹⁴ The terms *deya* and *meya* are found in the Sātavāhana inscriptions from the western Deccan. See Mirashi 1981, no. 17. See also Sircar 1969, 66.

¹⁵ KA 2. 6. 2; 2. 16. 18 and other verses. Epigraphic evidence for collection from a port site is also found in Sri Lanka, see Falk 2001.

¹⁶ *Manusmṛiti* (MS) 8. 130; KA 2. 1. 19; 2. 1. 4; 2. 15. 3; 2. 29. 7 See also Pagel 2014, 40.

¹⁷ For example, *bali* ('tribute') from land and *bhāga* ('share in profit') are to be collected at these rates. *Bali*, often equated to tribute, is a type of payment to the king and perhaps the oldest to be recorded in Indic literature. *Bali* was particularly associated with the agricultural land as the KA (2. 6. 2) suggests it was not levied in the cities. See Pagel 2014, 31–34.

¹⁸ A *jātaka* story refers to an officer measuring the collected rice. See story no. 275 in Cowell 1977, 2:256.

¹⁹ KA 2. 24. 18.

²⁰ MS 7. 138.

epigraphic sources, refers to unpaid labor, but whether it connotes voluntary labor in the spirit of community or forced labor is not clear.²¹

II.1.2 Workshops, Investment, and Monopolies as Sources of Income

Other than taxation, states earned by investing in different sectors. Economic activities that were to be promoted and invested in (*niveśyet*) included factories related to mines (*ākara karmānta*), produce and elephant forests (*dravyahastivana*), cattle herd and trade routes (*vrajavaniḱpatha*), and water routes, land routes, and ports (*vāriṣṭhalapathapanyapattanāni*).²² The investment in the last three constitute the infrastructural developments that simplified transportation and reduced the risks of intervention by unlawful elements, making them profitable for a state in the long run.²³

The state also owned various resources,²⁴ such as vast agricultural lands and gardens (*sītā*).²⁵ The produce from those farms went directly to the storehouse for royal consumption and storage. Although it is impossible to estimate the land owned by different royals, we may speculate that these lands were either tilled by wage labor or rented and leased to farmers. Regarding the second arrangement, we learn that the right to till the land may be forfeited from a person who failed to cultivate for more than a year. Other than leasing the royal land, the state may have lured settlers to bring virgin land under cultivation through incentives like tax rebates or tax waivers for the first few years.²⁶ Other than agriculture, resources like fish, waterfowl, and cultivation of commercial vegetables around irrigation works are identified as other revenues for a king.²⁷

One of the important sources of income and tool of asserting economic dominance was the combination of monopsonies and monopolies that a state can impose on the acquisition and production of certain resources. Mines may have been one of the most important resources under a state's monopolistic policies, as "mines are source of military armaments."²⁸ However, the state did not need to directly control

21 An inscription dated 150 CE records the repairs made to a water tank without the use of any *viṣṭi* labor. For Junagarh inscription of Rudradāman, see Mirashi 1981, no. 51.

22 KA 2. 1. 19. Trans. Olivelle 2013, 100. Kangle ([1969] 2014b, 64) reads the terms as *ākara* (mines) and *karmānta* (factories) as separate sources.

23 For more on infrastructure development, see sec. VI below.

24 The term 'state' has been used loosely here. For a discussion on what state means and constitutes as an economic actor, see Dwivedi, ch. 5, this volume.

25 Olivelle 2013, 44.

26 KA 2. 24. 16–17.

27 *matsyaplavaharitamanyānam setuṣu rāja svāmyam gacchet* KA 2. 1. 24. For the text, see Kangle (1969) 2014a.

28 *khaniḥ saṁgrāmopakaraṇānām yoniḥ* KA 7. 14. 25. Trans. Olivelle 2013, 317.

all mines centrally, and rather leased them out. In case a mine is economically burdensome in terms of work or expenses involved, it is recommended that ‘the superintendent of mines’ (*ākarādhyakṣa*) let mines for part-share (*bhāga*) or on a lease (*prakrayaṃ*). However, the light ones should be worked on by the state.²⁹ It’s possible that some mines were of no interest to the state, and it may have proved more profitable instead to maintain a monopsony. Salt mines have also been discussed as important sources of income for the state, which were under the supervision of ‘the superintendent of salt’ (*lavaṇādhyakṣa*). However, we also know of land with salt mines being donated to monasteries. For example, a Sātavāhana ruler forfeited any rights to the salt produced from the donated land.³⁰

Another common monopoly, or regulation if not outright monopoly, was the production of coins. Commonly, the mints were controlled by the state officials, however, we also have discussions in literary sources about delegation of minting activities to private organizations with certain fees and the issue of licenses (*rūpika*). For the state, an official ‘examiner of coins’ (*rūpadarśaka*) regulated acceptance of coins as both a medium of exchange and as a legal tender admissible into the treasury. And in the case of the ‘royal’ mints, the mints perhaps yielded some income in the form of brassage and seniorage charges of one and a half percent. Additionally, we learn of a paid service of testing the authenticity of coins (*parigha*).³¹

The income of the state, therefore, was a result of various strategies. Not only did the state exercise its administrative powers to extract taxes and labor, but it also maintained its monopolistic control over certain resources. In addition, the state also participated in the economy in the same capacities as other nonstate actors. Not only did they own vast agricultural lands, but they also owned businesses, namely gambling houses, brothels, and textile workshops. The fiscal policies, therefore, created connections between different sectors of economy with the state acting as the common link.

II.2 Socioeconomic Impact of Taxes: Distribution of Benefits and Burden

The appropriation of resources involved a complex body of decision-making actors at various levels of the bureaucracy, which makes the idea that the state is always the uncontested ‘winner’ in a tax collection process appear quite simplistic. And the collection of taxes is just one aspect of a fiscal system. It is the reallocation of the revenue, both real and proposed, that has an impact on the functioning of the revenue system of a state. The state promises protection, improved infrastructure, and

²⁹ KA 2. 12. 22,

³⁰ Mirashi 1981, nos. 11, 13, 19.

³¹ KA 2. 6. 10; 2. 12. 35. For further discussion on issues of monetization, see below.

donations for ritual returns, which are all alluring channels of redistribution for those paying taxes. However, the methods of tax collections may not always utilize amicable reasoning for taxation, as in the case of bandit models of taxation.³² But for the long-term sustainability of taxation, some form of negotiation is usually necessary.

II.2.1 Negotiations between State and Subjects

Ancient Indian texts provide two main reasons for paying taxes. One is the agreement between a ruler or warring classes and commoners, which renders the condition that the former provide protection to the commoners in return for some shares in resources. Theoretically, the king is therefore a servant of the people and the taxes he raises are his wages or remuneration.³³ The second model states, the king is either a divine appointee or chosen by the people to bring an end to the state of *mātsyanyāya* ('law of the fish'),³⁴ an imagery of anarchy where the big fish eat the small fish. Therefore, the ruler is to protect the weak, the social institution, and the private property of the people. Both of these models are similar to what we understand as the social contract theory, which promotes the idea that taxation and protection go hand in hand, and a king who fails to do so incurs sins and evil.³⁵

More generally, prescriptive texts on administration are a form of negotiation between the state and society that propose beneficial measures to the state and subject in the long run. The authors of the normative and prescriptive texts were aware of the temptations of overtaxation.³⁶ These texts emphasize the importance of low tax rates even in regular cases. It explains the expected behavior of a king through metaphors, i.e.: "Just as the leech, the calf and the bee take their sustenance little by little, so must the king draw from his kingdom annual taxes little by little."³⁷ The gentle grip of a king is compared to the actions of a tigress carrying her cubs between her jaws, a garland-maker picking flowers without harming the plant, and so on. In addi-

³² Fiscal institutions in ancient times are explained in the context of two political regimes. First, the 'roving bandit,' where the political regime focuses on maximizing the extraction of resources without any regard for the long-term productivity of a community. Second, the 'stationary banditry,' where the ruler or the regime invests in public good and long-term benefits. For applications of bandit models of state to different economies, see various articles in Monson and Scheidel 2015a. See also Terpstra 2019, 86–87.

³³ Kane (1946) 1973, 26–27, 36–37.

³⁴ *KA* 1. 4. 13–15; 1. 13. 5.

³⁵ For a detailed discussion about the expected duties of the king and the consequences of his failure to adhere to them, see Kane (1946) 1973, 36–38.

³⁶ We often hear of cruel and overtaxing kings in narrative literature like the *Jātakaṭṭhavaṇṇana* and in the *Pañcatantra*. See Cowell 1977 2:166, 5:54; Olivelle 1999b, 30–31.

³⁷ *MS* 7. 139. A similar emphasis on lower tax rate is also found in the *Udyogaparva* (34. 15–18) in the *Mahābhārata* (*MBh*), see van Buitenen 1978, 262.

tion, a ruler is also warned against the greed that may ruin his subjects. Various normative and didactic texts suggest that it is not a sin to kill or at least depose a greedy king who overburdens the taxpayers and deprives them of their property.³⁸

The duty of the king as the protector of property and happiness of the taxpayers is visible in the concept of *yogakṣema*.³⁹ This ideal is represented in the verse “happiness and welfare of king lies in the happiness and welfare of the subjects.”⁴⁰ This is why modern scholars often compare the Kauṭilyan idea of state with the welfare state model⁴¹ or at least a welfare-oriented one.⁴² Reallocation of resources in social matters is also noted, including support (food and lodging) to the orphans, aged, infirm, and afflicted, special care for children and pregnant woman, tax rebates during calamities, and preparation for situations of crisis.

The state also protected the weak members of society by exempting them from taxes. This group included pregnant women, minors/students, propertyless mendicants, personal servants, the physically handicapped, and the sick.⁴³ Also, villages or farmers struck by natural calamities received tax relief. In addition, religious groups received both tax exemptions and donations.⁴⁴ The tax benefits also extended to those trading in certain commodities for religious or ritual purposes. Some tax exemptions, however, were directly aimed at productivity. When farmers brought virgin land under cultivation, they were given at least partial immunity from taxation, and at times full immunity.

Expenses in public works are not just mentioned in the texts, but also in epigraphic records. Most commonly cited example is of the Aśokan edicts from the third century BCE, which refers to the construction of hospitals for men and animals, almshouses, rest houses, watering places, shady trees on the highway, and guided the subjects to take care of the old and handicapped. In addition, eulogical inscriptions of King Khāravēla (first century BCE) in the east and of various Śaka-Kṣātrapa inscriptions from the western Deccan have similar recordings of public work.⁴⁵ In addition, there are expenses on the maintenance of monuments, royal household, administrative buildings, and bureaucratic machinery.⁴⁶

38 The idea is found in the *MBh*, *MS*, and also *KA*. For a detailed discussion, see Kane (1946) 1973, 26–28.

39 *Kṣema* means conferring happiness; preserving, keeping what is acquired. *Yogakṣema* has four meanings: 1) security of possession; 2) the charge for securing property from accident, insurance; 3) welfare, wellbeing, security, prosperity; 4) property, profit, gain. See Apte 1985, 388, 788. For a discussion and explanation of the terms through various textual sources, see Kane (1946) 1973, 217, 588–590.

40 *KA* 1. 19. 34.

41 Kohli 1995; Sankhdher 2003.

42 Altekar 1955, 49.

43 *Āpastamba Dharmasūtra* 2. 26. 9–17, trans. Olivelle 1999a, 70.

44 See Dwivedi, ch. 5, VIII.2, this volume.

45 Kant 2000; Mirashi 1981.

46 For expenses on monuments, see Dwivedi, ch. 5, VIII.3, 4, this volume.

A good portion of state expenses were the salaries of the officials and armies.⁴⁷ However, it is recommended that salary expenditure should not be more than one-fourth of the total revenues.⁴⁸ The employees drew salaries in both cash and kind. Although, we are not aware of conversion of salaries calculated in cash, but paid in kind of equal value.⁴⁹ A large number of officials, especially at higher posts, are recommended salaries in cash, while the lower-grade employees, like attendants to the king and cleaning staff, received salaries both in cash and kind. The *Arthaśāstra* specifically recommends a fixed salary in cash (*vetana*) when there is a chance of exploitation of the resource if the worker gets a share in produce as his wage. One such example is of those working in state-owned animal farms, the milker, churner, and hunter who were ‘paid in cash’ (*hiranyabhṛtāh*) or they may deprive the calves if allowed a share in the produce.⁵⁰

II.2.2 Intermediaries and Officials vis-à-vis State and Subjects

In fiscal systems, it is not only the state and the subjects that negotiate their positions; intermediaries also play important roles. Whether state officials or local elites, these intermediaries often resort to additional measures to ensure benefits, be they legal or illegal.

The system of revenue collection, especially taxes, was based partially on the ‘share-contract,’ but mainly on the ‘wage-contract’ systems.⁵¹ We are not aware of instances of tax farming as in the Graeco-Roman world.⁵² The wage contract may have limited personal profits of officials, but along with variable taxes, it protected them against the risk of crop failure or other reasons for lower collections. The wage-contract system is more clearly visible in the *Arthaśāstra*, where a fixed share of produce is to be collected. In the *Manusmṛiti*, though we hear of various officials entitled to a share of the taxes, they are still addressed as state officials, and we do not know of any contracts with private individuals or organizations to whom the collection of taxes was delegated. Share contracts were recommended for collection in places far from administrative centers. There are mentions in literature that the officials were entitled to their maintenance by a village or a group of villages.⁵³ Officials at different levels of administration were eligible to enjoy benefits from a certain number of *kulas*, where one *kula* refers to the average produce or revenue

⁴⁷ For a discussion on salaried standing army, see Dwivedi, ch. 5, VIII.5, IX, this volume.

⁴⁸ KA 5. 3. 1.

⁴⁹ This practice is known in China, see Leese-Messing, ch. 11, II.3.2, II.2.2, this volume.

⁵⁰ KA 2. 29. 2.

⁵¹ For a discussion on the types of revenue collection systems, see Coşgel and Miceli 2009; Monson and Scheidel 2015b.

⁵² See Weaverdyck and Fabian, ch. 8.A, II.2.3, this volume.

⁵³ MS 7. 115.

share of a household in a village.⁵⁴ The superintendent of 10 villages enjoys benefits from one *kula*, and the superintendent of 20 villages from five *kulas*. The superintendent of a hundred villages enjoys benefits from one village (*grāma*), and the head of thousand villages from a town (*puram*).⁵⁵ There is also reference to commodities like food, drink, and firewood procured daily from villages.⁵⁶

Greedy, corrupt state officials were not unusual. Indeed, the literary record portrays corruption as common. One of the *jātaka* stories mentions a village headman regretting that rowdy and disruptive villagers became righteous and he could no longer benefit from the extraction of fines and taxes from them.⁵⁷ Another story mentions a village headman inciting robbers to loot the taxes collected for the king.⁵⁸ The *Arthaśāstra* shows a deep suspicion of those occupying lower offices of revenue administration. Written from the perspective of the administrators and the king, it defines corruption in terms of what is harmful to the state treasury. In the chapter titled “Recovery of Revenue Embezzled by Officials,”⁵⁹ the text defines 40 methods of embezzlement including false information about which works have been carried out, what has been deposited in the treasury, or what has been accrued and deposited, discrepancies with regard to sources of income, prices of goods, and weights and measurement, and so on.⁶⁰ The general distrust of officials and their embezzling is neatly summarized in the following metaphorical comparison:

Just as it is impossible to know when fish, moving about in water, are drinking water, so it is impossible to know when officers, appointed to carry out tasks, are embezzling money.⁶¹

As in most premodern states, South Asian fiscal regimes enriched not only the state but the individuals who operated its machinery as well.

III Monetization

Money has a long history in South Asia. Commodity money appears in the earliest textual sources.⁶² In the *Ṛgveda* (ca. 1200–1000/1000–800 BCE), we find references

⁵⁴ *Kula* is translated as a household or a lineage-based family (Olivelle 2005, 160), however in terms of accounting it could have referred to the average produce or revenue share of a household in a village.

⁵⁵ *MS* 7. 116–119.

⁵⁶ *MS* 7. 118.

⁵⁷ *Jātaka* story no. 31. See Fausbøll 1877–1896.

⁵⁸ *Jātaka* story no. 79, trans. Cowell 1977.

⁵⁹ *Samudayasya yuktāpahṛtasya pratyānayanam*. *KA* 2. 8.

⁶⁰ *KA* 2. 8. 20.

⁶¹ *KA* 2. 9. 33. Trans. Olivelle 2013, 118. A similar tendency of suspicion toward state officials is also found in the Chinese sources, see Leese-Messing, ch. 11, II.4.3, this volume.

⁶² Commodity money functions on the basis of the intrinsic value of a commodity, such as cowries and precious metals having monetary functions. In theory, it is independent of any governing body.

to the number of cattle, precious metal ingots, etc.⁶³ as measures of wealth, means of payment, and unit of account. Commodity money continued to play an important role throughout South Asian history. We learn of various types of commodities that may have continued to function as media of exchange, such as grain, cattle, cloth, and cowries (see below). We find references to the collection of taxes and payment of salary in kinds, especially grain.⁶⁴ The unit of measuring grain for the payment of salaries and penalties was *droṇa*, probably equivalent to five liters.⁶⁵ Along with grains, cattle is also mentioned as a unit of payment, as penalty to be paid as well as donations by the king.⁶⁶

Barter of goods such as food, clothing, domestic animals, etc., continued even after the introduction of coinage. *Vasana*, a piece of cloth, is mentioned as a medium of exchange and something purchased in exchange was called *vāsana*.⁶⁷ Moreover, other than small daily transactions, we also learn about larger-scale barter transactions. For example, five, ten, and even five hundred boats full of merchandise are known as payment or means of exchange.⁶⁸ Even in the twentieth century, many villages in India are reported to have continued to carry out transactions without the use of money.⁶⁹

Prior to the emergence of coined money, weighed metal (*niṣka*) and *śatamāna*, a piece of metal with the standardized weight of one hundred *māna* or *ratti* (= ca. 11.2 g) were used as media of exchange.⁷⁰ It is only from sixth–fifth century BCE, however, that pieces of metal with stamps guaranteeing value, i.e., coins, appear. The dominant theory for the origin of coined money in the Indian subcontinent is that the urbanization process in the sixth century BCE, marked by the rise in surplus production, necessitated the adoption of a standard medium of exchange more du-

Commodity money is contrasted with fiat money, which is more of a legal tender governed by body or state. The value of fiat money is generally higher than its intrinsic value.

63 *Niṣka*, *hiranyapiṇḍa*, *māna*, *śatamāna* are the terms that connote items with monetary functions. *Niṣka*, however, is considered a weighed metal or ornament, and *hirnyapiṇḍa* literally refers to gold ingots (Handa 2000, 515; Cribb 2005).

64 See above, sec. II.

65 *MS* 7. 126, 11. 155. Olivelle 2005, 995.

66 In the *Manusmṛti* (11. 127–137), we find recommendations for payment of a certain number of cows, calves, and/or bulls at different instances as donations as well as fines, penance, etc. Another example is of a Sātavāhana inscription, which boasts of donations of heaps of grain, and thousands of cattle being donated along with some cash as fees for ritual sacrifices. See Mirashi 1981, nos. 12–17. Kharoṣṭhī documents from ca. fourth–fifth century refer to a monk required to donate a cow as a punishment for nonpayment of a loan. See von Hinüber 2006, 25.

67 *Aṣṭādhyāyī* 5. 1. 19 with Thakur 1972, 310.

68 Thakur 1972, 314.

69 Mukerjee 1916, 33; Einzig 1966, 3. Even until the late twentieth century goods could be bought by payment in grain.

70 *Ratti* is a unit of weight measured by seeds of the *Guñja* plant (*Arbus Precatorios*) (Mitchiner 1983). The unit is also used to measure the weight of gems and precious stones.

nable and easier to accumulate than grain or livestock.⁷¹ Other theories relate the increasing need for monetization to the need for the states to maintain a salaried standing army, pay for rituals, and appropriate taxes.⁷² However, since the question of the origin of coined money is not the priority in this chapter, this section will focus on the discussion of the peculiarities of the monetary system in early historic South Asia.

There are a variety of local and nonlocal actors that facilitated the monetization process. As a tool, monetization is most clearly seen in two instances. First, even in the diverse local and regional expressions of monetary issues, the *kārṣāpaṇa* standard has its presence throughout the subcontinent. The system facilitated the execution of weight standards even in decentralized and localized contexts. Second, the production of coinage became a tool of expressing political identity in areas confronted with the western polities under Hellenistic influence, such as the Indo-Greeks, Kṣatrapas, and Kuṣāṇas. In the post-Mauryan period, local polities issuing coins in the *kārṣāpaṇa* monetary standards also issued coins in name of the issuing monarchs. This perhaps was also an active step for a state or more particularly a monarch to declare their active interest, which may have encouraged more people to use coined money.

III.1 Coined Money and Weight Standards

The earliest Indic coinage, punch-marked coins (PMC), bore various symbols that were punched individually on a flan without inscription.⁷³ With the usage of the textual and epigraphic sources these silver and copper PMCs came to be identified as the issues called *paṇas* and *kārṣāpaṇa*.⁷⁴ The *Arthaśāstra* identifies two functions of coinage and the *paṇa* currency in particular: as a medium of exchange (*vyāvahārikīm*) and as a legal tender accepted by state treasury (*koṣapraveśyam*).⁷⁵ The *kārṣāpaṇa* coins were produced on a new weight standard of 80 *rattis*. This new system included several denominations, such as the *ardha* (half) and *pāda* (quarter) *kārṣāpaṇa*.⁷⁶ It even includes minuscule types of silver PMC, weighing as low as

⁷¹ See also Handa 2000, 515.

⁷² Handa 2000, 515. Bernholz and Vaubel (2014, 2) also suggest that the use of coinage became more widespread due to the warfare between smaller states.

⁷³ However, Cribb (2005) argued to place the origin of the punched coins to the fourth century BCE.

⁷⁴ A detailed bibliography for the study of punch-marked coins can be found in Handa 2000; Errington 2003; Cribb 2005. For a historiographic analysis of different methods used in dating and classification of the PMCs, see Bhandare 2012.

⁷⁵ *KA* 2. 12. 25.

⁷⁶ These denominations and equivalents have been derived based on the textual and epigraphic sources from the period as early as the first century CE to as late as the sixteenth/seventeenth century.

one *ratti* (0.1–0.15 g) and half a *ratti*, the *kākinī* mentioned in textual and epigraphic sources.⁷⁷ This range of values would have made the *kārṣāpaṇa* coinage system suitable for a wide variety of transactions, linking many different levels of exchange into a single monetary system.

The power of this system is evident from the incorporation of cowrie shells with standard values, which allowed the system to operate possibly even in the absence of coins.⁷⁸ Known in Sanskrit as *kapardikā* and *haranam*, the *Arthaśāstra* also uses *kākinī* to refer to cowrie shells and describes their use in gambling.⁷⁹ These have also been found in various archeological contexts from Bihar and Bengal.⁸⁰ Although it is difficult to say with certainty that any particular cowrie shells were used as money in our period, and indeed we know that they were also decorative, we do know of cowrie shells used as a medium of exchange in the fifth century CE. The local sources are corroborated with an account of Faxian, a Buddhist traveler from China visiting India between 399 and 412 CE, who mentions the use of cowrie shells for transactions around the Mathura region.⁸¹ It is, therefore, not implausible that the shells found in earlier contexts functioned similarly.

The geographic reach of the *kārṣāpaṇa* system was vast, spanning the entire subcontinent. That is not to say that PMCs were homogenous. There were different types of PMC, and some of them were widespread (the universal or imperial types), while others were more localized. Nevertheless, these were simply different parts of a unified monetary system. The cocirculation of local and ‘imperial’ types of coins has been reported from Sri Lanka, the Bengal region, and the south.⁸² From the second century BCE, inscribed coins started appearing, but this was not a radical break as the weight standards of the PMC, *kārṣāpaṇa* and its denominations, were continued.⁸³

77 These extremely minute silver issues bear only one symbol punched on them and were found at various sites in the northwest, north, and western Deccan. See Handa 2000; Mitchiner 1983. We are aware of the *kākinī* in narrative and normative texts, see the *Cullakasetṭhi-jataka* in Fausbøll 1877–1896 and *KA* 2. 12. 24, respectively. The term is written in different variations, *kākinī/kākinī/kākinīkā/kākaṇi*.

78 For the study of cowrie shells as money in the Indian subcontinent and more specifically the eastern part of the subcontinent, scholars have used interdisciplinary perspectives from economics and anthropology alike. In later sources, monetary denomination of *kākinī* is mentioned as equal to 20 cowries, and a *paṇa* is mentioned as equal to 80 cowries. See Heimann 1980; Basu Majumdar 2018; Ghosh 2012–2013.

79 *KA* 3. 20. 8; 4. 10. 9.

80 Basu Majumdar 2018, 236. Although their archaeological presence does not ascertain the use of cowries as all-purpose money, they may have served ornamental function as valuable items. One example comes from the Taxila region, where imitations of cowrie shell design on the semiprecious stones have been found that may have served as jewelry, Marshall 1951, 748. See also Yang 2019, 40–45.

81 Legge (1886) 2003, 43.

82 Basu Majumdar and Pan 2016; Mitchiner 1998, 66–92.

83 For different coin types, see Dwivedi, vol. 1, ch. 10.A, 453–456.

In addition to a variety of coins minted in the Indic *kārṣāpaṇa* standards, we are aware of coin types of different Mediterranean standards.⁸⁴ The northwestern part of the subcontinent experienced heavy interaction with the Hellenistic polities. Coins of the Attic *drachm* standard issued by the Indo-Greeks and Kṣatrapas circulated in considerable numbers.⁸⁵ Both the Indo-Bactrian and Indic authorities issued bilingual coins on both *drachm* and *kārṣāpaṇa* standards that circulated in the northwestern region. Some of these, such as the coins issued by kings Pantaleon and Agathokles (ca. 180–175/4 BCE) found at Taxila, depicted local deities. Agathokles even issued square silver coins on seemingly Indic standards like the PMCs but with both Greek and Brāhmī inscriptions.⁸⁶ We know that the *gana-saṃghas* (political conglomerations) of the Yaudheyas, Kuṇḍas, and Audumabaras thriving in the Indo-Yamuna Doab issued coins in both *drachm* and *kārṣāpaṇa* standards. The *drachm* and *kārṣāpaṇa* coinages circulated alongside one another in the northwestern region as is known from stratigraphic evidence.⁸⁷

The presence of Roman silver *denarii* and gold *aurei* from as early as Augustus (27 BCE–14 CE) to as late as Leo III (795–816 CE) in the subcontinent added to the complexity of the monetary profile. It is argued that the Roman coins had extramonetary functions, and were mostly used for ornamental and ritual purposes.⁸⁸ Even in that context, we are aware that they may have had some exchange value at least at its intrinsic value, if not a standardized one. The exchange of Roman coins with local currency is known from the *Periplus Maris Erythraei*, which also indicates that the transactions were profitable in favor of Roman coins.⁸⁹ The complex monetary picture of early India, marked by various local types with the Indic standards cocirculating along with the *drachma* and *denarii* standards, created various shared circulation zones at both spatial and temporal scales. Also, it is in this period that we know of special professional groups who played an important role in ascertaining the authenticity and value of coins, including coin auditors, examiners of coins, or money changers identified by the designation of *rūpadarśaka* in epigraphic and literary sources.⁹⁰ Indeed, the existence of a pan-Indic monetary system based on a homogeneous weight standard and encompassing a wide range of denominations must have significantly lowered transaction costs, facilitating the integration of

84 See also Weaverdyck and Fabian, ch. 8.A, III, this volume.

85 See Morris, ch. 9, II.3, this volume.

86 Bhandare (2018), however, warns us against the problematic practice of pigeonholing the coins in either ‘Indian’ or ‘Greek’ categories. He points at the long tradition of complex monetary practices in the northwestern region for shared features in the coin issuing practices and problematizes the ‘Greek’ essentialism in archaeological and historical studies.

87 On the topic of cocirculation of coins, see Dwivedi 2015, 224–233.

88 For a discussion and bibliographic details, see Dwivedi, vol. 1, ch. 10.A.

89 *Periplus Maris Erythraei* (PME) 49, with a discussion by De Romanis 2020, 328–332.

90 KA 2. 12. 25.

small- and large-scale exchanges across vast distances. This is all the more remarkable given the political plurality and multiplicity of coin-issuing bodies.

III.2 Multiple Coin-Issuing Bodies

What differentiates commodity money from standardized coins is regulation by a governing body the coin users can trust. I do not refer here to the polities that govern people, but those who govern the process of production or standardization of the coins. In fact, the earliest PMCs may first have been issued by private bodies, perhaps smiths or trading organizations.⁹¹ However, it is with time that likely the production of these coins was either taken over by the political authority or regulated through the imposition of minting fees and regulations.⁹²

Monarchic polities are the best-known coin issuing bodies. In fact, numismatic studies have mainly facilitated the fixing of political chronology of many Indian dynasties.⁹³ Other than the monarchical polities, different types of governing bodies which issued coins are also known: first, the *janapada/gaṇasamgha* or ‘tribal’ groups in the northwestern region in the post-Mauryan period that are often considered republican polities or confederacies, such as the Yaudheyas, Kuṇindas, Ārjunāyanas, and so on.⁹⁴ Second, the corporate bodies, who issued coins bearing the inscription *negama*, *naigama* or *nekama*. Third, the civic bodies of highly urbanized cities or the ‘city-states,’ such as Ayodhya, Ujjaini, Eran, Bṛigukachcha, and so on.⁹⁵

Coins have been considered the vehicles of political proclamations and propaganda alike. Coins are well suited to bear meaningful symbols that circulate, increasing the audience for those symbols. At the same time, this function may have incentivized political organizations to produce more coins, increasing the supply of money to the larger economy and supporting monetization. The political and monetary functions of the coins, then, were mutually supportive. By issuing coins on a widely accepted standard, polities asserted their existence to a large audience while simultaneously contributing to the power of that standard.

⁹¹ Thakur 1973.

⁹² The *Kauṭīliya Arthaśāstra* refers to an officer called *rūpadarśaka* (‘examiner of coins’) who was responsible for ascertaining the authenticity of the coin as well as collecting minting fees (*rūpika* and *vyāji*) and a coin-testing charge (*parikṣita*). Thakur (1990, 3–5) also points at the reference to other officials like *hiraṇyaka* and *sāuvanika* who may have been officers subordinate to the *rūpadarśaka*.

⁹³ Shrimali 1985; Cribb 2000; Bhandare 2006.

⁹⁴ See Handa 2007.

⁹⁵ See also Dwivedi, ch. 5, VI, this volume.

III.3 Longevity of Circulation and Coinage Tradition

While issuing authorities could advertise themselves on coins, the acceptability of those coins was based on the general continuity of coin design, not always the body that issued them.⁹⁶ The longevity of circulation of a coin type and the issuance of similar coins are explained by local conservatism and a long monetary tradition.⁹⁷ As a result, various coins circulated long after the decline of the dynasties that issued them. It has been argued that when dynastic authorities were not in a position to issue their own coins, local goldsmiths minted imitations in order to meet monetary demand.⁹⁸ In addition, the successive polities often continued using auspicious symbols and styles of rendering to maintain the acceptance of their coins by users, as can be seen in the coin issues of the Indo-Greeks, Indo-Parthians, and Kuṣāṇas.

As mentioned before, the PMCs continued to circulate in some areas up to as late as the fifth century CE, even as other coinages emerged. Bhandare has explained the continued use of PMCs under the Śakas and Sātavāhanas in the western Deccan by suggesting that they functioned as high-value silver currency, while the newer issues were base-metal coins made of copper, lead, and potin, which worked as smaller denominations.⁹⁹ This theory, however, is not applicable to other regions where coin types continued to be imitated, and can rather be explained by the traditional continuity. This is also visible in the continued minting of some types of Mālava, Sātavāhana, Kṣatrapa, and Kuṣāṇa coins that circulated until the fourth and fifth centuries CE in crude imitation forms.¹⁰⁰ Long-term acceptability meant that coins only fell out of circulation when they were no longer recognizable as coins, reducing attrition to a minimum.

IV Legal Systems

Societies and communities come together to form norms and regulations to reduce the time and resources that go into solving disputes and ambiguities in case the role of one party is not defined properly. The presence of a legal system that can protect property rights incentivizes people's involvement in various economic activities, as a buyer, producer, consumer, debtor, etc. In both Roman and Chinese con-

⁹⁶ Cribb 2005, 14–16.

⁹⁷ Sircar 1968, 206–208; Cribb 2005, 14–16.

⁹⁸ Sircar 1965, 207.

⁹⁹ Bhandare 1999, 54.

¹⁰⁰ Sircar 1968, 206–207; Shastri 1992, 292; Gokhale 2004, 109. An indication of this tradition is also found in the *PME* (47, 9), old *drachms* of the Indo-Greek kings, Apollodotos and Menander (second century BCE), were still in use at Barygaza (Bharuch) in the first century CE.

texts, imperial systems of law provided a widely prevalent legal coherence. In the Indic context, there was no overarching political entity that could have provided such coherence. A possible exception may have been the Mauryan dynasty (ca. 320/316–185 BCE), but only for a limited period of about 130 years. Nevertheless, we are aware of a somewhat coherent legal system, or at least a potential for it, owing to a social network of intellectual ideas and literature. It is visible in the concept of *dharma* and the legal systems revolving around it compiled in various *dharmaśāstras* (treatises on *dharma*).

IV.1 The Overarching System of *Dharma*

The term *dharma* (*dhamma* in Prakrit) subsumes the English concepts of ‘ethics,’ ‘duty,’ ‘law,’ ‘right,’ ‘justice,’ ‘practice,’ and ‘principle.’¹⁰¹ From the third century BCE onward, a number of prescriptive texts on the matters of *dharma* were compiled.¹⁰² Moreover, from the first century CE, a more nuanced form of literature, i.e., the treatises on *dharma* (*dharmaśāstras*) were compiled, reproduced, and perhaps also redacted for a long period in ancient times.¹⁰³ The *dharmaśāstras* are not datable to any particular dynasty or a king, nor do they claim such political affiliation, and their provenance is difficult to identify for modern scholars. The authors, or at least the compilers, are pseudonymous. They leave behind scanty autobiographical details, and even perhaps conceal their personal involvement and identity.¹⁰⁴ The texts, more commonly, trace their compilation by traditional scholars and sages operating in different traditions or schools. As a result, there are *dharmaśāstras* attributed to different ‘teachers,’ such as Manu, and from the third century CE onward, Yāgñavalkya, Bṛhaspati, Nārada, and so on. Nevertheless, these schools were all interlocutors in a single discourse. The topics of most of the *dharmaśāstras* are largely similar, the differences appear in particular definitions. For example, while the matters of women’s property rights and their legal status in society are a common theme of discussion, they differ in definition, and those debates are reflected in the commentaries.¹⁰⁵

101 Doniger and Smith 1991, xviii. To the eyes of the British Company officials and western Sanskritists, the *śāstric* texts appeared as a complete code of law along European lines and therefore ready to be implemented in the court as *Hindoo Lawbook* in the nineteenth century. The latest texts in *śāstra* were in fact compiled as late as the mid-nineteenth century by the holders of the posts of Hindu Law Officers of the High Courts of Bombay, Calcutta, and Madras (Derrett 1973, 6, 9).

102 Reference here is to the *dharmasūtras* (literally ‘thread of *dharma*’) literature that precede the *dharmaśāstras* (treatises on *dharma*). For dates and attributions of the *dharmasūtras*, see Olivelle 1999a, xxv–xxxiv.

103 For a discussion on the nature of the *dharmaśāstras* and bibliography, see Dwivedi, vol. 1, ch. 10.A, 424–433. Modern scholars are able to date the texts based on their seemingly final versions, which have gone through redactions over a period of centuries.

104 Derrett 1973, 3.

105 Halder and Jaishankar 2008–2009, 664–670; Bhattacharji 1991.

The *Kauṭīliya Arthaśāstra* and the various *dharmaśāstras* are important landmarks in the history of legal systems in South Asia. These *śāstras* are manuals of administration and maintenance of social structure. In particular, the *Manusmṛiti* incorporates the aspects of a king's duties (*rājadharmā*), an individual's duties (*svadharmā*), and aspects of litigation (*vyavahārapada*). The provision for jurisprudence and litigation (*vyavahāra*) was essential to setting up a system supporting the procedural law, which made the property rights and contracts redeemable and justiciable in case of violation. For the first time, the *Manusmṛiti* lists 18 avenues of litigation that are related to solving issues over property rights and domestic disputes.¹⁰⁶

Several factors probably contributed to the acceptance of the *dharma* system, and therefore its function as an overarching legal system. First, in addition to providing a procedural apparatus, they defined and possibly reinforced the legal and economic statuses of different social groups that are also a part of the *dharmaśāstras*. Second, as compositions in Sanskrit, they were part of the larger linguistic network crossing the divides of vernacular languages in the subcontinent.¹⁰⁷ The administrative structure proposed in the *dharmaśāstra* is also reflected in the epigraphic sources of King Khāravēla of Kalinga and then of the Sātavāhanas of the western Deccan. The ideological connection between the *dharmaśāstras* and their medium, Sanskrit, is often emphasized as a reason for the spread of legal structures not only throughout South Asia, but also in Southeast Asia in the early medieval period. Indeed, some scholars believe that Sanskrit and the *dharmaśāstras* together had an imperializing effect and they often name the process as 'Sanskritization,' 'Indicization,' or 'Brahmanization.'¹⁰⁸ Where the *dharma* system applied, it offered a relatively coherent legal framework that people from diverse backgrounds would recognize, but it did not impose complete legal homogeneity.

IV.2 The Semiautonomous Legal Expressions

The *dharmaśāstras* allow a diverse scope for norms in terms of both locations and groups. An acknowledgment of different legal spheres is present in the *Manusmṛiti*, where jurists should take into consideration the codes or laws of the relevant *śreṇi* (corporate bodies), caste, province, family, etc. of the parties in dispute, and only

¹⁰⁶ The text took its final shape between the second and third century CE (Olivelle 2005, 25). The 18 avenues of litigation are nonpayment of debt, deposits and pledge, sale without ownership, partnership, nondelivery of gifts, nonpayment of wages, breach of contract, cancellation of sale and purchase, disputes between owners and herdsmen, disputes regarding boundaries, verbal assault, physical assault, theft, violence, sexual crimes against women, law concerning husband and wife, partition of inheritance and gambling and begetting, MS 8. 4–7.

¹⁰⁷ For a discussion on the political and economic role of Sanskrit, see sec. V.1.

¹⁰⁸ For a critical analysis of this issue, see M. L. Smith 1999a.

then settle the dispute based on specifics.¹⁰⁹ The perspectives of the region/country (*deśadr̥ṣṭa*) and of the legal text (*śāstradr̥ṣṭa*) were to be taken into account.¹¹⁰ Arguably, such a recommendation in the *dharmaśāstras* reflects an acknowledgment of certain autonomous and semiautonomous legal spaces within the polities.¹¹¹

The administrative system of the *Arthaśāstra* provides for provincial and regional judiciary systems as well. The local elders of a village were at the lowest level of the judiciary. We also know about discussions on recommended penalties that the village elders should levy on those found guilty in a minor dispute, such as the illegal extension of boundaries of agricultural land, cattle destroying crops in another farm, blocking village pathways, and so on.

Another space with their own separate code of behavior is the monasteries and monastic communities. The Buddhist canonical texts, the *vinayas*, lay out codes that the monks and nuns are to follow. The recommendations in these texts range from regulation of the daily activities of a monk to the prescription of punishment for monks who steal or commit other crimes.¹¹² Further, the Buddhist monastic codes lay a whole set of instructions related to the question of ownership of property and inheritance. While made specifically for the monastic communities, these codes also had influence, even though limited, on the society at large. We learn from the *vinaya* texts that the monasteries resorted to the adoption of lending money with proper, written contracts (*likhita*) with the names of the borrower, witness, and head of the monastery.¹¹³

The texts also recommend that the king invites specialists and interpreters of law, perhaps as a measure of maintaining such legally semiautonomous spaces.¹¹⁴ However, even though multiple norms and codes are to be acknowledged by the state, in case of any dispute between different codes, *dharmaśāstra*, and the king, the word of the king was privileged.¹¹⁵

IV.3 Affiliation to Monarchies

The presupposed monarchical structure may have been a reason for the *dharmaśāstras* to have been adopted and easily enforced by a monarchical polity. In the

109 MS 8.41. A similar expression is found in a pre-*Manusmṛti* composition, the *Gautama Dharma-sūtra* (2. 192), which insists that the cultivators, traders, herdsmen, moneylenders, and artisans could lay down rules for their respective groups. These injunctions are also stressed in the *Yajñavalkyasmṛti* (2. 192) and *Nārada-smṛti* (1. 3). See also Varadarajan 2018, 53–55.

110 MS 8. 3. The *Arthaśāstra* also has a repeated reference to taking things in context of *deśa* and *kāla*.

111 Chattopadhyaya 2003, 141–145.

112 Schopen 2004, 1–18.

113 Schopen 2004, 48–49.

114 MS 8. 9, 10, 41.

115 MS 8. 8.

dharmasāstric system, a kingless society (*arājaka*) is anarchy where the property of individuals cannot be protected. The *dharmasāstras* represent a good society as one in which the legal system is a balance established by a king acting as the ultimate jurist and protecting social norms and order.¹¹⁶ Many scholars emphasize the compilation of various *dharmasāstras* as the ‘codification’ and ‘reorganization’ of specifically the ‘Brahmanical’ institutions and ideology that aimed to assert their social power through political apparatus.¹¹⁷

Even though the normative texts privilege kingship, a general anxiety toward the possibility of a king exploiting his subjects is also visible in the texts. There are emphatic recommendations that the king be paternal and lenient.¹¹⁸ A ruler’s, and also the jurists’, commitment toward fairness is insisted on both by appealing to his sense of ethics and by divine consequences in his afterlife.¹¹⁹ Rules are appealed to be fair as the rules should also apply to those close to the king. It is recommended that the king should never fail to punish even his family members, personal priest, and teacher if they deviate from applicable laws.¹²⁰ Buddhist texts also echo similar concerns, and at instances, they recommend that the king or the officiating judge must not give his verdict on pleas without proper investigation and without listening to both the plaintiff and defendant.¹²¹

It was not that the teachers of different legal traditions made one-sided efforts to influence the monarchy into adopting *dharmasāstric* customary laws. The fact that the legal traditions were tied to dimensions of religion, ethics, and morality, their adoption by the state would also be beneficial for the king. It would mean adherence to the prevalent ideologies within the society. Not only would it earn the ideological validation of socioreligious intellectuals, but perhaps also allow a smooth transition of norms into laws. The state did not need to identify or formulate a ‘secular’ legal system. Property relations and prescriptions for other civil issues depended on the laws of succession identified by the *dharmasāstras*. In addition, the *dharmasāstras* provided enough scope for the inclusion and accommodation of norms of local groups, who perhaps also found it easier to adopt a flexible overarching legal system if need be. Such an overarching system of *dharmasāstra* may have been

¹¹⁶ *MS*, 7. 20–34; 8. 1–3. See also Sharma (1959) 2012, 55–57.

¹¹⁷ Pollock 1985, 501; Roy 1996, 54–55; Olivelle 2005, 38–39; McClish 2009. Contrary to this idea, however, is the argument that the *dharmasāstras* must be seen as the result of the long-standing legal tradition, which has *dharmasūtras* and other oral-local legal traditions to draw from, rather than as a mere response to Aśoka’s pro-Buddhist political ideology. See Fitzgerald 2014.

¹¹⁸ For a discussion on royal paternalism in Indic polity, see Thapar 2013, 121. See also Dwivedi, vol.1. ch. 3, 110.

¹¹⁹ *MS* 8. 18–19. See above, sec. II.2.1.

¹²⁰ *MS* 8. 35, 45.

¹²¹ Here the reference is to the repeated tales in the *jātaka* literature that praise rulers who do not give their verdict without proper judicial procedures. See *Rāhovāda-jātaka*, *Kūṭa-vāṇija-jātaka*, *Garahita-jātaka*, as examples (Cowell 1977).

similar to the Roman imperial law, which allowed people to choose whether to subscribe to their local law or evoke a more standardized imperial legal system.

V Standardization

Standardization need not imply creating a uniform language, monetary and legal systems, and norms and values affecting consumption, but it is a tool that makes the interaction of pluralities possible, hence reducing friction in an economy. Standardization brings ease of communication, reduction in disparities, and institution for redressal of disputes, while lowering risks appearing from uncertainties. In this section, I focus on the standardization of language and script, and commonalities in value and norms affecting economic behavior. Both categories worked toward creating a negotiable platform for various actors, who in turn may form regional as well as long-distance connections.

V.1 Language and Script

Early historic South Asia contained great linguistic diversity. Yet the networks were integrated through standardized written scripts and the emergence of Sanskrit as a formal, learned language that was used across vast areas. The earliest scripts that have been satisfactorily deciphered, i.e., Brāhmī and Kharoṣṭhī, appeared much later than those in China or the Mediterranean. In the mid-third century BCE, the two scripts appear in the Aśokan edicts, fully developed, written in Prakrit language(s) in the mainland.¹²² Aśokan edicts appear in Kharoṣṭhī only in the northwestern region along with Aramaic and Greek. In the Ganga valley and the Deccan, his edicts are in Brāhmī. In the south, Brāhmī script was also used for writing Tamil that is found on potsherds and further adapted to write Sinhalese in Sri Lanka.

Theories about the origin of the script, the identification of the parent script, and questions whether Brāhmī appeared first in the north or the south have remained controversial for about a century now. The three major theories about the origin of the script – (a) invention of the script in the Aśokan court,¹²³ (b) origin of the script as a device among mercantile communities,¹²⁴ and (c) origin of the script in monastic communities – indicate the spheres where the use of written language

122 Most commonly known languages in the subcontinent are Sanskrit, Prakrit(s), and Tamil. The first two are related and in semantic terms Prakrit (*prākṛta*) is considered the unrefined derivation or corruption of Sanskrit (*samskṛta*) that is a more refined and cultured language. For a discussion, see Cardona 2017, 318–320.

123 For a brief discussion on this issue, see Scharfe 2002, 10–12. See also Falk 2018.

124 Coningham et al. 1996, 92.

had significant consequences. Whatever may have been the case, their use in royal declarations, mercantile activities, and monasteries must have promoted the use of writing. In all three cases, the economic implications of writing can be seen in the widespread use of the Brāhmī script that facilitated easy transfer of economic and political information, administration, recordkeeping, and the formulation and formalization of contracts. All these implications perhaps reduced the chances of disputes arising from ambiguities and therefore also reduced various associated costs.

In a political context, there are two purposes that may have required them to promote writing with institutional support: recordkeeping and communication. Aśokan edicts are a perfect example of the use of written material for communication of ideology.¹²⁵ Likewise, from the post-Aśokan period, we also find other eulogical inscriptions of different rulers, such as Khāravela of Kalinga and many Kṣatrapa, Sātavāhana, and Kuṣāṇa kings. Considering that the royal inscriptions throughout the subcontinent are communicative in nature, they required some people in those areas to be literate, or at least a reader must have been trained and appointed to read this out to the subjects.¹²⁶ In addition, keeping records of revenue, expenditure, and transfer of wealth and land was required by the departments of recordkeeping. We learn from epigraphic records that transactions or transfers, even of donations to religious communities, were perhaps recorded on wooden tablets (*phalakavāra*) or cloth pieces (*paṭṭikā*) to be stored in the office of recordkeeping.¹²⁷ Such requirements by the state must have promoted the training of scribes, readers, and more trainers.

Scribal work, however, was not a monopoly of the state. Similar dual use of writing, for recordkeeping as well as ideological propagation, occurred in religious organizations. It is not surprising that a large amount of written evidence comes from religious contexts. This includes a large number of epigraphs of donative records and the involvement of monasteries in manuscript production and preservation by committing oral teachings to written media.¹²⁸ Moreover, monasteries developed as centers of education and as depositories of medical texts.¹²⁹ By the first century CE, we are aware of depositories (*koṣṭhikas*) in the monasteries, which contained books and legal documents along with donated items and money.¹³⁰

125 For the distribution of Aśokan edicts, see Dwivedi, vol. 1, ch. 10.A, map 1.

126 The separate Rock Edict 1 from Dhauli and Jaugada instruct for a regular reading of the script to the public.

127 This is known from inscriptions of the Kṣatrapa and Sātavāhana kings. For inscriptions, see Mirashi 1981, nos. 10, 12, 13, 19, and 38.

128 For involvement of monasteries as centers of education and writing, see Dwivedi, ch. 5, VII; ch. 14, II.2, this volume.

129 For development of monasteries as medical centers, see Dwivedi, ch. 5, VII.1.3, this volume.

130 Schopen 2004, 51.

The mercantile groups also played an important role in the promotion of writing, which are known from the use of graffiti and crude writings in some mercantile contexts. The inscriptions on pottery are mostly post-firing markings associated with vessels of small traders. Traders, who tended to share cargo spaces in order to share the cost of transportation as well as other risks involved in transportation, marked their storage vessels.¹³¹

In everyday affairs, writing was also very useful in settling disputes. Normative texts privilege written evidence or documentary evidence (*likhita* or *deśa*, respectively) over verbal statements in the judicial proceedings.¹³² *Likhita* was considered to be the most important proof in case of disputes and contradictory oral evidence. Only when the written document could not provide concrete evidence, the testimony from the elders of the town, village, or the guild was to be taken into account.¹³³

Even though usage of written language is found in various contexts from our period, the introduction of script did not mean the end of long-standing oral traditions and cultural heritage. It is possible that everyday transactions and contracts may not have required written agreements, as the verbal and oral contract in front of some witnesses may have sufficed. Moreover, even if certain merchants or groups practiced writing, it is possible that not all may have acquired the skill or were taught to write. In situations where writing was unavoidable, one could hire someone equipped with the skill, i.e., bring into use “secondhand literacy.”¹³⁴

Spread of writing is closely related to the development of language. It is noticeable that while the earliest written evidence is in Prakrit, the oldest literary works were orally composed and transmitted in Sanskrit between ca. 1200 and 300 BCE. Sanskrit was a standardized formal language that was a second language rather than a mother tongue. Users of Sanskrit spoke Prakrit(s) or vernacular Sanskrit in their daily lives without applying the strict rules of standardized Sanskrit grammars. Sanskrit in its standardized form was used in the context of learning and ritual activity.¹³⁵ As a result, the *sūtras* and *śāstras* literature of pedagogical and prescriptive nature were composed in Sanskrit. Inscriptions in the public spheres and the Buddhist religious literature, compilations of the spoken words of Buddha as sermons to people were in Prakrit. Sanskrit and Prakrit(s) therefore may have served different spheres of language requirements until the first century CE, after which

131 Deraniyagala 1972, 129; Coningham et al. 1996, 89–90.

132 It was mentioned in the *Vasiṭha Dharmasūtra* (16. 10, 14.) for the first time and then also in the *Manusmṛiti* and the *Arthaśāstra*. *MS* 8. 52–7 and *KA* 3. 1. 19. For a discussion on the terminologies for documentary evidence and their definition in the sources, see Olivelle 2005, 47–38.

133 For importance of legal roles of guild and village bodies, see Dwivedi, ch. 5, V; VI.2.1, this volume.

134 Kolb 2018, 9.

135 For an interesting discussion, see Deshpande 1993, 30–38. Such use of two languages or variations of two languages is called diglossia. Commonality of diglossia in a society in different contexts has also been discussed by Houben (2018). For vernaculars, see Cardona 2017; C. Smith 2017.

Sanskrit may have acquired the status of a formal language in the context of written recordkeeping. Kings also started issuing inscriptions in Sanskrit at this time.¹³⁶

Sanskrit enabled a linguistic network to form, which allowed new groups to join more easily. Perhaps the structured nature of Sanskrit and the presence of well-developed grammatical texts made it easier for the ‘outsiders’ to learn and adopt this language. This could explain why the Śakas, Kuṣāṇas, and other dynasties of non-Indic origins used it in their inscriptions.¹³⁷ Additionally, Sanskrit reaching the southern regions of India and then further into Southeast Asia may be explained similarly, and these cultures adapted written Sanskrit to their regional scripts.

Even though Sanskrit was emerging as a standardized language, inscriptions found in different regions show regional influence and indicate the practices of multilingualism. Northwestern South Asia is one such region where numismatic evidence shows uses of multiple scripts (sec. III). In addition, more than 5,000 inscriptions in Brāhmī, Kharoṣṭhi, and Sogdian scripts in Bactrian, Tibetan, Chinese, and Hebrew have been found that were inscribed by private individuals.¹³⁸ Merchants and monks, especially those engaged in long-distance travel, were perhaps multilingual. On the island of Socotra, 300 km off the coast of Arabia, Ḥoq Cave has yielded inscriptions, petroglyphs, and graffiti. The inscriptions carry names of travelers who identified themselves as merchants, ship captains, and religious devotees. In one case, a person of Iranian origin, to judge from their names, left an inscription in Graeco-Bactrian and Brāhmī scripts.¹³⁹ Similarly, many Tamil-Brāhmī inscriptions were found on potsherds from the Arabian Gulf and the Red Sea regions. These potsherds have been identified as utilitarian vessels, such as storage pots, cooking vessels, lamps with lids, etc., suggesting a presence of a Tamil diaspora in the region.¹⁴⁰ The type of multilingualism discussed here provided alternative bridges across linguistic networks in addition to or absence of formalized standard languages.

V.2 Values and Consumption

The legal tradition and codification of the procedural law are features associated with the period of our concern, and have been discussed above. However, the *śāstras* (normative texts) were also related to recommendations and prescription of aesthetics and luxurious lifestyles. While austerity is recommended for some mem-

136 This point is often highlighted by scholars who point at the phenomena of ‘Sanskritization’ and ‘Sanskrit Cosmopolis.’ See Pollock 2009.

137 Pollock (2009), however, explains Sanskrit as a language of political prestige, privileges, and most emphatically he associates it with power.

138 Jettmar 1989.

139 Strauch 2012, 347–348.

140 Pavan and Schenk 2012; Reddy 2016.

bers of society, the fulfillment of various desires and luxurious living are also extolled. One example for such a text is the *Kāmasūtra* of Vātsyāyana, which is a guidebook to the training of a city-dweller, *nāgaraka*. It reflects or perhaps also helped create values surrounding luxury. The recommendation on aesthetic pursuits in the *śāstra* and *kāvya* literature is also visible in art and archaeological contexts. There are many examples of expressions of patterns of consumption, such as the spread of ceramic tableware, and the construction of public utilities as a *euergetic* practice.¹⁴¹

A wide variety of glazed wares have been recorded in archaeological contexts from the first century CE, including the relatively older northern black polished ware that first appeared in the sixth century BCE.¹⁴² There is a noticeable expansion in the circulation of luxury wares, especially the northern black polished ware (NBPW) and rouletted ware (RW) from the third century BCE onward. The epicenters of production of both these wares were in the lower Ganga valley and the present Gujarat region.¹⁴³ From these zones of production, they were transported to different parts of the subcontinent, including ports in Bangladesh and Sri Lanka, to be further transported to various ports in Southeast Asia.¹⁴⁴

The practice of *dāna* and *deya-dhamma*, donation for the sake of acquiring merit, is known from various epigraphic records throughout the subcontinent.¹⁴⁵ The tradition is closely related to the *euergetic* practice of donation of *pūrta* objects, which are objects of public utility such as wells, tanks, parks, temples, and cave shelters. Such donations of public utility and charity come under *pūrta-dharma* that allowed every group of society to participate and earn merits, unlike the *iṣṭa-dharma* (Vedic rites) that were restricted for Śūdras and women.¹⁴⁶ Also, donation for public utility is mentioned as the right conduct for the *gaṇikā* (courtesan) by Vātsyāyana in the *Kāmasūtra*, and by this conduct, she is to flaunt her wealth and success.¹⁴⁷ One piece of epigraphic evidence from Mathura records a courtesan having had donated a cistern and a hall of homage to a temple.¹⁴⁸ Another inscription from Mathura records a housewife donating a pond, well, park, and a meeting hall for public gathering. Similar donations of wells are also known from Gandhāra during this period.¹⁴⁹ With participation, individuals shaped the infrastructure for the supply of civic necessities, while at the same time the act of making donations emerged as

141 Dwivedi, ch. 5, II.1, this volume. For the concept of *euergetism*, see Fabian and Weaverdyck, ch. 3.A, VI.1, this volume.

142 For the list, see Dwivedi, ch. 14, III.2, this volume.

143 Pavan and Schenk 2012; Reddy 2015; Rai et al. 2014.

144 Jahan 2012, 209–10.

145 Dehejia 1992, 35.

146 Kane (1941) 1974, pt. 1, 157; pt. 2, 889. See also Chakravarti 1996, 185.

147 KS 6. 5. 25.

148 Lüders 1912, no. 102.

149 Falk 2009.

the popularly accepted symbol of honor in the community. The benefit of religious donations for the benefactor's honor was great, and facilitated the formation of a widely legible network of honor and trust. The story of Anāthapiṇḍaka, an elite merchant from Śrāvastī (Savatthī in Prakrit), appears as an exemplar of generosity in various *jātaka* tales. From *Akataññū-jātaka* it is clear that even merchants in frontier regions knew of his reputation and would request his assistance when trading in his city.¹⁵⁰

VI Infrastructure

Here I discuss two types of infrastructure: hydraulic, which was especially related to agricultural practices, and transportation. In both contexts, physical structures and economic practices were shaped by local topographic opportunities and limitations, and by the customary practices utilized to overcome them. While states had a role in the construction and maintenance of this infrastructure, they did not perform this function alone.

VI.1 Hydraulic Infrastructure and Agricultural Practice

Academic writing has moved away from the idea of an all-pervasive, despotic hydraulic state. Recently, factors related to regional geography along with sociocultural motivations for wealth and labor mobilization are being taken into consideration to study the social management of water and water uses. This section underlines the importance of a variety of water regimes affecting the subcontinent: various perennial rivers inundating different parts of the subcontinent, the monsoon affecting seasonal rivers, the water table and soil moisture in large parts of the subcontinent, and the presence of an extensive coastline of 11,104 km in total.¹⁵¹ Regional conditions and the roles various actors played in them help us understand continuities and changes in technology and infrastructure related to water use and the management of soil and crops. Hydraulic infrastructures included the management of irrigation through canals in alluvial plains inundated by perennial rivers and tanks in the Deccan. In addition, alternate practices, such as cultivation of drought-resistant crops and other localized methods, shaped water use in agrarian contexts. Also, methods for disposing of wastewater have caught the interest of many scholars recently.

Seasonal flooding is an annual phenomenon in the subcontinent. As a result, archaeological excavations often reveal evidence for river embankments and cities

¹⁵⁰ *Akataññū-jātaka*, trans. Cowell 1977, story 90.

¹⁵¹ Spate and Learmonth (1954) 2017; Xue and Yanai 2005, 115. See also Dwivedi, vol. 1, ch. 3, 96–97.

enclosed by earthen ramparts, perhaps with wooden framework and burnt brick.¹⁵² Fortification of towns and river embankments were state matters.¹⁵³ Regarding the measures against flooding in individual households, an elite residence on the citadel at Tissamaharama (Sri Lanka) shows the placement of living compounds higher than the streets. The building had small, covered channels that might have directed surplus water from the interior to the street.¹⁵⁴ Also, the most common drainage devices for discarding waste were ring-wells, i.e., soakage pits made of terracotta rings or jars with truncated bases. This method of drainage improved urban sanitary habits in particular. However, terracotta ring-wells have been noted throughout the subcontinent.¹⁵⁵

Artificial bodies of water for storage were an important means of meeting water needs. All kinds of water-storage facilities in South Asian contexts are clubbed together under the term ‘tanks,’ which could mean reservoirs associated with temples with large masonry structures, those retained by burnt-brick lining, those with minor modifications in natural rock pools, and naturally occurring gnammas (rock basins) and withering pits.¹⁵⁶ As the size of these tanks varied, so did their purpose. In the Deccan and further south, these seminatural structures have been reported near the megalithic ritual sites since 500 BCE. In Sri Lanka as well, the archaeological dating places phases of initial construction of water tanks between ca. 400–200 BCE in Anuradhapura.¹⁵⁷ Moreover, similar water-storage structures with water inlets made of burnt bricks are also found in association with the Buddhist monastic sites at an almost pan-Indic scale.¹⁵⁸

Evidence for the role of the state in the development of hydraulic infrastructure is abundant. In areas where ‘the superintendent of agriculture’ managed the irrigation infrastructure, people paid additional tax on water use, as mentioned in the *Arthaśāstra*.¹⁵⁹ Megasthenes, a Seleukid envoy visiting Candragupta Maurya’s court, also recorded that like in Egypt, ‘the superintendent of rivers’ measured land and

152 Mate 1969; Barba 2004, 224–230.

153 Planning of the city is a matter of concern for the state as is known from the *Arthaśāstra*. We also learn of kings and officials commissioning embankment of rivers and commissioning of canal repairs etc., near the cities. See Kant 2000 for King Khāravela’s inscription and Mirashi 1981 for inscriptions from the western Deccan.

154 However, there is evidence of the structure still getting affected and families leaving the dwelling to move to the other places in the citadel, see Weisshaar 2009.

155 Ray 2010, 206–208. See also Weisshaar 2009.

156 Bauer and Morrison 2008, 2208; Kingwell-Banham 2019, 6496. Brick-lined tanks are a common occurrence in northern India, notable ones have been found at Srīngaverapura, Mathura, Roper etc. See Ray 2010.

157 Kingwell-Banham 2019, 6486.

158 Bauer and Morrison 2008, 2208–2210. For a bibliography of recent studies on the relation of hydraulic landscaping and its association with Buddhist monasteries, see Shaw 2018, 238.

159 *KA* 2. 24. 18.

inspected sluices and water distribution from main canals to their branches.¹⁶⁰ In Sri Lanka too, both literary and epigraphic evidence reveal royal patronage of construction of canal-fed reservoirs – in the third century BCE by a ruler and in the third century CE during the reign of another ruler, the Minneriya reservoir had an embankment as long as 2 km and at places it exceeded 13 m in height.¹⁶¹ Investment in waterworks was a matter of prestige, as various royal inscriptions eulogize the participation of rulers or officials in commissioning and maintaining artificial water bodies. At Girnar, the Junagarh inscription of Rudradāman (ca. 130–150 CE) records that the king commissioned the repairs of the Sudarśana Lake after the lake was destroyed in a storm. The inscription also records that the lake was constructed by Candragupta Maurya's governor initially and subsequently repaired by Aśoka's governor.¹⁶² King Khāravēla of Kalinga too claimed to have not only repaired but also extended a river canal up to his capital in 180 BCE.¹⁶³

Buddhist monastic communities were also involved in hydraulic landscaping. Monastic complexes, including the residences for monks and nuns (*vihāras*) and worship/sermon halls (*caityas*), also were comprised of gardens, water reservoirs, and small water channels.¹⁶⁴ Not only did monasteries manage water for their ritual needs, but their involvement in meeting the needs of others nearby is often noted. Emphasizing the presence of monastic governmentality in central India from the third century BCE onward, a study at Sanchi has indicated the presence of inundation reservoirs created by dams built on gradually sloping terrains on hilly areas.¹⁶⁵ This monastic monopoly in the business of water harvesting was to acquire patronage of the locals as well as pursuing the religious goal of alleviating the suffering of people in a society where 90 percent of water needs were met by seasonal monsoon rains lasting two to three months.¹⁶⁶ In the region, 10 out of 16 recorded reservoirs bear a direct spatial relation to monastic sites.¹⁶⁷ It is in this context of water management through reservoirs that archaeobotanical studies from excavated reservoir deposits in Sanchi exhibit their association with irrigated rice-growing practices.¹⁶⁸

Deepwater irrigation, however, was not the only method for rice cultivation. In contrast to deepwater irrigation, which is a highly labor-intensive method of rice production involving transplanting and extensive weed-management requirements, non-irrigated practices of wet-rice cultivation are also known from archaeological

160 Strabo 15. 1. 50. For a discussion, see also Thapar 2013, 137.

161 Bauer and Morrison 2008, 2210.

162 Sircar 1965, 169–174.

163 Kant 2000, 62.

164 Shaw 2018, 232.

165 Shaw 2018, 241.

166 Shaw 2013.

167 Shaw 2013, 98–100.

168 Shaw and Sutcliffe 2003a; 2003b.

contexts. Rice was grown not only at the banks of the river during the monsoon season, but wet-rice cultivation systems in saline water near western and eastern coasts have also been speculated.¹⁶⁹ In addition, it is the diversification of crops and use of drought-resistant varieties that may have intensified agricultural production in early historic India.¹⁷⁰ This is owing to the continuity of traditional agricultural patterns dependent on the local ecological factors.

Alternatives to irrigated agriculture also depended on how the soil was tilled. Archaeological finds show the presence of lighter ploughshares in Indic context instead of heavy iron ones. Lighter ploughshares maintain the moisture of the soil because they merely break a thin upper layer of soil and are not used for upturning the deeper soil. Digging deeply exposes the underlying soil to the harsh sun, thus reducing instead of increasing the soil fertility.¹⁷¹ This has also been explained as a reason for the traditional continuity in the shape and design of the ploughshare.

Recent studies also emphasize traditional knowledge of organized foraging in combination with swidden agriculture.¹⁷² In fact, these methods had supplied the organic commodities circulating in global markets, such as timber and pepper. Earlier scholarship had mistaken these methods as primitive forms of production, lacking sophistication and in need of improvement. Morrison explains that scholars who looked for the models of European agricultural practices mistook even the extensive forms of agriculture as natural growth and ignored the labor-intensive processing requirements of plants such as pepper and cardamom before transportation.¹⁷³

VI.2 Transportation

The growing connectivity of South Asia with other world regions depended on the inland physical network within the subcontinent. The networks facilitating travel depended on two types of infrastructural organization: overland and riverine. The positioning of maritime ports was also related to the regional fluvial connectivity, and they were situated upstream of erosive deltas of their respective rivers. Riverine transport was an important part of maritime travel, which meant that the infrastructure that shaped the interface between land and water were different than the Mediterranean. Apart from the physical structures, the infrastructure related to transportation also included certain practices adopted mainly by the state actors in response to both geographical and social requirements. It could be one of the reasons why

169 Kingwell-Banham 2019.

170 For a bibliography on the issues of agricultural intensification through various techniques, see Kingwell-Banham 2019, 6487–6488. Swidden cultivation is also noted in Sri Lanka, where red millet and manero were grown, which needed little water with minimal energy input.

171 Mukhiya 1990, 99.

172 Morrison and Lycett 2013.

173 Morrison and Lycett 2013, 132–133.

we see the involvement of state actors more clearly in transportation infrastructure than in the development of hydraulic infrastructure.

VI.2.1 Road Infrastructure

... On the roads I have had banyan trees planted, which will give shade to beasts and men, I have had mango-groves planted and I have had wells dug and rest houses built at every eight kos. And I have had many watering places made everywhere for the use of beasts and men ...¹⁷⁴

This proclamation by Aśoka of the Mauryan dynasty is indicative of the ruler's personal interest in the maintenance of roadways for travelers and animals traveling with them. Involvement of the state is also known from literary sources. Megasthenes refers to a set of officers responsible for the construction and maintenance of roads. He describes royal roads with pillars to mark distances and byroads at every 10 stadia, extending from Susa in Iran to Palibothra (Pāṭaliputra, modern Patna in Bihar) under the Mauryas even before Aśoka.¹⁷⁵ The two Aramaic edicts of Aśoka from Laghman also mention the term KRPTY (*karapathi*), which is considered to mean "royal road."¹⁷⁶

Regarding the size of roads, archaeological evidence is rare. At Ujjain, a road about 8 m wide has been reported.¹⁷⁷ This is close to the normative guideline (four *daṇḍa* = 7.28 m wide) for the most common types of roads (on dikes, in forests, and in cities),¹⁷⁸ though texts also mention different sizes for other types of roads. The royal highways (*rājamārga*) and roads (*patha*) leading to the capital, provinces, military encampments, cemeteries, and villages experiencing heavy footfall and processions are the broadest (eight *daṇḍa* = 14.56 m wide).¹⁷⁹ Though archaeological evidence is scant, what we do have is not far from these recommendations as is found in case of Ujjain. Regarding the building material, the road fragment from Ujjain dated ca. third century BCE was 32 cm thick and constructed by laying a layer of gravel over well-rammed clay.¹⁸⁰ Another piece of evidence comes from Rajghat in the Ganga valley where the road was topped by a soling of earth layered over

174 Pillar Edict 8 of Aśoka, trans. Hultzsch 1925.

175 Megasthenes cited in Strabo 15. 1. 11, 50; see also Neelis 2013.

176 Chakravarti 2017, 309. For inscriptions, see Mukherjee 1984.

177 Basant 2012, 139.

178 KA 2. 4. 3–5. For the conversion, see Olivelle 2013, 504. Also interesting is to note that the width of the wharf found at Pattanam is also 7.3 m approximately, see below.

179 Further narrower streets are two-*daṇḍas* wide that were traversed by elephants, and those traversed by chariots, farm animals, and smaller animals and humans were five, four, and two *aratnis* (cubits), respectively. KA 2. 4. 3–5.

180 See Deloche 1993, 103; Basant 2012, 139.

thoroughly rammed debris containing potsherds, gravel, and mud clods.¹⁸¹ Some ancient roads were paved; however, they were mostly a feature of areas near cities or large settlements.

Construction and maintenance of roads were of particular interest to the state. The importance of properly maintained and open roadways can be understood when one looks at various legal recourses in case of damage to the roads or any sort of blocking of the roads. These offenses were important cases of litigation and punishable by law. Any damage to the roads was subject to fine, which in the case of royal roads (*rājamārga*) and those in provincial capitals was as high as 1,000 *paṇas*, the highest monetary fine recommended in the text.¹⁸² Roads were one of the most important assets for the king because tolls from long-distance trade and caravans were collected there. In addition, there were escort charges (*ātivāhika*) for the protection of caravans.¹⁸³ Moreover, royal tours and regular travel of royal officials along with heavy transport by oxen carts and possibly elephants required regular maintenance of the roads.¹⁸⁴

There were also other actors involved in the management of roads and paths. For example, stone passageways or stone-cut ways defining the paths to sacred sites are common around pilgrim sites and sacred places. These were commissioned and maintained by religious communities and wealthy pilgrims.¹⁸⁵

VI.2.1 Port Infrastructure and Water Transportation

Early historic cities and the urban localities emerged along riverbanks. So did the important ports, which are generally located upstream the delta of rivers merging either in the Bay of Bengal or the Arabian Sea.¹⁸⁶ Inland navigation was an important feature of the transport system. Most of the rivers in the northern plains, the Indus, Yamuna, Ganga, and Brahmaputra, along with their many distributaries, are perennially navigable rivers.¹⁸⁷ In a study of the district of Ujjain, out of around 100 early historic sites, more than half were located along the River Chambal and its tributary.¹⁸⁸ The fluvial connectivity of these sites is quite clear.¹⁸⁹ Various in-

181 Basant 2012, 139.

182 KA 3. 10. 4–5.

183 KA 2. 16. 18.

184 Falk 2006, 57.

185 Deloche 1993, 102.

186 Dwivedi, ch. 5, this volume. For the location of port cities, see Dwivedi, ch. 14, this volume; vol. 1, ch. 15.

187 Deloche (1994, 6–31), however, rightly suggests that navigability of rivers is relative. Though perennial, the rivers in northern plains are subject to catastrophic swelling, flooding, and silting.

188 Basant 2012, 122, Map 5.2.

189 A particular example is that of transportation of resources. In the Ganga valley, the sites of Aśokan pillar edicts from ca. third century BCE were connected with quarries at Chunar Hills sand-

scriptions record the projects of river embankment (see above). However, archaeological remains of infrastructural constructions are poorly documented. The riverine flow and repeated change in their courses did not allow permanent structures to survive. This is evident from the highly disturbed stratigraphy of certain port sites.¹⁹⁰ It is not improbable that structures near the ports may have been made of wood. Nonetheless, excavations at the site of Pattanam, identified with ancient Muziris, have provided evidence for a wharf platform (more than 6 m in length and 7.3 m in width) made of a mixture of laterite and lime, along with a brick lining at the water level.¹⁹¹ The wharf context is said to have functioned as a ferry site where smaller boats may have ferried passengers and cargo from the seafaring vessels moored offshore.¹⁹² Local polities managed the ports and ferry facilities as part of the city administration.¹⁹³ The *Periplus* also refers to the operation of ferries that interacted with the seafaring vessels arriving near the coast of Barygaza (Bharuch) that were operated on the ruler's orders.¹⁹⁴

Infrastructure related to coastal and riverine port sites was part of city planning. As discussed above, cities developed along rivers, as is also known from the *Arthaśāstra's* recommendations on city planning. The development of storage facilities for cargo was an important aspect of transportation infrastructure. Their construction was usually in the hands of administrative bodies, yet we are also aware of privately owned storage spaces in a city.¹⁹⁵ In archaeological contexts, areas marked by a large concentration and variety of storage and transportation containers can also be assumed to have been storage spaces. At the site of Pattanam, a large warehouse has been excavated next to the wharf.¹⁹⁶ Port sites, even riverine, are also mentioned as bulk-breaking centers (*puṭabhedana*) in literary sources. In fact, in the *Arthaśāstra* frontier forts are called *panyapuṭabhedana*, commercial sites of bulk breaking. These forts are recommended to be located at the intersection of land and water routes.¹⁹⁷ Similar in nature are the *paṭṭana* or *pattana* in the southern context, which also provided storage spaces.¹⁹⁸ Kamara, one of the port towns mentioned in the *Periplus*, has been identified to be Puhār, under the control of the Colas. One of

stone quarry through riverine network. See Jayaswal 2012, 230, 243–250. For sites of Aśokan edicts, see Dwivedi, vol. 1. ch. 10.A, map 1.

190 Such phenomena are found in the archaeological finds from Arikamedu and Pattanam. See Ravitchandirane 2007, 206; Mathew 2017, 18, respectively.

191 Cherian 2011.

192 Gurukkal 2016, 183.

193 The *Arthaśāstra* (2. 28. 24) refers to regulation of prices of ferries and guidelines for those exempted from the fees.

194 *PME* 44.

195 *Akataññu-jātaka*, trans. Cowell 1977, story 90.

196 Cherian 2011.

197 See also Dwivedi, ch. 14, this volume.

198 Chakravarti 2001, 24–25.

the Sangam texts describes Puhār as a market center that had its own harbors, warehouses, and accommodation for travelers.¹⁹⁹ The great capacity of Puhār warehouses is indicated by the reference to “valuable merchandise stored in million bundles.”²⁰⁰

We are also aware of practices that were developed to meet the geographical requirements and cope with the regional political tension. Apart from natural reasons (i.e., heavy silting of areas at the delta and changing littoral landscape), protection of ports and ships from political rivals was perhaps an important reason for the inland location of ports along rivers. During the Śaka-Sātavāhana political tussle in the early centuries CE, the *Periplus* makes a possible reference to the blockading of ports. When Barygaza was possibly under the Śaka domination, the Sātavāhanas may have engaged in smuggling commodities through the mountains and directed the trade to coastal settlements under their control, such as Kalliena, Suppara, or Akabaru.²⁰¹

VII Conclusion

The movement of goods, people, and ideas in an economy depended on networks and the extent to which actors operating at regional and interregional levels connected to those networks. The relationships that constituted these networks were shaped by various institutions, so the standardization processes following from particular institutions discussed in this chapter facilitated the expansion of economic networks. At the same time, this standardization process coincided with profound diversity. In this context, we can observe two patterns of network growth in South Asia.

First, a network grew when standardized or overarching structures allowed space for the incorporation of local systems. The fiscal regime and legal systems discussed above are good examples of this. Both presuppose an administrative structure, yet they do not get implemented without the influences of local social contexts. Taxation was a complex process of negotiations between the state, officials, and the population taxed. How the benefits and burdens of taxation were shared depended on local practices. These included the provision for donations and tax exemptions granted to local groups – farmers or religious centers – that largely depended on local practices of patronage. Similarly, the standardized *dharmasāstric* legal structure provided space for the practice of different customary laws of guilds, religious groups, and villages.

199 Champakalakshmi 1996, 105.

200 Champakalakshmi 1996, 103–4.

201 For the discussion on political control over ports during the Śaka-Sātavāhana rivalry, see Seland 2010, 54–55.

The second type of network expansion is when the overarching institutions are adapted and molded according to local requirements. For example, the monetary systems in various parts of India adopted the *kārṣāpaṇa* weight standards, yet the coins were rendered in different styles suiting regional requirements. There were monarchs, civic administrative bodies, as well as regional conglomerates that issued coins to express their political and economic messages. In addition, the minting of imitations to fulfill local demands for coinage after the decline of the issuing authority suggests that local economies molded the standardized system to their local requirements. The production of imitations of regular-use pottery types in locally available raw materials is a similar phenomenon.²⁰² In both cases, local requirements led to the adoption of and adaptation to standardized practices. Yet we must be aware that the examples of network expansion discussed in this chapter are just two of several strategies likely to have been adopted by different local actors. It is through different strategies of negotiating standardization that we can assume connectivity between diverse regions and actors to have grown.

References

- Altekar, A. S. 1955. *State and government in ancient India*. Delhi: Motilal Banarsidass.
- Apte, V. S. 1985. *The practical Sanskrit-English dictionary*. 4th ed. New Delhi: Motilal Banarsidass.
- Barba, F. 2004. "The fortified cities of the Ganges plain in the first millennium BC" *East and West* 54.1/4, 223–250.
- Basant, P. K. 2012. *The city and the country in early India: A study of Malwa*. New Delhi: Primus Books.
- Basu Majumdar, S. 2018. "Media of exchange: Reflections on monetary history." In A. M. Chowdhury and R. Chakravarti (eds.), *History of Bangladesh: Early Bengal in regional perspectives (up to c. 1200 CE)*. Vol. 2, 234–268. Dhaka: Asiatic Society of Bangladesh.
- Basu Majumdar, S. and S. Pan. 2016. "Punch marked coins in early Bengal: Issuance and circulation pattern." *Journal of Bengal Art* 21, 55–78.
- Bauer, A. M. and K. D. Morrison. 2008. "Water management and reservoirs in southern India and Sri Lanka." In H. Selin (ed.), *Encyclopedia of the history of science, technology, and medicine in non-Western cultures*, 2nd ed., 2207–2214. New York: Springer.
- Bernholz, P. and R. Vaubel. 2014. "The political economy of monetary and financial innovation: Introduction and overview." In P. Bernholz and R. Vaubel (eds.), *Explaining monetary and financial innovation: A historical analysis*, 1–16. Cham: Springer International Publishing.
- Bhandare, S. 1999. "Historical analysis of the Satavahana era: A study of coins." PhD diss., University of Mumbai.
- . 2006. "Numismatics and history: The Maurya-Gupta interlude in the Gangetic plain." In P. Olivelle (ed.), *Between the empires: Society in India 300 BCE to 400 CE*, 67–112. Oxford: Oxford University Press.

²⁰² M. L. Smith 1999b, 117–118. See also Dwivedi, ch. 14, III.2, this volume.

- . 2012. “From Kaūṭilya to Kosambi and beyond: The quest for a ‘Mauryan/Aśokan’ coinage.” In P. Olivelle, J. Leoshko, and H. P. Ray (eds.), *Reimagining Aśoka: Memory and history*, 93–128. New Delhi: Oxford University Press.
- . 2018. “Numismatics of ‘the other’: Investigating coinage and ‘Greekness’ at Taxila.” In H. P. Ray (ed.), *Buddhism and Gandhara: An archaeology of museum collections*, 70–103. London: Routledge.
- Bhattacharji, S. 1991. “Economic rights of ancient Indian women.” *Economic and Political Weekly* 26.9/10, 507–512.
- Cardona, G. 2017. “The documentation of Indic.” In J. Klein, B. Joseph, and M. Fritz (eds.), *Handbook of comparative and historical Indo-European linguistics*. Berlin: De Gruyter Mouton.
- Chakravarti, R. 1996. “Kutumbikas of early India.” In V. K. Thakur, A. Aounshuman, and R. Choudhary (eds.), *Peasants in Indian history: Theoretical issues and structural enquiries (Essays in memory of professor Radhakrishna Chaudhary)*. Vol. 1, 179–198. Patna: Janaki Prakashan.
- . 2001. “Introduction.” In R. Chakravarti (ed.), *Trade in early India*, 1–101. New Delhi: Oxford University Press.
- . 2017. “Examining the hinterland and foreland of the port of Muziris in the wider perspective of the subcontinent’s long-distance networks.” In K. S. Mathew (ed.), *Imperial Rome, Indian Ocean regions and Muziris: New perspectives on maritime trade*, 307–338. London: Routledge.
- Champakalakshmi, R. 1996. *Trade, ideology and urbanization: South India 300 BC to AD 1300*. Delhi: Oxford University Press.
- Chattopadhyaya, B. D. 2003. *Studying early India: Archaeology, texts, and historical issues*. New Delhi: Permanent Black.
- Cherian, P. J. 2011. “Pattanam archaeological site: The wharf context and the maritime exchanges.” In M. Staniforth et al. (ed.), *Proceedings of the Asia Pacific conference on underwater archaeology, held at Manila, Philippines*, 131–144. Manila: Museum of Underwater Archaeology Collection.
- Coningham, R. A. E., F. R. Allchin, C. M. Batt and D. Lucy. 1996. “Passage to India? Anuradhapura and the early use of the Brahmi script.” *Cambridge Archaeological Journal* 6.1, 73–97.
- Coşgel, M. M. and T. J. Miceli. 2009. “Tax collection in history.” *Public Finance Review* 37.4, 399–420.
- Cowell, E. B., ed. 1977. *The Jātaka, or stories of the Buddha’s former births*. 6 vols. Oxford: Clarendon Press.
- Cribb, J. 2000. “Early Indian history.” In M. D. Willis (ed.), *Buddhist reliquaries from ancient India*, 39–54. London: British Museum Press.
- . 2005. *The Indian coinage tradition: Origins, continuity and change*. Nashik: Indian Institute of Research in Numismatic Studies.
- D’Altroy, T. N. 2015. “The Inka empire.” In Monson and Scheidel (2015a), 31–70.
- De Romanis, F. 2020. *The Indo-Roman pepper trade and the Muziris papyrus*. Oxford: Oxford University Press.
- Dehejia, V. 1992. “Collective and popular bases of early Buddhist patronage: Sacred monuments, 100 BC–AD 250.” In B. S. Miller (ed.), *The powers of art: Patronage in Indian culture*, 35–45. Delhi: Oxford University Press.
- Deloche, J. 1993. *Transport and communications in India prior to steam locomotion*. Vol. 1, *Land transport*. J. Walker (trans.). Delhi: Oxford University Press.
- . 1994. *Transport and communications in India prior to steam locomotion*. Vol. 2, *Water transport*. J. Walker (trans.). Delhi: Oxford University Press.
- Derrett, J. D. M. 1973. *A history of Indian literature*. Vol. 5.1, *Dharmaśāstra and juridical literature*. Wiesbaden: Otto Harrersowitz.

- Deshpande, M. M. 1993. *Sanskrit and Prakrit: Sociolinguistic issues*. Delhi: Motilal Banarsidass Publishers.
- Doniger, W. and B. K. Smith, trans. 1991. *The laws of Manu*. London: Penguin Books.
- Dwivedi, M. 2015. "Colonial imagination and identity attribution: Numismatic cues for defining space." In H. P. Ray (ed.), *Negotiating cultural identity: Landscapes in early medieval South Asian history*, 206–238. London: Routledge.
- Einzig, P. 1966. *Primitive money in its ethnological, historical and economic aspects*. 2nd ed. Oxford: Pergamon Press.
- Errington, E. 2003. "A Survey of late hoards of Indian punch-marked coins." *Numismatic Chronicle* 163, 69–121.
- Falk, H. 2001. "Three epigraphs from Godawaya, Sri Lanka." In H.-J. Weisshaar, H. Roth, and W. Wijeyapala (eds.), *Ancient Ruhuna: Sri Lankan-German archaeological project in the southern province*. Vol. 1, 327–334. Mainz: Philipp von Zabern.
- . 2006. *Aśokan sites and artefacts. A source-book with bibliography*. Mainz: Philipp von Zabern.
- . 2009. "The pious donation of wells in Gandhara." In G. J. R. Mevissen and A. Banerji (eds.), *Prajñādhara: Essays on Asian art, history, epigraphy and culture in honour of Gouriswar Bhattacharya*, 23–36. New Delhi: Kaveri.
- . 2018. "The creation and spread of scripts in ancient India." In A. Kolb (ed.), *Literacy in ancient everyday life*, 43–66. Berlin: De Gruyter.
- Fausbøll, V., ed. 1877–1896. *The Jātaka together with its commentary being tales of the anterior births of Gotama Buddha*. T. W. R. Davids (trans.). 6 vols. London: Trübner & Co.
- Fitzgerald, J. L. 2014. "Old, older, and oldest Dharmaśāstra: The manuscript tradition of the Manu Śāstra, the original text of the Manu Śāstra, and the first Dharmasūtras." *Journal of the American Oriental Society* 134.3, 481–503.
- Ghosh, S. 2012–2013. "Use of coin terms in the epigraphs of early medieval Bengal and related issues." *Numismatic Digest* 36/37, 94–112.
- Ghoshal, U. N. 1929. *Contributions to the history of the Hindu revenue system*. Calcutta: University of Calcutta Press.
- Gokhale, S. 2004. "Coins from the excavation at Sanjan – 2002." *Journal of Indian Ocean Archaeology* 1, 107–112.
- Gurukkal, R. 2016. *Rethinking classical Indo-Roman trade: Political economy of Eastern Mediterranean exchange relations*. New Delhi: Oxford University Press.
- Halder, D. and K. Jaishankar. 2008–2009. "Property rights of Hindu women: A feminist review of succession laws of ancient, medieval, and modern India." *Journal of Law and Religion* 24.2, 663–687.
- Handa, D. 2000. "Minuscule silver coins from Sugh." *East and West* 50.1/4, 515–521.
- . 2007. *Tribal coins of ancient India*. New Delhi: Aryan Books International.
- Heimann, J. 1980. "Small change and ballast: Cowry trade and usage as an example of Indian Ocean economic history." *South Asia: Journal of South Asian Studies* 3.1, 48–69.
- Houben, J. E. M. 2018. "Linguistic paradox and diglossia: The emergence of Sanskrit and Sanskrit language in ancient India." *Open Linguistics* 4, 1–18.
- Hultzsch, E., ed. 1925. *Corpus inscriptionum indicarum*. Vol. 1, *Inscriptions of Aśoka*. New Delhi: Director General, Archaeological Survey of India.
- Jahan, S. H. 2012. "Maritime trade between Thailand and Bengal." *Journal of Fine Arts, Chiang Mai University* 3.2, 205–228.
- Jayaswal, V. 2012. "Mauryan pillars of the middle Ganga plain: Archaeological discoveries of Sarnath-Varanasi and Chunar." In P. Olivelle, J. Leoshko, and H. P. Ray (eds.), *Reimagining Aśoka: Memory and history*, 229–257. New Delhi: Oxford University Press.
- Jettmar, K., ed. 1989. *Antiquities of northern Pakistan: Reports and studies*. Vol. 1, *Rock inscriptions in the Indus Valley: Text*. Mainz: Philipp von Zabern.

- Kane, P. V. (1941) 1974. *History of Dharmśāstras: Ancient and medieval religious and civil law*. 2nd ed. Vol. 2. Poona: Bhandarkar Oriental Institute.
- . (1946) 1973. *History of Dharmśāstras: Ancient and medieval religious and civil law*. 2nd ed. Vol. 3. Poona: Bhandarkar Oriental Institute.
- Kangle, R. P. (1969) 2014a. *The Kauṭīliya Arthaśāstra*. Vol. 1, *Sanskrit text*. Delhi: Motilal Banarsidass.
- , trans. (1969) 2014b. *The Kauṭīliya Arthaśāstra*. Vol. 2, *Translation*. Delhi: Motilal Banarsidass.
- . (1969) 2014c. *The Kauṭīliya Arthaśāstra*. Vol. 3, *Study*. Delhi: Motilal Banarsidass.
- Kant, S. 2000. *The Hathīgumphā inscription of Khāravela and the Bhabru edict of Aśoka: A critical study*. 2nd ed. New Delhi: D. K. Printworld.
- Kingwell-Banham, E. 2019. “Dry, rainfed or irrigated? Reevaluating the role and development of rice agriculture in Iron Age-Early Historic South India using archaeobotanical approaches.” *Archaeological and Anthropological Sciences* 11.12, 6485–6500.
- Kohli, R. 1995. *Kautilya’s political theory: Yogakshema, the concept of welfare state*. New Delhi: Deep & Deep Publications.
- Kolb, A. 2018. “Literacy in ancient everyday life – Problems and results.” In A. Kolb (ed.), *Literacy in ancient everyday life*, 1–10. Berlin: De Gruyter.
- Legge, J., trans. (1886) 2003. *A record of Buddhist kingdoms: Being an account by the Chinese monk Fa-Hien of his travels in India and Ceylon (AD 399–414) in search of the Buddhist books of discipline*. Adelaide: Asian Educational Services.
- Lüders, H. 1912. *A list of Brahmi inscriptions from the earliest times to about AD 400 with the exception of those of Asoka*. Calcutta: Superintendent Government Printing.
- Marshall, J. 1951. *Taxila: An illustrated account of archaeological excavations*. Vol. 2, *Minor antiquities*. Cambridge: Cambridge University Press.
- Mate, M. S. 1969. “Building in ancient India.” *World Archaeology* 1.2, 236–246.
- Mathew, K. S. 2017. “Introduction.” In K. S. Mathew (ed.), *Imperial Rome, Indian Ocean regions and Muziris: New perspectives on maritime trade*, 9–30. London: Routledge.
- McClish, M. R. 2009. “Political Brahmanism and the state: A compositional history of Arthaśāstra.” PhD diss., University of Austin, Texas.
- Mirashi, V. V. 1981. *The history and inscriptions of the Sātavāhanas and the Western Kshatrapas*. Bombay: Maharashtra State Board for Literature and Culture.
- Mitchiner, M. 1983. “India: Minute silver coins of the early Mauryan Empire.” *East and West* 33.1/4, 113–123.
- . 1998. *The coinage and history of southern India*. Vol. 2, *Tamil Nadu-Kerala*. London: Hawkins Publications.
- Monson, A. and W. Scheidel, eds. 2015a. *Fiscal regimes and the political economy of premodern states*. Cambridge: Cambridge University Press.
- . 2015b. “Studying fiscal regimes.” In Monson and Scheidel (2015a), 3–28.
- Morrison, K. D. and M. T. Lycett. 2013. “Forest products in a wider world: Early historic connections across southern India.” In S. A. Abraham, P. Gullapalli, T. P. Raczek, and U. Z. Rizvi (eds.), *Connections and complexity: New approaches to the archaeology of South Asia*, 127–142. Walnut Creek, CA: Left Coast Press.
- Mukerjee, R. 1916. *The foundations of Indian economics*. London: Longmans, Green and Company.
- Mukherjee, B. N. 1984. *Studies in Aramaic edicts of Aśoka*. Calcutta: Indian Museum.
- Mukhiya, H. 1990. “Agricultural technology in medieval India.” In G. Kuppuram and K. Kumudamani (eds.), *History of science and technology in India*. Vol. 10, 91–126. Delhi: Sundeep Prakashan.
- Neelis, J. E. 2013. “Polyvalent perceptions of the Uttarāpatha in history: Archaeological evidence, epigraphic references and literary demarcations.” In S. Ghosh, S. Ray Bandopadhyaya, S. Basu Majumdar, and S. Pal (eds.), *Revisiting early India: Essays in honour of D. C. Sircar*, 13–25. Kolkata: R. N. Bhattacharya.

- Olivelle, P., trans. 1999a. *Dharmasūtras: The law codes of Āpastamba, Gautama, Baudhāyana, and Vasiṣṭha*. Oxford: Oxford University Press.
- , trans. 1999b. *Pañcatantra: The book of India's folk wisdom*. Oxford: Oxford University Press.
- , trans. 2005. *Manu's code of law: A critical edition and translation of Mānava-Dharmaśāstra*. Oxford: Oxford University Press.
- , trans. 2013. *King, governance, and law in ancient India: Kauṭilya's Arthaśāstra: A new annotated translation*. Oxford: Oxford University Press.
- Pagel, U. 2014. *Buddhist monks in tax disputes: Monastic attitudes towards revenue collection in ancient India*. Naples: Università degli Studi di Napoli "L'Orientale" Centro di Studi sul Buddhismo.
- . 2017. "Nothing to declare: Status, power and religious aspiration in the policies of taxation in ancient India." *Medieval Worlds* 6, 101–117.
- Pavan, A. and H. Schenk. 2012. "Crossing the Indian Ocean before the *Periplus*: A comparison of pottery assemblages at the sites of Sumhuram (Oman) and Tissamaharama (Sri Lanka)." *Arabian Archaeology and Epigraphy* 23.2, 191–202.
- Pollock, S. 1985. "The theory of practice and the practice of theory in Indian intellectual history." *Journal of the American Oriental Society* 105.3, 499–519.
- . 2009. *The Language of the gods in the world of men: Sanskrit, culture, and power in premodern India*. Berkeley, CA: University of California Press.
- Rai, S. S., G. K. Rai, A. C. Pandey, and U. C. Chattopadhyaya. 2014. "Geochemical studies of the ancient Indian glazed ware." *Current Science* 106.3, 428–434.
- Ravitchandirane, P. 2007. "Stratigraphy and structural context of Arikamedu." *East and West* 57.1/4, 205–233.
- Ray, H. P. 2010. "Water management and archaeology of the Haryana-Punjab plains." In H. P. Ray (ed.), *Sanghol and the archaeology of Punjab*, 198–215. Sanghol: Aryan Books International.
- Reddy, A. L. 2015. "Sourcing Indian ceramics in Arabia: Actual imports and local imitations." *Proceedings of the Seminar for Arabian Studies* 45, 253–271.
- . 2016. "Archaeology of Indo-Gulf relations in the early historic period: The ceramic evidence." In H. P. Ray (ed.), *Bridging the Gulf: Maritime cultural heritage of the western Indian Ocean*, 53–78. New Delhi: Manohar.
- Roy, K. 1996. "Unravelling the Kāmasūtra." *Indian Journal of Gender Studies* 3.2, 155–170.
- Sankhdher, M. M. 2003. *Yogakshema: The Indian model of welfare state*. New Delhi: Deep and Deep Publications.
- Sarkar, K. R. 1978. *Public finance in ancient India*. New Delhi: Abhinav Publications.
- Scharfe, H. 2002. *Education in ancient India*. Leiden: Brill.
- Schopen, G. 2004. *Buddhist monks and business matters: Still more papers on monastic Buddhism in India*. Honolulu, HI: University of Hawai'i Press.
- Seland, E. H. 2010. *Ports and political power in the Periplus: Complex societies and maritime trade on the Indian Ocean in the first century AD*. Oxford: Archaeopress.
- Sharma, R. S. (1959) 2012. *Aspects of political ideas and institutions in ancient India*. New Delhi: Motilal Banarsidass.
- Shastri, A. M., ed. 1992. *The age of the Vākātakas*. New Delhi: Herman Publishing House.
- Shaw, J. 2013. "Archaeologies of Buddhist propagation in ancient India: 'Ritual' and 'practical' models of religious change." *World Archaeology* 45.1, 83–108.
- . 2018. "Early Indian Buddhism, water and rice: Collective response to socioecological stress: Relevance for global environmental discourse and Anthropocene studies." In Y. Zhuang and M. Altaweel (eds.), *Water societies and technologies from the past and present*, 223–255. London: UCL Press.
- Shaw, J. and J. V. Sutcliffe. 2003a. "Ancient dams, settlement archaeology and Buddhist propagation in central India: The hydrological background." *Hydrological Sciences Journal* 48.2, 277–291.

- . 2003b. “Water management, patronage networks and religious change: New evidence from the Sanchi Dam complex and counterparts in Gujarat and Sri Lanka.” *South Asian Studies* 19, 73–104.
- Shrimali, K. M. 1985. *History of the Pañcāla*. 2 vols. New Delhi: Munshiram Manoharlal.
- Sircar, D. C., ed. 1965. *Select inscriptions bearing on Indian history and civilization*. 2nd ed. Vol. 1, *From the sixth century BC to the sixth century AD*. Calcutta: University of Calcutta.
- . 1968. *Studies in Indian coins*. Delhi: Motilal Banarsidass.
- . 1969. *Landlordism and tenancy in ancient and medieval India as revealed by epigraphical records*. Lucknow: University of Lucknow.
- Smith, C. 2017. “The dialectology of Indic.” In J. Klein, B. Joseph, and M. Fritz (eds.), *Handbook of comparative and historical Indo-European linguistics*. Berlin: De Gruyter Mouton.
- Smith, M. L. 1999a. “‘Indianization’ from the Indian point of view: Trade and cultural contacts with Southeast Asia in the early first millennium CE.” *Journal of the Economic and Social History of the Orient* 42.1, 1–26.
- . 1999b. “The role of ordinary goods in premodern exchange.” *Journal of Archaeological Method and Theory* 6.2, 109–135.
- Spate, O. H. K. and A. T. A. Learmonth. (1954) 2017. *India and Pakistan: A general and regional geography*. London: Routledge.
- Strauch, I., ed. 2012. *Foreign sailors on Socotra: The inscriptions and drawings from the cave Hoq*. Bremen: Hemen.
- Terpstra, T. 2019. *Trade in the ancient Mediterranean: Private order and public institutions*. Princeton, NJ: Princeton University Press.
- Thakur, U. 1972. “A study in barter and exchange in ancient India.” *Journal of the Economic and Social History of the Orient* 15.3, 297–315.
- . 1973. “Early Indian mints.” *Journal of the Economic and Social History of the Orient* 16.1, 265–297.
- . 1990. “Minting of coins and problem of forgery in Indian numismatics.” In G. Kuppuram and K. Kumudamani (eds.), *History of science and technology in India*. Vol. 8, 1–26. Delhi: Sundeep Prakashan.
- Thapar, R. 1992. *From lineage to state: Social formations in the mid-first millennium BC in the Ganga valley*. 2nd ed. Delhi: Oxford University Press.
- . 2013. *Aśoka and the decline of the Mauryas*. 3rd ed. New Delhi: Oxford University Press.
- Tripathi, O. 1985. *Taxation and fiscal administration in ancient India from the Vedic times to the end of the Mauryan period*. Lucknow: Upper India.
- van Buitenen, J. A. B., trans. 1978. *The Mahābhārata*. Vol. 3, 4: *The book of the Virāṭa*. 5: *The book of the effort*. Chicago, IL: University of Chicago Press.
- Varadarajan, L. 2018. “Indian patterned cotton textiles and trade with the East and Southeast.” In S. Saran (ed.), *Cultural and civilisational links between India and Southeast Asia: Historical and contemporary dimensions*, 51–63. Singapore: Springer Singapore.
- von Hinüber, O. 2006. “Everyday life in an ancient Indian Buddhist monastery.” *Annual Report of the International Research Institute for Advanced Buddhism at Soka University* 9, 3–32.
- Weisshaar, H.-J. 2009. “How to get water, and how to dispose? Water Management in an Early Urban Society of South Asia.” In C. Nickel, H.-J. Weisshaar, A. M. Shadullah, and S. A. Shafi (eds.), *Man and water. Seminar on archaeology, supply and sanitation in Bangladesh and beyond*, 23–32. Dhaka: Goethe-Institut.
- Xue, Y. and M. Yanai. 2005. “Asia, climate of south.” J. E. Oliver (ed.) *Encyclopedia of world climatology*. New York, NY: Springer.
- Yang, B. 2019. *Cowrie shells and cowrie money: A global history*. New York, NY: Routledge.

Kathrin Leese-Messing

11 Tools of Economic Activity in Early Imperial China

I Introduction

This chapter considers major sets of tools in the form of structural and physical institutions that shaped the economic activities of various actor groups that have been discussed in chapter six. Many of these tools are intertwined with the power of state institutions, even though they also relied on other supporting factors to varying degrees. In any case, their socioeconomic effects typically went far beyond the functions primarily associated with them.

The *fiscal regime* of the early imperial state is one obvious example. With its thorough organizational capacity, it strongly affected people's economic behavior and broader socioeconomic structures through the ways in which revenues were collected and redistributed. Among others, changes in fiscal policies were also strongly tied to *monetization* processes, in the sense that they both reacted to and furthered the latter by increasing the share of monetary extraction. The effects of increased monetization, however, went far beyond the interests of state actors by substantially facilitating economic transactions in which a wide range of social groups participated.

Law is another tool that is deeply connected to state authority. Under a relatively standardized judicial system, early imperial law bore a strong potential for reducing uncertainties and negotiation costs, especially with regard to property claims. Reduction of negotiation costs across larger spaces can further be associated with certain spheres of *standardization*, e.g., of weights and measures. Additionally, the relatively standard use of the Chinese language and particularly the script, as well as the wide spread of sumptuary patterns, both of which were supported by administrative structures and state-promoted mobility of officials and common people, created further conditions for increased connectivity and for the use of mass production techniques.

Increased connectivity and the mobility of goods in particular further depended heavily on the network of physical *infrastructure*. In the form of both natural and artificial waterways as well as both preexisting and newly established overland routes, the early imperial network may have been more efficient than had previously been assumed with regard to travel speeds and its suitability for long-distance transport. Finally, this chapter will consider certain examples of *technological* devel-

Note: I would like to thank Armin Selbitschka for valuable comments on an earlier draft of this chapter.

opments that, in combination with various forms and degrees of state promotion, shaped the production and spread of certain products, from metal implements of daily use to luxury textiles.

II Fiscal Regime

II.1 Introduction

The early imperial fiscal regimes evolved from the policies that characterized the bellicose centuries of the Warring States period (475–221 BCE). The fiscal system of the Qin state has been branded by von Glahn as “military-physiocratic.”¹ It largely relied on in-kind, agrarian-based taxation and massive forced labor, and had essentially been designed to finance warfare and the accompanying measures of rationalization and bureaucratic centralization. It was characterized by land-allocation by the state,² an intensive exploitation of a narrowly circumscribed tax base, meticulous systems of accounting and household registration, high monitoring costs, a comparatively low level of monetization, irregular levies, and frequent changes in tax rates. It was further characterized by a determined preclusion of private parties from the benefits of resource extraction and, in the long run, by a lack of options for the agents (i.e., local officials and elites) to cooperate with the principal (i.e., the central government) to secure the former’s loyalty.³

Qin’s vast and rapid imperial expansion toward the east and southeast required the integration of regions with more monetized markets as well as powerful mercantile and land-based elites. This made reforms of the fiscal system inevitable, attempts at which the Qin regime was not able to adequately implement during its short reign. The following Han regime took over many elements of the Qin fiscal regime, including its system of accounting and household registration. But it also changed it in some fundamental ways. The Han expanded the tightly circumscribed tax base of the Qin by recognizing private land tenure and retracting land-allocation schemes. Furthermore, it gradually revised the inherited fiscal system by advancing its monetization level, building up a fixed-rate, low-tax regime, reducing monitoring costs, and creating the conditions for an ‘imperial consensus’ between the central government and local elites.⁴ Especially during phases of border conflict and impe-

¹ Von Glahn 2016, 85; 2020, 10–14.

² Before its massive eastward conquests, Qin expansion often meant colonization of territory, in which newly measured plots of arable land could be allocated to settlers, which also facilitated taxation.

³ Korolkov 2021b and Korolkov 2020, 49–142 offer detailed, up-to-date studies of the Qin fiscal system.

⁴ Korolkov 2021b, 232–243.

rial expansion, additional means of securing fiscal revenue were introduced, which von Glahn has termed “mercantilist.”⁵ While some of these were ad hoc measures that would soon be withdrawn, others – such as the state monopolies on salt and iron – came to be institutionalized and supported the fiscal system for longer terms.

Estimates of the annual imperial revenue, based on both excavated local records and transmitted figures, vary considerably. Scheidel, for instance, suggests they may have amounted to around 10–12 billion in cash during late Former Han times, which would have equaled approximately 2.1–3.7 million tons of wheat. He concedes it may have been somewhat more in the case that some form of property taxes still existed at that time.⁶ Neglecting this possibility, this estimate suggests the Han imperial revenue came close to that of the Roman Empire (2.6–3.5 million tons of wheat) and featured roughly the same rates of annual *per capita* revenue (37–50 vs. 35–62 kg of wheat).⁷ Nevertheless, other estimates, such as that proposed by Yamada, suggest a much higher total revenue with a value of almost 19 billion coins, with close to half of it being collected in coin and the other half in kind.⁸ Since many pieces of information that lead to both of these estimates are highly speculative, the question about the extent of their accuracy must remain open. The same measure of caution must be applied to estimates of the relative portions that individual income sectors contributed to the total state revenue, some of which will be presented below.

In general, the available evidence conveys the impression of a highly developed and institutionalized administrative fiscal system. One characteristic of the Former Han fiscal system in particular is its relatively clear separation between revenues of the emperor’s privy purse (the ‘Lesser Treasury,’ *Shaofu* 少府) and public funds. With this separation being linked with a “precise, centralized planning of taxation and expenditure to satisfy the state’s commitments to good governance, including defense of the realm and the economic welfare of its subjects,” von Glahn suggests that the “institutional apparatus of the fiscal state already was a defining feature of governance in the first Chinese empires.”⁹

II.2 Revenues in Kind and Labor

II.2.1 The Land Tax

The Han government possessed imperial lands by itself, which produced in-kind revenues through agriculture, forestry, and fishing. They went to the emperor’s

⁵ Von Glahn 2016, 118; 2020, 14–17.

⁶ On property taxes, see sec. II.3.3 below.

⁷ Scheidel 2015, 151–156, 163–164.

⁸ Yamada 1993, 653–658.

⁹ Von Glahn 2020, 9. On the division between the public and privy purse, see further Bielenstein 1980, 43–69; Katō 1952; Zhu and Xia 2013. Yamada estimated an annual of 2.66 billion coins reve-

privity purse but were probably marginal in relation to the total state revenue.¹⁰ The largest source by far of in-kind state revenue consisted of extractions from free peasant households. These agricultural taxes had already provided the means for the newly risen elite to defeat the old, often city-based nobles during the centuries predating the Qin unification. The fiscal and administrative institutions that the early empires inherited were thus primarily made for extracting resources from farmers rather than from urban residents.¹¹

Accordingly, the primary tax levied by the Qin and probably also the Han state was the land tax (lit. ‘field tax,’ *tianzu* 田租). Even though its share in the total fiscal revenue decreased, it remained its most important element throughout the early imperial period.¹² It was collected per household and was typically paid in grain. Nominally a variable output tax levied as a percentage of the harvest, during Han times it appears in practice to have been a fixed input tax levied on the size of the land multiplied by a quota of an assumed average produce. This made state income more predictable while laying the risk of crop failure on the taxpayers’ shoulders.¹³ Furthermore, it likely stimulated investment in their land’s productivity. The assumed average produce was defined according to the quality of the taxed land, which was classified into three fertility grades.¹⁴ Throughout the Han period, the

nue to have entered the privy purse, in comparison to ca. 16.32 billion coins to have entered the public funds. See the table in von Glahn 2016, 117. However, many uncertainties and inconsistencies in transmitted figures are involved in the comparison of these revenues. See, for instance, a summary of some of these problems in Scheidel 2015, 152.

10 Yamada suggests them to have amounted to 300 million coins. See the table in von Glahn 2016, 117.

11 Lewis 2015, 294.

12 Most scholars assume that the land tax was still contributing the largest part to the Han Empire’s fiscal revenue. As a concrete example, Yamada’s estimates suggest that they amounted to an equivalent of 7 billion coins out of a total of about 19 billion coins. See the table (based on Yamada’s estimates) in von Glahn 2016, 117. On the development of the land tax from Qin to Han times, see also Z. Yang 2008.

13 The ‘learned scholars’ in *Yantie lun* 15 clearly express this point: “Although the field [tax] is [nominally] one-thirtieth, it is paid according to the acreage. Thus in good years, when the grain lies about in abundance, the actual exaction would be [too] small, while in bad years with famine rampant, the full stipulated amount would yet be demanded” 田雖三十，而以頃畝出稅，樂歲粒米狼戾而寡取之，凶年饑饉而必求足。 *Yantie lun jiaozhu* 15.191, trans. Gale 1967, 94 (with modifications). See also Hsu 1980, 72–73, including n. 36 with references to studies arguing that the land tax may still have been an output tax after all (which it indeed had been originally, during Warring States times).

14 This classification was introduced at some point during the Former Han period. As for the pre-Han period, excavated Qin documents suggest that Qin tax rates were adjusted annually according to actual crop conditions, which went along with high monitoring costs. This system served the goal of exploiting higher portions of yields from a spatially circumscribed fiscal base for which the government was able to attain detailed knowledge. In the other pre-imperial states in the east, the scarce available evidence suggests that their tax systems may have been more similar to the Han system in this regard, i.e., relying on fixed tax rates. See Korolkov 2021b, 212.

quota changed several times, but by far the most common rate was a mere one-thirtieth.¹⁵ The actual amounts of grain levied upon a certain portion and quality of land are, however, unknown. The grain collected via the land tax was stored in state granaries and redistributed in the form of parts of officials' salaries, rations for conscripts, convicts, and slaves, as well as famine relief and feasts.

II.2.2 Labor Extraction from Conscripts, Convicts, Slaves, and Debtors

The early empires' reliance on forced labor was largely a legacy of traditions that had characterized the Warring States and the pre-imperial state of Qin in particular. Both the circumscribed topography of its heartland, the 'area within the passes' (*Guanzhong* 關中), and its economy's belated monetization in comparison to its eastern neighbors had favored direct management of people's labor by the Qin state, which has ever since been notorious for its large-scale labor projects.¹⁶ With its vast imperial expansion eastward, both of these factors became less relevant. The extensive system of labor extraction that the Han inherited from the Qin resulted in an oversupply of labor resources during certain times and certain spaces. The Han government reacted to this by transforming these resources into forms that better met their variable, context-dependent needs. Demand-driven commutation of labor duties into cash payments can, therefore, be observed as a general trend in the Han government's approach to its labor regime.

Both the Qin and Han regimes levied civilian and military labor taxes on their population. Under Han rule, all young men were liable for two years of military service (one in their localities and one at the capital or frontier), as well as annual training sessions. Furthermore, civilian labor service of one month per year was theoretically owed by all males and females between fifteen and sixty-five. In order to minimize harm to agricultural output and procreation, it was predominantly exacted during times of little demand for agricultural labor, and duties for pregnant and nursing women were reduced or paused. Generally, women's assignments were probably mostly local, whereas men's labor duties often included work away from home. Certain honorific ranks furthermore went along with reduction of or exemp-

¹⁵ General Qin rates are unknown. Excavated Qin documents suggest an average tax rate of 8.61 percent (about one-twelfth) of the produce for the Qin county of Qianling (W. Chen 2012, 345–347, tablet 8–1519; Korolkov 2021b, 248, n. 30). At the beginning of the Han dynasty, the rate reportedly was one-fifteenth. After a few decades of Han rule, grain surpluses reportedly allowed for a remission of the tax between 168 and 156 BCE. For the rest of the Former and Later Han dynasties, the rate seems to have been one-thirtieth, with a short interruption during and shortly after the civil war following Wang Mang's 王莽 (r. 9–23 CE) reign, for which sources mention an emergency rate of one-tenth. *Hanshu* 24.1135; Swann 1950, 171–172; Lewis 2015, 285–286.

¹⁶ Korolkov 2021b, 206.

tion from conscript duties.¹⁷ Labor conscripts were employed in a variety of tasks, ranging from heavy work in construction projects and transport to skilled handicraft and monthly shifts as administrative functionaries.¹⁸

Over the course of the Han period, however, both conscript labor and military service obligations were increasingly replaced by cash payments, which could be deployed more flexibly on the basis of momentary demands and to hire long-term professionals. The originally unofficial, private arrangement of substituting labor duties, which was eventually institutionalized during the Former Han period, was an important step in this development.¹⁹ Even though the available evidence is not quite clear on this point, it appears that labor service and poll taxes came to be merged in local taxation documents, suggesting that the two became convertible.²⁰ This would have provided a flexible opportunity for local officials to extract only the labor power needed at a certain point of time while commuting redundant labor levies to cash payments. Later in the Former Han period, the state introduced a ‘tax [substituting] a term [of conscript labor]’ (*gengfu* 更賦), the income of which could also be used to hire laborers flexibly.²¹ Regular military service duties may have been abolished in 32 CE, but this point is not entirely clear.²²

The fiscal system forced producers to make fuller use of their labor capacities – either by performing services during agricultural off-peak seasons or by developing means to earn the required monetary sum on the market. It may therefore be assumed to have contributed to a modest increase in *per capita* production.²³ In this regard, however, one also has to acknowledge contemporary critics’ warnings that the various tax and service burdens added up to a dangerous overstretching of peasants’ labor capacities.²⁴

Convict laborers (*tu* 徒 or *xingtū* 刑徒) were yet another indispensable functional element of both the state-sector economy and its administration. In both the Qin

¹⁷ Von Glahn 2016, 101–105; 2020, 11.

¹⁸ Korolkov 2020, 96–106.

¹⁹ Pre-imperial Qin law already permitted substitution of a person’s labor debts (for unpaid fees, fines, or outstanding debts in coin or kind) with labor by another person. This encouraged the development of a market for hired labor substitutes, whose wages then depended on market conditions. Shuihudi Qin mu zhujian zhengli xiaozu 1990, 51 (slips 137 and 140); Hulsewé 1985a, 68–69; Korolkov 2021a; Cang 2012, 157. On the hiring of substitutes for military service at the frontier, see G. Xie 1989.

²⁰ E.g., Hsing 2014, 173–174.

²¹ Watanabe 2010, 94–100; von Glahn 2016, 125; Korolkov 2021b, 234.

²² Lewis 2015, 286–287; Leese-Messing, vol. 1, ch. 12.A, 182–183. The monetary revenue from commutation taxes is hard to estimate but could have reached hundreds of millions during certain phases. Scheidel 2015, 154.

²³ Bang 2009, 112.

²⁴ There are many examples of such criticism. See, for instance, the memorials by Chao Cuo 晁錯 (ca. 200–154 BCE) and Dong Zhongshu 董仲舒 (179–104 BCE), as well as the decree by Wang Mang 王莽 (r. 9–23 CE) translated in Hsu 1980, 160–166.

and Han judicial systems, penal servitude was among the most frequent forms of punishment, and replenishing the pools of convicts for state labor projects must be considered as an important target of legal codes.²⁵ Convicts, too, could be employed in a wide variety of tasks, including those that demanded certain skills, such as in craft workshops. During Qin times, two of their central tasks appear to have been clearing new fields and working on state-managed farms, but the importance of state-managed farms and the respective demand for labor declined considerably during late Qin and early Former Han times.²⁶ Transmitted Han texts often associate convicts with heavy and dangerous labor, including construction and mining, and the military. The social status and terms of employment of convicts did, however, vary more widely than one might expect. Evidence from the Qin period suggests that numerous convicts maintained a certain extent of economic agency, engaged in private craft and market activities as waged workers, and were employed on a part-time basis, which saved operational and provisioning costs for the state.²⁷ The documents further testify to the local governments' interaction with private markets for dependent laborers either by selling or leasing out surplus convict workforces or by buying slaves from private owners to integrate them into convict labor gangs.²⁸ The state's attempts at making the penal service system more flexible and cost-effective are thus already visible during this early stage. During Former Han times, a 'standing army' of convicts must increasingly have been a thorn in the side of fiscal budgeteers with regards to its inflexibility and high costs of maintenance and coercion. At any rate, the state's efforts to make the system more flexible and less costly are obvious from various sources, for instance by a change from lifelong to fixed-term servitude, and by frequent announcements of amnesties.²⁹

Government institutions also used male and female slaves (*nu* 奴 and *bi* 婢 in Han terminology).³⁰ Slaves could be acquired through the penal system, which sys-

25 On penal servitude, see Miyake 2016a; 2016b; Han 2011; Korolkov 2015; 2020, 307–427; Barbieri-Low 2007, 227–245.

26 Korolkov 2020, 122–128.

27 Korolkov 2020, 362–367.

28 The legal ambiguity of convict and slave statutes as suggested by such transfers has long been a matter of debate. In a recent attempt to explain this ambiguity, Korolkov argues that transfers of Qin convicts to private slavery actually consisted of a “conditional transfer of rights to labor, rather than full-fledged private ownership,” and that this phenomenon was based on the “state’s claim to a degree of control over all unfree individuals regardless of who possessed the right to their labor,” Korolkov 2021b, 216–217.

29 Miyake 2016a, 147–151; Korolkov 2020, 327–332, 406–408, 421–423. That convict laborers kept being used on considerable scales in ironworks and construction projects even during the Later Han period, however, is suggested by finds of mass graves of convicts (who evidentially came from all over the empire) near Luoyang and a reference to road building (for the Bao-Ye road in 63 CE) using thousands of convicts from different commanderies. Wagner 2001, 49–52; Barbieri-Low 2007, 237–242.

30 One contemporary critic of government expenditure, Gong Yu 貢禹 (ca. 123–44 BCE), mentioned the number of one hundred thousand state slaves, but the conspicuously round figure as well as

tematically forced family members of people charged with serious crimes into slavery. Furthermore, private slaves could enter the government labor force via confiscations from their law-breaking owners or, as mentioned, simply by buying them from private owners. Enslavement of war captives, by contrast, does not seem to have played a big role. Slaves often are associated with tasks similar to those of convicts, even though especially after the limitation of the latter's terms of service, their often lifelong status may have rendered them more likely than other forced laborers to be used in service capacities and in skilled tasks. Frequent references to male and female slaves in association with service tasks in palaces, for instance, as well as criticism of idle government slaves who just "sit and are stipended with clothes and food" or "loaf about without work" may be an indication of this trend.³¹

The state's labor pool was further expanded by state debtors. Commoners unable to pay fines or fees, repay money or grain loans, or return draft animals or agricultural tools borrowed from local governments could be required to work off their debts. By means of a sophisticated, empire-wide accounting system, these debts could further be transferred over large distances from one local government to another in the case of the debtor's change of residence (for instance, for military service at the frontier). Even more obviously than in the case of commutable labor taxes, the system of debtor labor required a concept of quantifiable labor that enabled fungibility between labor time and other values such as cash and grain on the basis of a "unisalar system of numerical valuation,"³² which is likely to have been a facilitating factor in the subsequent monetization of labor services in particular and of the Han fiscal system in general.

II.3 Revenues in Coin

II.3.1 The General Trend of Monetization of the Fiscal System

Even though the Qin regime already extracted some revenues (e.g., commercial taxes) in cash, these were still marginal compared to the revenues collected in kind. The first decades of Han rule were characterized by a relatively weak central government that had to allow both administrative and fiscal decentralization. It also tolerated private coin casting, which resulted in a significant expansion of the volume of circulating coin. Eventually, the government introduced a state monopoly on coinage, under which private coin casting was prohibited and state coinage facili-

the author's highly critical stance have rendered this high figure unreliable. See, e.g., Wilbur 1943, 397; Scheidel 2017, 147.

³¹ Wilbur 1943, 221–236; Barbieri-Low 2007, 249–256. On the status of slaves, see further Yates 2001; 2014.

³² Korolkov 2020, 375. On the system of convict labor, see also Miyake 2016a.

ties produced copper coins on a massive scale. Even though the direct revenues from these facilities were marginal and never evolved into a major contribution to the Han state's annual revenue,³³ the introduction and maintenance of the monopoly on coinage was of major importance in both political and larger economic terms (see sec. II). The increasing level of coin use and imperial expansion were concomitant with an increasing monetization of the fiscal system and a transition to more flexible revenues, not only in the context of labor extraction, but also with regard to other forms of taxation.

II.3.2 Capitation Taxes

Neither transmitted texts nor hitherto excavated Qin manuscripts refer to a capitation tax (*suanfu* 算賦) under the Qin regime. According to the *Hanshu*, this tax was introduced by the founding emperor of the Han dynasty. It is the clearest sign of the Han fiscal regime's increased level of monetization and was also related to the development of a professional bureaucracy whose members were paid fixed salaries that consisted largely of cash payments.³⁴ The capitation tax was levied in cash on both men and women between the ages of fifteen and fifty-six. During the first decades of Han rule, the tax did not yet have a fixed annual rate but was apparently assessed according to the incidental monetary needs of local governments. After its fixation at some (unknown) point of the Former Han period,³⁵ the usual rate for adults was 120 cash per year, corresponding to the price of about 20 liters (one picul) of grain during the second century BCE, and somewhat less afterward. Higher rates are mentioned for merchants (doubled rate) and unmarried women between 15 and 30 years of age. There were reduced rates for households with members older than 80 (exemption of 240 cash) and for new mothers, who were allowed a three-year remission during some phases of Later Han. Options for paying the capitation tax in grain and beans are occasionally reported in emergency cases.³⁶ There was a variant of the capitation tax (called *koufu* 口賦) levied on children between the ages of three (or later, seven) and fourteen with a usual rate of 20 cash per year.³⁷ The

³³ Yamada's estimate (as presented in von Glahn 2016, 117) amounts to 154 million coins per year during Former Han times. See also Scheidel 2015, 152.

³⁴ *Hanshu* 1A.46; However, some monetary levies that are sporadically mentioned in texts with regard to Qin times under the designation of *fu* 賦, appear to have been irregular levies on either individuals or households and may be seen as precursors to the Han capitation tax. Korolkov 2021b, 207, with n. 14 on 246.

³⁵ Korolkov 2021b, 239.

³⁶ *Hanshu* 7.228; 232, trans. Hsu 1980, 140–141.

³⁷ For the capitation taxes, see Lewis 2015, 286. Other than the capitation tax on adults, the revenues from the tax on minors went to the emperor's privy purse.

capitation taxes are commonly assumed to have contributed the largest share to the state's in-coin revenue.³⁸

II.3.3 Commercial and Property Taxes

During Qin times, commercial taxes belonged to the state's few sources of cash. Qin statutes required trade to be mainly conducted at official markets (*shi* 市) by registered traders, who were – like farmers – enrolled in groups of five for mutual surveillance and responsibility.³⁹

During Han times, commercial taxes including the annual market tax (*shizu* 市租) extracted from registered traders at marketplaces and authorization fees (*zhi* 質) levied on big-ticket sales such as slaves, horses, or cattle continued to be important sources of cash revenue. While the *shizu* had long been interpreted as a fixed tax in the form of an annual market stall rent, excavated documents suggest that it might rather have been a variable tax on the value of goods sold. A Former Han statute demands marketplace traders to self-report their tax liability, probably in reference to the market tax. The rate of this tax remains unclear.⁴⁰

During Emperor Wu's 武 (r. 141–87 BCE) reign, when the government desperately needed new revenues for its military expenses, taxation of people engaged in commerce and moneylending was extended by introducing a property tax on all their assets at a rate of six percent and half the rate for artisans.⁴¹ Carts and boats exceeding a certain size were taxed separately at a rate of 120 cash per vehicle, with merchants' carts being taxed at double the rate. Property taxes for other people existed as well at lower but still considerable rates of 1–2 percent. Evasion of property taxes was subject to heavy punishment, which could include confiscation of property, banishment, and enslavement of family members. The new or elevated taxes seem to be particularly meant to extract wealth from nonregistered traders. The high rates imposed on traders' and moneylenders' property must have amounted to a substantial addition to the imperial revenue, but may also have led to a high degree of dissatisfaction, tax evasion, and possibly a regression of trading activities. It is unclear for how long the Han government was able to maintain these taxes,

³⁸ In Yamada's estimates, they amounted to more than 4 billion coins to the total of approximately 19 billion, with the latter including in-kind revenues (see the table in von Glahn 2016, 117).

³⁹ See also Leese-Messing, ch. 6, VII and VIII, this volume.

⁴⁰ Korolkov 2020, 113–115. For the legal statute, see Barbieri-Low and Yates 2015, 722–723 (no. 2 of the “Statutes on [Passes and] Markets”). *Shiji* 52.2008 mentions that the annual revenue from the market tax at the marketplace in the city Linzi 臨菑 (in modern Shandong, near the coast in the very east of the Han Empire) amounted to over 1,000 *jin* of gold.

⁴¹ I.e., 120 cash on each 2,000 or 4,000 cash of property value, respectively. *Shiji* 30.1430, trans. Watson 1993, 72. Cf. Lewis (2015, 287), who speaks of 10 percent for merchants and “just under 5 percent” for artisans.

but it is generally assumed that they could not have endured in practice over a long period.⁴²

II.3.4 Convertible Taxes

Another clear example of the government's attempt at increasing the flexibility of its revenues can be seen in an originally purely in-kind tax on 'hay and straw per *qing*' (*qing chugao* 頃芻藁), which accompanied the land tax in grain and was used as fodder for state-owned horses and livestock, matting material, or in construction. With the expansion of the Qin empire into areas of more diverse agricultural or other productivity, the tax seems to have been handled more flexibly: either by partly commuting the tax into cash payments, or by accepting other in-kind payments (e.g., silkworm cocoons).⁴³ Its further monetization is evident from a legal statute from the early Former Han period, which stipulates commutation of the tax to cash after the tax-collecting county agency's needs for hay and straw were satisfied.⁴⁴ This testifies to a clear attempt by the state to make its fiscal revenues more flexible in an economic environment of increasing monetization. The beneficiaries of heightened flexibility, in this case, were the tax-collecting government agencies, not the taxpayers.⁴⁵

II.3.5 Revenues from State Participation in Market Exchange

To changing and sometimes unknown extents, various central and local government agencies were involved in the production and sale of goods.⁴⁶ With regard to certain state-produced goods such as lacquerware or textiles, it is largely unclear if they really played a role in the context of revenue maximization through market sales, or if state production of these were largely or even exclusively earmarked for direct consumption and redistribution.⁴⁷ Better attested examples are those bran-

⁴² On the property or wealth taxes, see Yamada 1993, 220–238; von Glahn 2016, 114; Scheidel 2015, 154; Lewis 2015, 287–288.

⁴³ There is evidence for this from the Qianling County archive (Liye), see Korolkov 2020, 110.

⁴⁴ Barbieri-Low and Yates 2015, 696–697 (nos. 2 and 3 of the “Statutes on Agriculture”); Korolkov 2021b, 234–235.

⁴⁵ This is further indicated by the second of these statutes (no. 3), which stipulates that whenever market prices of hay and straw exceeded the statutory price, the agencies were supposed to collect the amount of cash according to the current fair-market prices of hay and straw (which were geared to real market prices), rather than the statutory price (which would have been to the disadvantage of the agencies).

⁴⁶ See also Leese-Messing, ch. 15, IV.2.3, this volume.

⁴⁷ On this question, see also Leese-Messing, ch. 15, IV.2.2, this volume.

ches of production in which the Han government held monopolies. With regard to monetary revenues for the state, this primarily concerns the salt and iron industries.⁴⁸

Salt and iron were considered natural resources belonging to the emperor. During the first decade of Han rule, entrepreneurs producing these products were taxed, probably in cash, at rates of one-sixth for salt production and one-fifth each for the production of iron itself and its subsequent processing to make iron implements.⁴⁹ The revenue entered the emperor's privy treasury. Around 119–117 BCE, Emperor Wu introduced a state monopsony on salt and a monopoly on iron.⁵⁰ Reportedly, revenues from both now entered the Ministry of Agriculture and were thus rededicated as public income that could be spent, for instance, on military endeavors.⁵¹ Yamada estimates that their revenues amounted to 3.8 billion out of close to 19 billion coins during Former Han times, which would have meant somewhat more than half of the land tax revenue in his calculation.⁵²

As for the monopoly on iron, the state set up iron-manufacturing agencies that mined ore, and produced and sold iron implements.⁵³ The agencies largely employed convict laborers. Iron was a widespread resource, so the monopoly may have been difficult to fully maintain, at least during times of waning government power. As for the monopsony on salt, production was left with private producers, who then had to sell the salt to state agents for resale. Since salt production was limited to few sites, it was likely easier to control, while promising permanent lucrateness because of its indispensability. Unlike the monopoly on iron, it would also be employed by many later dynasties.⁵⁴ Central state control over the salt and iron industries decreased considerably during the Later Han period. Administration of salt and iron offices were transferred from the central to local governments, and both monopolies seem to have been largely given up eventually. Nevertheless, state production of iron appears to have continued alongside private production, which remained subject to state control and taxation.⁵⁵

48 That the importance of the monopoly on coinage did not primarily consist in its direct revenues, has already been pointed out above. Yet another monopoly, on liquor (see *Hanshu* 6.204), was only in force for a short period.

49 This is known from an excavated Former Han legal statute: Barbieri-Low and Yates 2015, 926–929 (no. 12).

50 In the Sinological literature, both are most commonly termed ‘monopolies.’ But strictly speaking, the latter term only applies to the iron industry, which the state controlled as the only legal supplier. In the case of salt, the state controlled the market as the only legal purchaser, which corresponds to a market structure typical of a ‘monopsony.’

51 *Shiji* 30.1429, trans. Watson 1993, 70–71; Wagner 2001, 11–12.

52 Von Glahn 2016, 117.

53 On the iron monopoly (and, alongside, also the salt monopsony), see Wagner 2001.

54 Lewis 2015, 288.

55 Wagner 2001, 16–17; 33–35.

II.4 Distribution of Extraction and Expenditure

II.4.1 Geographic Distribution

In comparison to the Roman and Seleukid Empires, the early Chinese empires made a greater effort to standardize their fiscal system geographically, including regional tax burdens. During the first decades of Han rule, the central government certainly was a far cry from achieving this goal. This is especially true with regard to the eastern kingdoms, which initially were relatively independent of the central government with regard to the extraction of revenues from their domains, so that the central government largely relied on revenues from the areas in and around the metropolitan region surrounding the capital Chang'an. But the eastern kings' privileges, including those regarding taxation, gradually dissolved during the first century of Han rule, and the central government largely took control over the revenues from the eastern part of the empire as well.⁵⁶

The fundamental practical elements of the fiscal system, including household registration and tax collection by state officials, were implemented throughout the whole empire, including frontier commanderies. This does not preclude that at least in some remote regions (such as in many mountainous areas, especially in the far south), large numbers of people likely remained out of reach for this system. Also, some frontier commanderies produced negligible incomes for the state and needed to be sustained by resources from the more central regions. But the systematic geographic imbalance of the Roman tax regime, which granted immunity from direct taxation to Italy as the central region of the empire and systematically laid the main tax burden on certain provinces, was alien to the idea and practice of taxation in early imperial China.⁵⁷

With regard to the geographic redistribution of local government revenues, the early imperial fiscal regimes certainly transferred considerable amounts of its income to the center as well as to or beyond its frontiers. This is especially true with regard to Qin times and to phases of high military spending under Han rule, when the government was eager to centralize its revenues.⁵⁸ Nevertheless, a big, general difference can be perceived with regard to fiscal distributive mechanisms between the Qin and the Han period. Whereas the Qin central government had been eager to have most of their tax revenues, especially monetary ones, transferred to the

⁵⁶ On the changing status of the kingdoms, see also Leese-Messing, vol.1, ch. 4, 153.

⁵⁷ On the geographic imbalances of the Roman tax system, see Weaverdyck and Fabian, ch. 8.A, II.2, this volume.

⁵⁸ During Qin times, the central government was especially looking after the local governments' cash incomes, most of which were supposed to be transferred to higher administrative levels. See Korolkov 2021b, 219–221, 227. Early Han law still required cash incomes to be meticulously reported to higher administrative levels, but does not generally demand for the money to be transferred. Barbieri-Low and Yates 2015, 924–925 (no. 8 of the "Statutes on Finance," with n. 68).

center, the Han fiscal system allowed for a much larger share of its tax revenues to be spent or kept locally. Estimates, which are partly based on excavated local administrative documents, suggest that by the first century BCE, the majority of in-kind and nearly half of the in-coin tax revenues may have been retained on a local level. Meanwhile, the central government's budget increasingly relied on newly developed means of financing, such as the empire-wide establishment of salt and iron agencies.⁵⁹ It has been suggested that the tendency toward local spending of tax revenues might also have resulted in an increasing provision of 'public goods' for local populations.⁶⁰ More generally, and under the application of the basic suppositions of Hopkin's taxes and trade model,⁶¹ the trend toward the local spending of tax money and the relative homogeneity of fiscal extraction would render the role of the Han fiscal system as a promoter of long-distance trade less important than in the case of the Roman Empire.⁶²

II.4.2 'Equitable Delivery' and the Fiscal Challenges of Transportation Costs

The ideal of equalized taxation is also reflected in a contemporary term that appears in various excavated and transmitted texts in the context of taxation: *junshu* 均輸, literally meaning something like 'equitable delivery' or 'equalizing transportation.' This designation is chiefly associated with an accordingly termed policy initiated by Sang Hongyang 桑弘羊 (ca. 152–80 BCE) under Emperor Wu. It is briefly described in Sima Qian's chapter on economic policies and is further referred to in several passages of the *Discourses on Salt and Iron* (*Yantie lun* 鹽鐵論). Its interpretation as well as its relation to another policy termed 'balanced standard' (*pingzhun* 平准) has been a matter of controversy that started as early as the Han period itself and has continued until today.⁶³ Whereas the scope, practical implementation, and impact of the concrete policy thus remain unclear, the central challenge that it confronted was clearly a fiscal one: "[W]hen taxes were transported from various parts of the empire, their value often did not equal the cost of transportation."⁶⁴ One factor that made this problem more pressing was territorial extension, because it went along with increased transport distances from the fringes of the empire to its center. Another was times of high government expenditure for wars. Both of these occurred during the time of Sang Hongyang's proposal. One central aspect of his approach

⁵⁹ Von Glahn 2016, 113–120; Lianyungang shi bowuguan et al. 1997, 77–78; Korolkov 2020, 626.

⁶⁰ Scheidel 2015, 179.

⁶¹ See von Reden and Speidel, vol. 1, ch. 17, 707–708.

⁶² For the latter, see Weaverdyck and Fabian, ch. 8.A, II.2.2; Weaverdyck, ch. 12.C, II.1, this volume.

⁶³ For an overview of conflicting interpretations of the *junshu* policy throughout the ages, see C. Li 2019. On the 'balanced standard' (*pingzhun*), see further Leese-Messing, ch. 15, IV.2.3, this volume.

⁶⁴ 天下賦輸或不償其僦費. *Shiji* 30.1441, trans. Watson 1993, 82 (with modifications).

therefore considered the choice of taxable goods from regions far from the capital. These goods needed to be suited for long-distance transport without delivery costs exceeding the value of the transported tax revenue itself. These were “local products which, when commanding a high price, would [ordinarily] be carted away and sold by traders.” They were now to be “transported to the capital as taxes.”⁶⁵

Nevertheless, the basic problem of uneven transportation costs also existed during other times. The term *junshu* already occurs as the title of a statute collection in the Zhangjiashan legal corpus, which predated Sang Hongyang’s policy by seventy years. But since no individual statute has been clearly identified as belonging to this title, we are left in the dark about what was meant by *junshu* in these early laws.⁶⁶ The chapter entitled “*Junshu*” in the Former Han mathematical handbook *Nine Chapters on the Mathematical Art* (*Jiuzhang suanshu* 九章算術) reveals more. Whereas the concrete relationship to Sang’s policies is again unclear, the mathematical tasks under this heading reveal the basic challenge and some concrete considerations that were likely at the bottom of all contexts in which the word *junshu* is found. At the center of many of the tasks lies the question of how transportation costs associated with certain goods, weights, values, and distances are to be calculated and apportioned ‘fairly’ or ‘equally’ across different counties and regions in the context of tax deliveries, probably with the dual goal of making the latter both efficient for the receiving and bearable to the paying and delivering parties.⁶⁷

II.4.3 Social Distribution

As a legacy of the destruction of old aristocratic structures and the system of honorific titles introduced under Qin rule, which were at least theoretically built on meritocratic principles, notions of equality and uniformity lay at the core of the fiscal concept of the early empires, even though they never came to accord with social realities.⁶⁸ Theoretically, all people had the same duties toward the state, unless they accumulated military or other merits that were rewarded with honorific titles and according tax exemptions. These principles, which had taken shape before and during the early years of the imperial period, had a lasting effect on Han discourses, in which social inequalities (including those in fiscal contexts) remained a common topic. This awareness, while not to be over-interpreted in its practical effects, may yet have put a cap on escalating tendencies of fiscal inequalities in both a geographic (see above) and a social sense.

⁶⁵ 各以其物貴時商賈所轉販者為賦. *Shiji* 30.1441, trans. Watson 1993, 82.

⁶⁶ Even though the compilers of the inscribed slips designated two slips as belonging to these statutes, these slips are highly fragmentary, and their contents suggest that they may actually have belonged to other statute collections bearing different titles. Barbieri-Low and Yates 2015, 667–677.

⁶⁷ Shen, Crossley, and Lun 1999, 307–348; C. Li 2019, 113–114.

⁶⁸ Von Glahn 2020, 11; 2016, 104–105.

The Han state spent a large share of its fiscal revenue on paying its own officials' salaries. In this regard, the Han system differed considerably from its Qin predecessor. During Qin times, low-level administrative tasks had largely been taken over by nonprofessionals, such as labor conscripts in monthly shifts, who were remunerated by grain rations, and who likely regarded these official duties as a burden rather than a privilege. The Han regime, by contrast, expanded its professionalized bureaucracy to these lower functionaries, who were now paid fixed salaries, and to whom officeholding evolved into an important marker of prestige.⁶⁹ Reportedly, and not unconvincingly, the entire bureaucracy involved more than 130,000 officials in the year 5 BCE, with Later Han estimates even being somewhat higher (over 150,000).⁷⁰ The sheer number of officials probably meant the overall expenditure for salaries was much higher than in the Roman Empire, despite the fact that Han salaries – even when adding imperial gifts and incomes from honorary fiefs – were much lower than their Roman equivalents. This is especially true with regard to high-level posts: the range of salaries between lowest and highest posts was much smaller in the Han than in the Roman bureaucracy. The redistribution of fiscal revenues by paying salaries to Han state functionaries was therefore a lesser factor contributing to social inequality than it was in the Roman system.⁷¹

State officials were paid fixed salaries as compensation for their administrative duties, an essential part of which concerned tax collection according to centrally prescribed rates and rules. Tax collection in early imperial China, therefore, worked on the basis of a so-called 'wage contract' system.⁷² This system involved a high level of monitoring costs and contributed to the state spending a large share of its fiscal revenue on paying its own officialdom. But the large-scale professionalization of the Han administration also contributed to a relatively stable level of state expenditure, at least during times of controllable military spending and in the absence of major natural disasters. This regularization therefore facilitated the state's maintenance of its fixed-rate, low-tax regime, which again was integral to the acceptance by the general populace and for the cooperation by local elites in particular.⁷³

The Han fiscal system offered various elements and options that could be regarded as tolerable and even attractive by its subjects, and especially its local elites: First, tax rates in general (excluding phases like that of Emperor Wu's conquests) were tolerably low. Second, one option of benefitting from the system was to enter officialdom, get paid a fixed salary, and possibly climb up the bureaucratic and

⁶⁹ Miyake 2013, 127–161; Korolkov 2021b, 238–239. On the identification of low functionaries with their jobs, see Selbitschka 2018b.

⁷⁰ See Leese-Messing, vol. 1, ch. 4, 150.

⁷¹ For details of the Han-Roman comparisons, see Scheidel 2015, 165–174.

⁷² For a systematic approach to different varieties of contractual tax collection forms (share, rent, and wage) in history, see Coşgel and Miceli 2009.

⁷³ Korolkov 2021b, 233.

social ladder on this track.⁷⁴ And third, in comparison to Qin times, the Han system left more room for local actors to evade taxation and to use the fiscal institutions for (illegal) enrichment.

Different kinds of sources indicate local functionaries and taxpayers fiddling with legal regulations in order to benefit from them by embezzlement and tax evasion. Historical texts record complaints by high state officials about local functionaries' submission of manipulated tax data and quote an emperor's lamentation that "the accounts submitted [by local officials] are nothing but unmeaning words, while what they are really engaged in is cheating and deceiving in order to avoid their dues" 上計簿，具文而已，務為欺謾，以避其課。⁷⁵ Excavated documents have shown more concretely how the manipulation may have worked. Some reports by officials on commandery level feature implausibly high numbers of elderly people, to whom the state granted certain tax exemptions on both individual and household levels, which may have allowed officials to embezzle parts of the local tax income.⁷⁶ Of course, misreports by the taxpayers themselves were also possible and certainly happened, but the reporting officials were in a better position to conduct this kind of fiscal fraud. Early Han legal statutes further show the state's concern over people illegally registering their own land under another person's name. A plausible scenario behind this concern would have been that people registered their fields under the name of a person holding a higher-order honorific rank who enjoyed legal exemption of the land tax on fields that he 'personally cultivated.'⁷⁷ One could also engage in trading activities beyond the official marketplaces, since many of these activities were difficult to control (and therefore, to tax). For members of local elites who were well connected to local functionaries (also by bribery), engaging in trading activities must therefore have been one of the most lucrative ways of making money in circumvention of the state's fiscal powers.

These examples offer an impression of the variety of loopholes exploited by both taxpayers and tax-collecting officials. Both transmitted and excavated evidence shows flourishing networks between members of local elites and functionaries, the majority of whom were appointed locally, and further indicates collabora-

⁷⁴ Lewis (2015, 297–298) suggests that in the long run, the system of distributing of wealth into the hands of officials was inherently doomed to failure in the sense that "the state expended much of its income on salaries, which were then turned into land purchases," and these purchases again "reduced the number of free peasants and, consequently, the state's tax income." As a result, the Han state "gradually starved of the wealth that [it] needed to survive."

⁷⁵ *Hanshu* 8.273 (my translation), being a quote from a decree by Emperor Xuan (r. 74–49 BCE) issued in 49 BCE.

⁷⁶ Hsing 2014, 182–184; Korolkov 2021b, 241. For further indications of misreporting, see D. Gao 1998.

⁷⁷ Barbieri-Low and Yates 2015, 796–797 (no. 14 of the "Statutes on Households," with n. 87), 792–793 (no. 7 of the "Statutes on Households," with no. 60).

tion.⁷⁸ One of the goals of this kind of networking would plausibly have been to execute common strategies for tax evasion.

To a certain extent, the central Han government tolerated this legal and illegal capitalization on the fiscal system by state functionaries and local elites. Leaving exceptional phases apart, this relative (though definitely not boundless) lenience distinguished the Han fiscal system from its Qin predecessor and was the basis of what has been described as an ‘imperial consensus’ between the central government and local elites, which likely played an important role in the Han Empire’s longevity.⁷⁹ But the ability of the state to maintain low taxes and tolerate loopholes for members of local elites also rested on the foundation that tax compliance in general appears to have been relatively high after all.⁸⁰ During times without extraordinary expenditures (e.g., overflowing military costs), the central government could sustain itself and its whole state apparatus on the basis of relatively regularized incomes and costs.

III Monetization

III.1 Introduction

The early imperial period was the time when monetization became a ubiquitous phenomenon in all spheres of society. The use of copper coins spread massively, both in terms of the overall scale of money supply, and in geographic and social terms. Cash became the primary unit of account, payment, and exchange in both private and state-related transactions. Coins made their way from the central regions of the empire to its frontiers, including formerly nonmonetized regions. They penetrated all layers of society, from the highest elites to ordinary peasants, and played a central role in all kinds of economic interactions. These developments were concomitant with a high level of standardization, which was aided by a state monopoly on coin casting. The vital role of imperial state institutions – including its fiscal and legal systems – in the spread of coined money is further indicated by the return to the use of commodities rather than coin in economic transactions once the power of government institutions faded, and especially after the Later Han Empire broke apart.

Scheidel suggests a rough estimate ranging between 30 and 70 billion cash as the aggregate value of all gold, silver, and bronze money (including bullion, see below) at the end of the Former Han period, which would be equivalent to 6 to 28 billion liters of grain. These estimates are substantially lower than the estimates

⁷⁸ Korolkov 2012, 311–325.

⁷⁹ Korolkov 2021b, 204, 239, 243.

⁸⁰ Scheidel 2015, 155.

that have been suggested for the Roman Empire at its peak monetization level, i.e., 10–20 billion *sesterces* or a corresponding 22 to 90 billion liters of grain. Given that the estimates for state revenues are similar for both empires,⁸¹ the assumed discrepancy in money stocks suggests a lower monetization level in the Han Empire, which by comparison would have left fewer coins available for commercial exchange and hoarding.⁸² Nevertheless, with ordinary farmers and even convicts regularly participating in monetary transactions, coin use in the Han Empire seems to have penetrated deeply into even the lowest echelons of society.⁸³

III.2 Coin Money

III.2.1 Characteristic Features of Early Imperial Coins

Unlike the Roman and Hellenistic worlds, coins made of precious metal (i.e., gold and silver) were a marginal phenomenon in early imperial China. Apart from the relatively gold-rich, southern state of Chu, whose currency system had also included square gold plates, the Warring States period had already been dominated by base metal currencies, mostly in the form of miniaturized bronze spades and knives.⁸⁴ Metal supply constraints probably played a key role in this phenomenon. But some other factors have also been suggested, such as the widespread use of unpaid conscript soldiers instead of mercenaries during the pre-imperial and the beginning of the imperial period, in combination with the fact that even after imperial expansion, the early empires were “never drawn into an environment dominated by precious-metal coinage.”⁸⁵ In the long run, familiarity with bronze coins may simply have made any deviation from this internalized norm difficult to be accepted as proper money.⁸⁶

81 With regard to the Han empire in the late first century BCE and the Roman Empire in the mid-second century CE.

82 Scheidel 2009, 199–202.

83 Von Glahn 2016, 120. For evidence on Qin convicts buying foodstuffs for cash, see Korolkov 2020, 593–594. Even though farmers’ degree of participation in the monetary economy certainly increased during the early imperial period, there is also some evidence for pre-imperial farmers using money. See K. Peng 2000, 173–175.

84 On pre-imperial currencies, see X. Peng 1994, 1:23–75; Thierry 2017, 21–53; 1997. On the relation between monetization and commercial development during the pre-imperial period, see K. Peng 2000. For parallels between China and Western Eurasia in the use of metal-object currency (including those in the form of tools), see Bresson 2021.

85 Scheidel (2008, 279) further remarks that the Roman Republic, which also practiced mass conscription, did not feel the need to change from bronze nominations to precious-metal coinage before it entered substantial conflicts with Greek and Hellenized competitors, who were using silver coinage.

86 For a discussion of potential reasons behind the predomination of bronze coins in ancient China, see Scheidel 2008, 276–284. The fact that even as late as the Ming period (1368–1644 CE), when

Round coins – usually featuring a square hole in the middle – first appeared in the fourth century BCE in the states of the North China Plain. They became universal during the early imperial period in the form of the Qin *banliang* 半兩 (‘half-ounce’)⁸⁷ and the Han *wuzhu* 五銖 (‘five-zhu’)⁸⁸ bronze coins, both of which basically circulated as single-denomination currencies. Two other characteristics of early imperial (but also later) Chinese coins are that they were not minted but cast, and that they almost exclusively have scriptural elements indicating their (nominal) weight rather than featuring any iconographic design.⁸⁹

III.2.2 The Role of Imperial Expansion in Monetization Processes

The impact of imperial expansion on processes of monetization was manifold and took place in different directions. During the Warring States period, the level of monetization in the form of coins had been considerably lower in the state of Qin than in the states to its east and southeast. The integration of the eastern states by the Qin resulted in a more thorough monetization of the imperial center. In this case, one could thus say that imperial expansion led to an inward-directed monetization process. Integrating the more monetized eastern economies into its fiscal system, which had itself been dominated by in-kind levies and expenditures (including, for instance, salaries), turned out to be one of the most difficult challenges that the Qin state faced after its imperial expansion. Initial steps toward a monetization of the labor market and of the fiscal system were already made in Qin both before and after the unification in 221 BCE.

As for outward-directed monetization processes, both Qin and Han imperial expansion into previously non- or hardly monetized regions at the outer rims of the empire appears to have been the decisive factor for these regions’ use of coined money in the first place. Typical and well-attested examples are the Qin southward expansion and the northwestern expansion into the Hexi corridor and the Tarim Basin under Han rule. Both appear to have witnessed no or hardly any use of coined money before their conquest, yet both eventually developed into thoroughly monetized areas.⁹⁰ Furthermore, government institutions themselves obviously played an

silver was actually available in large quantities, silver coinage was still rejected, suggests that the habitual factor may have played a considerable role.

87 Indicating a target weight of approximately 7.8 g.

88 Indicating a target weight of approximately 3.3 g.

89 There were rare exceptions, such as in the case of a short-lived attempt under Emperor Wu to introduce three ‘white metal’ (*baijin* 白金), highly overvalued denominations featuring a dragon, horse, and tortoise design, respectively. *Shiji* 30.1427, trans. Watson 1993, 69. See further Thierry 2017, 103–105.

90 On the Qianling (Liye) region, see Korolkov 2020, 605–610. On the northwest, see H. Wang 2004. On the role of the military and imperial expansion in monetization processes, see also Leese-Messing, ch. 6, IX, this volume.

active role in pumping coined money into these local economies. This happened, among other ways, through the local government agencies' purchases from local residents, or through the issuing of monetary rewards, for instance to individuals who had denounced or arrested criminals. In comparison to the Roman case, ordinary Qin and Han soldiers, many of whom were conscripts receiving rations rather than money payments, played a lesser role in frontier monetization processes. During Han times, however, cash salaries for military officers and, particularly, administrative officials on all levels accelerated local monetization processes, both in central and frontier commanderies.⁹¹

III.2.3 State Control over Coin Production

State control over coin production appears to have existed at least during some of the Warring States polities (including Qin and Qi 齊) during the third century BCE.⁹² After the Qin unification, local currencies continued to circulate despite the Qin's attempts to make their own *banliang* coins the only recognized currency.⁹³ And when the Han dynasty first established its rule, limited government power did not permit a centralist approach to coinage. The founding emperor of Han, Gaozu 高祖 (Liu Bang 劉邦, r. 202–195 BCE), officially legalized private casting of *banliang* coins (which had been introduced by the Qin earlier) under the condition that these adhered to the imperial standard in alloy, weight, form, and design. As a result, the following decades up to the 110s BCE saw the imperial palace, kings, and private entrepreneurs casting *banliang* coins side by side, which led to a sharp increase of the circulating volume of coins. Along with the state's decreasing reliance on military and labor conscripts, and its increasing demand for more flexible revenues, this provoked further monetization of the fiscal system. In-cash taxation increased considerably, and – as a huge difference to Qin times – state officials on all levels were now partly paid in coin as well. These developments in the fiscal system, again, increased the demand for coined money in the private economy.⁹⁴ Both state and private actors therefore appear to have been involved in a 'snowball effect' process that led to a substantial increase in the level of monetization during the first century of the Former Han period.

The same period also witnessed a notable decline in actual coin weights and corresponding price inflation, accompanied by a gradual official depreciation of coinage, including the introduction of a so-called 'four-*zhu banliang*' standard. Con-

⁹¹ During Qin times, officials had still mainly been paid in kind. Korolkov 2020, 605–609.

⁹² Scheidel 2009, 141.

⁹³ Kakinuma 2015, 60–62.

⁹⁴ The developments of the early Former Han period are sketched in *Shiji* 30.1417–1419, trans. Watson 1993, 61–63.

temporary critics also observed considerable regional variation of coin weights, so that “in some places the coins used were so light that to every one hundred of them must be added a certain number” 或用錢輕，百加若干 (and the other way around).⁹⁵ Furthermore, the political danger involved in private coin casting was shown to the Han central government quite plainly by the seditious *Rebellion of the Seven Kingdoms* in 154 BCE. It had been initiated by a king whose power had been based on the fortune he had made from mining copper and casting coins. This experience eventually resulted in a prohibition of private coin casting.⁹⁶

The Han government extended central state control over coinage when Emperor Wu’s military campaigns afforded massive new expenses. After some experiments with further depreciation, the introduction of highly overvalued token issues, and the introduction of an elevated *wuzhu* standard resulting in massive production of underweight versions, Emperor Wu eventually prohibited any coin casting apart from three central casting facilities and ordered the demonetization of all earlier coins. These measures of further centralization were accompanied by technological advances allowing for massively produced, highly uniform coins with raised and perfectly smooth rims, which made the production of credible counterfeit coins costly.⁹⁷ Another important factor for the latter was that the nominal value of the coins did not overly exceed their intrinsic metal value. This package of policies eventually resulted in relatively stable standards in alloy and weight, an output of 28 billion pieces produced during the following century, and an apparently much lower level of counterfeiting.⁹⁸

III.3 Other Forms of Money

III.3.1 Bullion

The use of precious metals as money was largely limited to the use of bullion, particularly in the form of normed gold ingots known, for instance, as ‘horse-hoof gold’

⁹⁵ *Hanshu* 24B.1154, trans. Swann 1950, 235 (with minor modifications); Scheidel 2009, 145.

⁹⁶ *Shiji* 30.1419, trans. Watson 1993, 62.

⁹⁷ *Shiji* 30.1425/1435, trans. Watson 1993, 68–77.

⁹⁸ If estimates with regard to the (highly similar) coins of the Tang period are any indication, one may speculate that Han *wuzhu* coins were priced at approximately twice their intrinsic value. Thierry 2003, 115; Scheidel 2009, 150, 193–194; *Hanshu* 24B.1177. Scheidel suggests that under the given circumstances, “the threshold for widespread demonetization (and counterfeiting) would not have been reached until coins were assigned a face value that amounted to several times their intrinsic worth” (2010, 99). The question whether early imperial coins are to be seen as fiduciary or fiat money whose intrinsic value was of little importance has been a matter of controversy. Whereas Thierry (e.g., 1993; 2001) in particular stresses the fiduciary aspect of ancient Chinese coins, Scheidel (2010, 95, 101) has argued that not unlike the Roman case, Chinese money was characterized by “a strong nexus between the quantity and quality of coin on the one hand and its valuation on

(*matijin* 馬蹄金) or ‘gold biscuits’ (*jinyin* 金餅). During Han times, gold ingots were weighed (but not regularly cast) in units of 1 *jin* (ca. 244 g). Archaeological finds attest to their high fineness, which most commonly ranges between 97 and 99 percent purity.⁹⁹ Generally speaking, gold appears to have played a secondary role in relation to the bronze currency, but it was essential as a unit and store of value, in certain high-value transactions, and, particularly, in imperial gift-giving. Its importance decreased during the Later Han period, when its functions were partly taken over by silver and textiles, with the latter evolving into the most important form of imperial gifts.¹⁰⁰ Gold, in the unit of *liang*, is mentioned frequently with regard to fines in Former Han legal statutes, but one statute makes clear that these fines in gold could be paid in cash.¹⁰¹

Thanks to its relatively stable and reliable bronze coinage, the ‘flight into gold’ that characterized the late Roman system as a function of frequent debasements and devaluations (and therefore, unreliability) of base-metal coins appears to have played a lesser role in the Han Empire.¹⁰² Some transmitted sources mention centrally fixed exchange rates between cash coins and gold or silver, but it remains unclear to what extent and for how long these exchange rates were actually implemented.¹⁰³ The Han legal statute mentioned above indicates that a ‘fair-market price’ (*ping jia* 平價) for gold was to be determined annually on commandery level, indicating that official rates changed from year to year and from commandery to commandery. At least at the time the statute was written during the early Former Han period, this ‘fair-market price’ appears to have had direct implications only for official purposes (i.e., transactions involving government offices, such as payment of fees), whereas actual market exchange rates were acknowledged to be fluctuating.¹⁰⁴

III.3.2 Textiles and Grain

Unlike some post-Han regimes, including most famously the Tang 唐 Empire (618–907 CE), textiles were not a regular form of either tax revenue or officials’ payment

the other,” and that the “market value of coin was primarily a function of its intrinsic value.” Nominalist conceptions and ideals of coinage, as well as according legal regulations, definitely existed, but the evidence in ancient Chinese sources that speak in favor of a practical dependence of the coin market value from its intrinsic value is overwhelming.

⁹⁹ X. Zhang 1985; Y. Wang 2005, 273.

¹⁰⁰ H. Wang 2004, 13–14; Nishijima 1986, 589–590; Scheidel 2010, 94; 2009, 159–169; X. Peng 1994, 1:134–147.

¹⁰¹ Barbieri-Low and Yates 2015, 922–923 (no. 7 of the “Statutes on Finance”).

¹⁰² Scheidel 2009, 185.

¹⁰³ For primary evidence mentioning fixed rates, see, for instance, *Hanshu* 24B.1178, trans. Swann 1950, 327. See further Nishijima 1986, 589–590; Lau and Lüdtke 2012, 180–181 (n. 893), 195 (n. 949).

¹⁰⁴ For more on ‘fair-market prices,’ see Leese-Messing, ch. 15, IV.2.3, this volume.

during Han times.¹⁰⁵ During Qin times, the bolt of cloth was obviously a unit of account, but its relevance as a unit of exchange is contested among scholars and certainly further decreased under Han rule.¹⁰⁶ Both Qin and Han state institutions did, however, have an ongoing high demand for textiles for the clothing for officials, soldiers, and laborers, and indirectly extracted textiles from its people through state workshops using conscript labor. But excavated documents from Qianling (Liye) also suggest that already in Qin times, textiles were the main good that local governments purchased from private markets.¹⁰⁷

Excavated administrative documents from the northwestern Han frontier occasionally mention ‘salary-silk’ (*lubo* 祿帛) and ‘salary-cloth’ (*lubu* 祿布) in addition to the most common in-coin payment of officials.¹⁰⁸ Han imperial law prescribed normed cloth widths for the sale of certain textiles, including silk, at marketplaces.¹⁰⁹ While this might point toward a money-like function of textiles, it does not necessarily have to be interpreted this way. While also a question of definition, it is at least safe to say that the monetary use of textiles in both official and private transactions was much less important during Han times in comparison to the pre- and post-Han period.¹¹⁰

Grain had been used as the primary form of officials’ salaries during Qin and earlier times. The Han continued to express the ranks of officials in bushels of grain, but actual salaries were paid out at least partly, if not largely, in coin. But other than civilian officials and officers, conscripted soldiers may still have been largely compensated in grain.¹¹¹ Even though not much is known about its use in private transactions, monetary use of grain seems to have diminished considerably during the Han period, after which it eventually regained importance.

On a more general note, the use of textiles and grain as money increased during times of governmental instability, such as the later phase of Wang Mang’s 王莽

105 For Qin times, see, e.g., Hulsewé 1985b, 227–229. For Tang times, see Twitchett 1970, 66–83; H. Wang 2013.

106 For a short summary of the debate and bibliographic references for different standpoints, see von Glahn 2016, 99, esp. n. 55.

107 Korolkov 2020, 584–590. In the context of the ‘equable delivery’ system, the ‘learned scholars’ of the *Yantie lun* also mention occasions during which local government institutions “ordered the people to make woven goods” 令民作布絮, which they were then forced to “sell at a cheap price in order to satisfy demands from above” 賤賣貨物, 以便上求. *Yantie lun jiaozhu* 1.4, trans. Gale 1967, 10–11.

108 For the use of textiles in salaries at the Han frontier at Juyan, H. Wang 2007; 2004, 48, 51; Loewe 1967, 1:96; 2:100–103 (MD 12, no. 5).

109 Barbieri-Low and Yates 2015, 722–723 (no. 1 of the “Statutes on [Passes and] Markets”).

110 References to textiles as a means of payment to the state do occur in the Qin legal statutes from the Shuihudi site, but are absent in the legal texts from the Former Han period excavated at Zhangjiashan. See von Glahn 2016, 99–100. In any case, it is impossible to tell how much monetary use of textiles contributed to the overall money supply. Scheidel 2009, 202.

111 H. Wang 2004, 15, 49, 50–51; Scheidel 2009, 183; Loewe 1967, 1:93–94; 2:69–71.

(r. 9–23 CE) interregnum and especially after the fall of the Han dynasty when coined money retreated along with political stability and central government power, and textiles along with grain became the primary media of exchange.¹¹² This change was also mirrored in the post-Han fiscal system, in which the in-coin poll tax came to be replaced by a household tax paid in cloth.¹¹³ This suggests that the efficiency and stability of state control appear to have been crucial in the functioning of the early imperial currency system.

III.4 Credit

III.4.1 Interpersonal Credit

The historical records of the Han period frequently mention informal, private moneylending, including large-scale transactions involving millions of cash. Debtors ranged from common peasants to people of high social standing, including officials and imperial relatives.¹¹⁴ The texts mention a large variety of interest rates and indicate that the state made attempts at restricting private usury by prescribing maximal rates, the limits of which are, however, unknown.¹¹⁵ Securing loans by pledges (*zhi* 質, in the form of land, other properties, and people) also appears to have been common. Complaints about rich people ruining peasants and appropriating their land by moneylending, probably on the basis of mortgage credits, occur frequently in historical accounts of the Han period. Whereas both legal regulations and social criticism were aimed at setting certain limits to private moneylending, both of them mostly acknowledged and sanctioned private lending practices as a perfectly normal and legitimate socioeconomic practice. That local government agencies were involved in the ratification of credit contracts, and that they could be called for intervention in the case of interpersonal conflicts arising out of credit agreements, indeed suggests that state institutions and the judicial system in particular must be considered important supporters of private lending activities, as long as they occurred within certain bounds.¹¹⁶

112 X. Peng 1994, 1:208–213; H. Wang 2013; 2004, 14.

113 Lewis 2015, 298.

114 X. Peng 1994, 1:183.

115 The according text passages simply say that certain people practiced moneylending using rates that exceeded the legal regulations. X. Peng 1994, 1:183; Y. Li 2018, 81–82. Examples collected from transmitted sources suggest 20 percent to have been a common annual rate, excess of which may have been regarded as usury (Swann 1950, 392, 432, n. 103). For evidence for different time limits for repayments and different frequencies of interest collection, see Shi 2018.

116 Y. Li 2018, 81–84. See also sec. IV.3 below. As for concrete examples of limiting regulations, an early Han legal statute prohibits state officials at or above the 600-*shi* salary grade and those personally serving the emperor from engaging in moneylending at interest, and another prohibits creditors from forcing a pledge. Barbieri-Low and Yates 2015, 614–615 (nos. 3 and 4 of the “Statutes on

Excavated private credit contracts typically display modest loan amounts and are of strongly local character, with both parties frequently bearing the same surname, potentially indicating kinship relations. Some of the contracts further mention the cause for the debtor's demand for money, such as outstanding tax payments.¹¹⁷ What is less well known is how and to what extent private money loans were used beyond situations that demanded counterbalancing of temporary shortages, for instance as investment credits for merchants and other entrepreneurs. What seems clearer is that in contrast to later periods such as the Tang era, private moneylending did not reach a high level of institutionalization nor professionalization during Han times.¹¹⁸

III.4.2 State Credit

Transmitted and excavated sources show that government institutions were engaging in various forms of lending activities. First and foremost, stored state-owned goods such as grain seeds, agricultural tools, carts, and draft animals could be lent to commoners. These opportunities certainly had the potential to facilitate the work of small-scale independent peasants – and possibly of alleviating their disadvantages vis-à-vis richer landowners' investment possibilities to a certain degree. After all, the fiscal system relied on the independent farmers' ability to pay their taxes. Another important aspect of these lending activities concerns their blending with local government institutions' task of managing labor. As mentioned, this contributed to the development of a mental and institutional framework of labor as a quantifiable commodity.¹¹⁹

At least during Qin and early Former Han times, the lending of money does not seem to have been typically involved in the agency's tasks. What legal regulations from that period do indicate is a strong interest in prohibiting local officials from using money (and other valuables, such as gold, silk, and horses, but also grain) under their custody for private lending activities, a behavior deemed a serious crime that involved the same punishment as robbery.¹²⁰ One may wonder if such regulations had been necessary at all if a legal option of moneylending by local government institutions existed. In any case, the statutes dealing with legal lending activities of local government offices never explicitly refer to cash, but either rather generally to "loans" (*jia* 假=假) or "items" (*wu* 物) to be returned,¹²¹ or to concrete

Miscellaneous Matters"). On regulations concerning moneylending, see further Z. Wang 2002; Q. Xie 2007.

117 Y. Li 2018, 79–80.

118 X. Peng 1994, 1:185. For Tang times, see X. Peng 1994, 1:329–331; Adshead 2004, 68–100.

119 See sec. I.2.1 above, and Leese-Messing, ch. 6, IV, this volume.

120 Barbieri-Low and Yates 2015, 270–271 (no. 16 of the "Statutes on Currency").

121 For instance, Barbieri-Low and Yates 2015, 472–473 (no. 17 of the "Statutes on Currency").

commodities like the ones mentioned above.¹²² In what is probably to be seen as an exceptional and short-lived attempt at curbing the power of private moneylenders over the poor peasant population, Wang Mang introduced a comprehensive system of governmental credits (*shedai* 賒貸) under the control of market officials and backed by the fiscal revenues from commercial taxes on traders and craft producers. It was supposed to involve interest-free interim loans for worship and funerary expenses¹²³ as well as loans on interest for investments into people's "means of livelihood" (*chanye* 產業).¹²⁴ In both cases, the historical account speaks of destitute people as the envisaged borrowers, which speaks in favor of relatively small-scale bridging credits rather than larger business investment credits.¹²⁵

III.5 Conclusion: Economic Impacts

Monetization doubtlessly reached unprecedented levels during Han times with regard to the overall quantity of circulating coins as well as with regard to geographic and social distribution. The state monopoly on coinage helped to establish a relatively stable and highly standardized currency used across the vast space of the Han Empire. Several aspects of early imperial monetization processes can, however, be considered as potentially confining factors. For instance, the single-denomination system resting upon base-metal coinage must have been considerably less flexible than the multi-denomination currencies that characterized the Mediterranean world during the same period, especially when it comes to large-scale economic transactions. The relative underdevelopment of the credit system, as least as it is suggested by the evidence, points in the same direction. Taken together, such factors must ultimately have limited the potential of monetization as a minimizer of transaction costs, especially with regard to large-scale and long-distance private trading activities.

122 For the lending of tools, for instance, see Shuihudi Qin mu zhujian zhengli xiaozu 1990, 45 (slips no. 104–107); Hulswé 1985a, 60 (A57). In the same manner, references to people's 'debts' (*ze/zhai* 賁) to local government agencies or according 'debt tallies' (*zequan/zhaiquan* 賁券), are nowhere said to have resulted from moneylending. To give just one example, one excavated document from Liye uses the latter term in the context of the 'debt' that one person owed to the local government agency by not having returned a borrowed state-owned boat on time. W. Chen 2012, 72–76 (tablet 8–135).

123 These interest-free loans were limited to short periods of ten days and three months, respectively.

124 *Hanshu* 24B.1181, trans. Swann 1950, 342 (with modifications).

125 The historical records also mention other occasions when the state granted credits to sick widows and widowers as well as other people without the means of earning their livelihoods. They further mention instances of the state cutting outstanding debts that people owed to government institutions. X. Peng 1994, 1:183.

IV Law

IV.1 Introduction

The extensive archaeological finds of Qin and Han legal texts during the last decades, including collections of codified statutes and model legal cases, have been a revelation with regard to the overall importance and the concrete contents of early imperial law.¹²⁶ The new evidence has also shed much light on the economic function of law. Many statutes concern aspects of the state economy and transactions between government agencies and the population, but some also regulate private property and trade. Massive finds of administrative documents have furthermore confirmed the practical implementation of imperial law on the local level. They also suggest that local or regional legal traditions that had existed in the pre-imperial period were superseded or incorporated into the system that now operated on an imperial scale. Some economically relevant aspects of early imperial law are being addressed in other sections and chapters in this volume.¹²⁷ The following subsections, without any claim to be exhaustive, focus on two broader aspects of the legal system that are both well documented in the available evidence and can be regarded as fundamental in setting the course of economic activity in early imperial China: authentication of property rights and use of contracts.

IV.2 Property Rights

The protection of property rights by official notarization and enforcement is generally acknowledged as one of the major reducers of uncertainties and transaction costs for economic activities in both modern and ancient societies. The aforementioned excavated legal texts have shed new light on how the early imperial state was actively involved in this process.

Qin and Han legal statutes comprehensively regulated property right transfers in the context of inheritance and sales of various kinds of property. They further treated contexts of property loss and damage reimbursement, and debt relations between government agencies and individuals as well as among private individuals.¹²⁸ These regulations and records were essential for the state's control over fiscal

126 For translations of major finds of Qin and Han legal texts, see Hulsewé 1985a; Barbieri-Low and Yates 2015; Lau and Staack 2016; Lau and Lüdke 2012. On the judicial system in general, see also Leese-Messing, vol. 1, ch. 4, IV.3 (164–172).

127 For market(place) regulations, see Leese-Messing, ch. 15, IV.2, this volume. For further aspects discussed elsewhere, see also the following footnote.

128 For inheritance regulations, see Leese-Messing, ch. 6, VI, this volume. For credit regulations, see sec. III.4 above. For regulations on property damage reimbursement, see, for instance, Hou 2014.

matters, but most likely were also an important reassurance of property rights for the people themselves. The same is true for legal statutes that regulated property transfers by sale. From the early Former Han period onward, these legally acknowledged transfers also included sales of agricultural land. Resulting changes of ownership were to be entered into the registers by local government offices within one day of the transaction.¹²⁹ By this legal sanctioning, the Han state ultimately promoted private sale of land. Such regulations marked the transition to a private land market from the former system of state-managed redistribution, in which people's entitlement to land holding had been centrally based on their honorary ranks.¹³⁰ Crimes involving illegal appropriation of other people's or the state's property, i.e., 'robbery' (*dao* 盜), were also treated extensively by both Qin and Han legal statutes.¹³¹ Furthermore, making profit by cheating others in private business transactions was treated as a parallel to the crime of 'robbery' by Han law, and was to be punished accordingly.¹³²

Local administrative staff included both people that pursued criminal investigations and 'police officers' whose task it was to chase criminals such as robbers. Given the authorities' limited means of effectively policing large areas and populations, a legally institutionalized "system of unofficial law enforcement" furthermore encouraged cooperation among the populace for these tasks.¹³³ On the basis of precise legal regulations, people who denounced, arrested, or killed criminals were awarded preassigned rewards in the form of monetary payments and entitlements of honorary ranks. The role of the state's judicial system in the persecution of crimes against property therefore went beyond that of mediation, which underlines its active role in the protection of personal property rights.

Other imperial regulations may seem a mere impediment of regional and inter-regional trade at first sight. One example, known from a Qin statute in the Yuelu Academy collection, is the imposition of fees for the issue of 'passports' that people needed to carry if they wanted to sell certain movable goods such as cattle, horses, or slaves across the borders of a county.¹³⁴ It must not be neglected, however, that

129 For Qin times, there is hardly any evidence for either sales of land or legal acknowledgment of land to be part of one's individual property at all (Korolkov 2020, 561). For the early Han legal statute prescribing local officials to immediately enter changes of land ownership into the official registers, see Barbieri-Low and Yates 2015, 797 (no. 13 of the "Statutes on Households").

130 On these developments, see M. Gao 2003; Z. Yang 2003; J. Zhang 2007. Reportedly, this gradual transition started to be officially sanctioned by a Qin in reform in 216 BCE, which legalized the recognition of private land tenure on the basis of self-declaration. See *Shiji* 6.251, commentary no. 1, referencing Xu Guang 徐廣 (352–425 CE).

131 For according Qin statutes, see Hulsewé 1988. For the Han "Statutes on Robbery," see Barbieri-Low and Yates 2015, 456–491.

132 Barbieri-Low and Yates 2015, 722–723 (no. 2 of the "Statutes on [Markets and] Passes").

133 Korolkov 2016.

134 S. Chen 2015, 133–134 (nos. 198–201).

trading valuable goods over distances was always associated with higher risks. These are likely to have been mitigated by a reliable verification of ownership that the state's system of well-interconnected local offices could provide. In the long run, such regulations might therefore also have had some promoting (rather than just impeding) effects on the development of interregional markets.¹³⁵

IV.3 Contracts and their Enforcement

The degree of reliability of contracts, however they were enforced, is another important aspect of transaction cost reduction in various kinds of economic practices such as selling or lending. Contracts of various kinds, covering the fields of property law, law of obligations, family law, and employment law, were a common phenomenon in both the Qin and Han periods. They are mentioned in transmitted historical texts and excavated legal statutes, and have themselves been excavated from tombs and other archaeological sites. Whereas the term *yue* 約 ('agreement') could be used for any kind of agreement, including oral ones, the use of the technical terms *quan* 券 ('tally', 'contract') or *quanshu* 券書 ('contract document') was confined to written agreements, including contracts.¹³⁶ Private actors used contracts either in transactions with state institutions (e.g., in sale or lending transactions) or among themselves. They were used in a variety of contexts, such as sale of land, purchase on credit, hire, or group agreements for common business undertakings.¹³⁷ Wills, too, were documented in the form of 'tallies' or 'contracts' (*quan*).¹³⁸ Contract documents were most typically made out of wood and took the form of two- or three-part tallies, with one part each given to the two parties of transaction, and the third (if applicable) to a particular government office, with all parts carrying the same text.¹³⁹ Both evidence from excavated legal texts and excavated contracts themselves now suggest that apart from the written characters, some contracts also carried their essential information (such as on the sold product, its amount, and its price) in the form of perforations on their edges, which are likely to have primarily served as a measure against manipulation of the contract text.¹⁴⁰

Contracts of the Han period feature a considerable degree of uniformity across space and time with regard to their content, structure, and style. Sale contracts, for

¹³⁵ Korolkov 2020, 116, 567–568.

¹³⁶ Written receipts (e.g., for the payment of a fee) also fell under the category of *quan*.

¹³⁷ Hulsewé 1978; Scogin 1990.

¹³⁸ On wills, see, e.g., Hinsch 1998.

¹³⁹ On the multipart tallies, see, for instance, Hsing 2017; Barbieri-Low and Yates 2015, 425–426 (n. 70), 453 (n. 208); Ma, vol. 1, ch. 12.B, 548, 550–551, with further references.

¹⁴⁰ On the perforations, see Momiyama 1998 and the legal case from the *Book of Submitted Doubtful Cases* (*Zouyan shu* 奏讞書) in Barbieri-Low and Yates 2015, 1394–1416 (with n. 16 on 1409–1410); Ma, vol. 1, ch. 12.B, 550–551.

instance, typically mention the date of transaction, the buyer and seller (by name and with places of origin), the object of sale, the price (in cash), a declaration of payment, witnesses, and a phrase saying that all present had drunk wine that the two parties had bought together.¹⁴¹ Some contracts (such as in the case of land that had not been seen by the buyer), also include a guarantee clause (e.g., “If the fields are insufficient, the acreage will be figured again and money refunded”).¹⁴²

Different kinds of evidence show quite clearly that the enforcement of private contracts was not just left to informal, customary practice, but was an important practical function of the Han state’s legal system. Transmitted texts from the Han period occasionally refer to the use of contracts to decide lawsuits between individuals. The Later Han scholar Wang Fu 王符 (ca. 82–167 CE) complained about an over-abundance of lawsuits on disputes evolving from private agreements regarding moneylending or betrothals, which involved everyone from commoners to the wealthy and nobles.¹⁴³ Han legal texts also include several statutes that mention contracts. For instance, tampering with contracts is listed as a crime, and one statute prescribes the use of tripartite tallies for will ‘contracts,’ immediate report to the county court, and that the local officials “carry out matters according to the contract document” 以券書從事 in the case of dispute.¹⁴⁴ In the case of wills, just like in the transfer of valuable property by sale, state officials were thus not only meant to mediate the issue on the basis of the contract, but also to ultimately ‘carry it out’: They entered the new owners and (potentially) householders into the county’s official registers, which fixed the new distribution of property rights.

Which role state institutions played in the ultimate enforcement (if necessary, by coercion) of other agreements such as credit or employment contracts is more difficult to say. In the Roman case, this part of enforcement was left to private order, which worked without state coercion, but rather on the use of witnesses bound by “mechanisms of reputation and social control.”¹⁴⁵ When handling legal cases, Qin and Han government agencies played an active role at least in mediation, as is demonstrated by an excavated official case report from Qin times involving a dispute over a (possibly oral) private moneylending contract. The report ends by saying that the borrower must repay his debt because he had recently gotten a monetary reward by the local government that was more than twice the amount of the debt so he presumably had no reason not to repay his debt right away. The borrower was supposed to be “notified, so as to let him know about this” 告 [...] 令智 (知之).¹⁴⁶

141 The latter may be interpreted as a typical case of a “ritual sanctification of market practices” (Garraty 2010, 7).

142 Example from the Juyan frontier documents. See Scogin 1990, 1348.

143 *Qianfu lun jian jiaozheng* 19.226–232; Scogin 1990, 1367–1368.

144 Barbieri-Low and Yates 2015, 800–801 (no. 17 of the “Statutes on Households”).

145 Terpstra 2019, 126, 129–130.

146 W. Chen 2012, 261 (no. 8–1008+8–1461+8–1532).

As shown by a Han lawsuit recorded on documents excavated at Juyan, parties would also seek help from local government authorities in cases of dispute over the fulfilment of oral employment agreements. In this case, the dispute concerned the degree of authority of an agent employed with transporting and selling his client's 5,000 fish for 400,000 cash. With this assignment being made impossible due to an unexpectedly low market price for fish at the designated point of sale, the agent tried to mitigate the shortfall by various means including selling the ox that his client had given him in advance. The client yet charged him for not having fulfilled his obligations, which the agent denied. The final disposition of the case is somewhat unclear.¹⁴⁷ In yet another case, the authorities ordered an agent to make a monetary compensation for the loss of his client's horse that had died under his custody while undertaking the task of catching a camel for the client. Because of the agent's incomplete payment, the plaintiff repeatedly called upon the government authorities in order to achieve the full compensation.¹⁴⁸

The boundary between civil and criminal law has been a matter of debate. Similarly debated is the question of enforcement. It is not quite clear which ultimate measures the authorities would have taken to ensure compliance with court decisions in matters of interpersonal disputes over private contracts.¹⁴⁹ At least in most cases, however, the highly active mediating role of the state in combination with reputational mechanisms likely functioned as an effective framework for contract enforcement.

IV.4 Conclusion: Economic Impacts

The high degree of standardization of imperial law and the empire-wide establishment of government offices with defined judiciary functions provided a relatively consistent set of rules and application across a vast space with the potential of reducing uncertainties and negotiation costs. Even though access to and benefit from judicature certainly was not equal to all members of society, hurdles do not seem to have been overly high, since reported judicial cases do include conflicts of relatively small scales in which people of relatively modest socioeconomic means seem to have relied on the judiciary institutions.

That the legal protection of private property rights in particular carried more importance in early imperial China than had been assumed before has been extensively demonstrated by legal and administrative documents excavated during the last couple of decades. While clarity of property rights was important to state insti-

147 On this case, see, for instance, Hulsewé 1979; Z. Zhang 2013, esp. 52–57; Scogin 1990, 1362–1365. A short summary is also provided by Ma, vol. 1, ch. 12.B, 537.

148 Z. Zhang 2013, 57–61; Scogin 1990, 1365.

149 For discussions of these questions, see Hulsewé 1979; Z. Zhang 2013; Scogin 1990, 1365, n. 93.

tutions for fiscal reasons, the active mediation and enforcement of those rights by local government agencies must also have lowered risks and negotiation costs among the common people. Most importantly, the government agencies' role in the official notification of sales and in enhancing contract security likely entailed a considerable reduction of uncertainties within the range of property claims.

Yet it is also noteworthy to see which aspects were not or not extensively covered by early imperial law. In comparison to Roman law in particular, hitherto known legal statutes do not seem to have extensively covered questions of liability in principal-agent economic relationships. While corresponding disputes do show up in concrete judicial cases such as the ones mentioned above, the imperial statutes themselves appear not to have offered a robust legal framework for their handling. While one has to be cautious with regard to the possibility of future finds of legal statutes, the available evidence so far suggests that for more complex economic transactions such as long-distance trading activities, which demand control over the principal's and the agent's liabilities, the state's legal system did not play an important role in lowering transaction costs. The relative invisibility of private trading organizations in our sources apart from family networks, which had the potential to create reliable principal-agent relationships without the involvement of legal institutions, may be seen as a conspicuous reflection of this observation.¹⁵⁰

V Standardization

V.1 Introduction

Standardization was a key concern of Qin and Han rulers right from the start of the imperial period. The First Emperor of Qin's attempts in this regard are particularly famous. They are known both from historiographic sources and from inscriptions such as the following:

In the twenty sixth year [of his reign, 221 BCE], the Emperor entirely unified the feudal lords of the empire, brought great peace to the people, and assumed the title of the emperor. Therefore, he ordered his Grand Councillors Zhuang and Wan to standardise the measures and normalise those which were suspect to being irregular.

廿六年，皇帝盡併兼天下諸侯，黔首大安，立號為皇帝。乃詔丞相狀、綰：法度量則，不壹歎疑者，皆明壹之。¹⁵¹

Inscriptions like this have been found – in a very standardized form themselves – on many scales and weights scattered all over the Qin Empire's territory. Standardization

¹⁵⁰ On these matters, see Leese-Messing, ch. 15, IV.3, this volume.

¹⁵¹ Galambos 2004, 186. See also Loewe 2016, 180–181.

was purposefully propagated as a sign of imperial sovereignty.¹⁵² Besides the weights and measures, the First Emperor also gets credited with an empire-wide standardization of the legal code, axle widths, and the script.¹⁵³ Of course, the ideals of state propaganda need to be differentiated from actual practices on the ground. Furthermore, not all processes of standardization hinged upon state promulgation. It is yet undeniable that the early imperial era, including both the Qin and Han dynasties, was indeed a period of unprecedented standardization in a number of fields. Two spheres that underwent extensive standardization were those of law and of currency, which have been dealt with above. This section therefore explores three further fields of standardization that bore a potential to facilitate economic transactions: standardization of weights and measures, language and script, and consumption patterns.

V.2 Weights and Measures

As both transmitted and excavated texts and inscribed excavated artifacts suggest, a standard set of measuring units was commonly used across the Han Empire.¹⁵⁴ This fact alone may be seen as an advantage compared to spaces where several competing sets of measures were used, since it made calculations relatively easy. Nevertheless, in finds of measuring instruments that indicate their supposed length, capacity, or weight, they vary to a certain extent. For instance, studies on the lengths of excavated linear measuring instruments from the Former and the Later Han periods have suggested coefficients of variation of 0.95 and 2.3 percent, respectively.¹⁵⁵ People's experiences with *de facto* discrepancies may thus have left a certain degree of suspicion and uncertainty in many economic transactions, while the extent of this suspicion may have been limited in relation to the common range of rather moderate discrepancies.

That universal adherence to officially fixed norms was not always a matter of course is suggested by occasional references to situations or regions in transmitted texts in which people refused to stick to the standardized measures, and local officials needed to step in to restore order.¹⁵⁶ Nevertheless, given the omnipresence of government institutions as supervisory authorities on official marketplaces as well as their frequent transactions with the common people in fiscal and other contexts, standard measures are likely to have been ubiquitous in the daily lives of people

¹⁵² Sanft 2014, 57–76. As a concrete example of this mindset, see *Hanshu* 21A.955.

¹⁵³ *Shiji* 6.236–240, trans. Nienhauser 1994, 135–137.

¹⁵⁴ For instance, the common units for capacity were *yue* 龠 (approx. 10ml), *ge* 合 (= 2 *yue*), *sheng* 升 (= 10 *ge*), *dou* (= 10 *sheng*); *shi* 石 or *hu* 斛 (= 10 *dou*), and those for (short) lengths were *cun* (approx. 2.31 cm), *chi* 尺 (= 10 *cun*), *bu* 步 (= 6 *chi*), *zhang* 丈 (= 10 *chi*).

¹⁵⁵ As for the instruments of the short intermediary period of Wang Mang's reign, it is higher, 4.5 percent. Vogel 1996, 6, 23–27; based on Qiu 1992, 12–57. See further Bai 2015.

¹⁵⁶ See, e.g., Loewe 2016, 163–164.

across the empire. As such, they generally would have been a valid source for reliability with a considerable potential for lowering negotiation costs, also with regard to long-distance exchange.

V.3 Language and Script

With regard to linguistic standardization, it is crucial to differentiate between levels of standardization of the written language and its script on the one hand and spoken language on the other hand. Spoken ancient Chinese (or Sinitic) was a relatively uniform language during the Qin and Han periods. However, especially at the beginning of the early imperial period, non-Chinese languages were spoken by many local populations, particularly, but not only, on the empire's peripheries. With Chinese speakers assimilating these non-Chinese speakers in the course of the early empires' internal and external expansion, local populations often underwent wholesale language shifts to Chinese. This also resulted in so-called substratum effects on the Chinese language, which ultimately lead to the development of mutually incomprehensible Chinese dialects. These long-term diversifying effects, however, concern later periods much more than the Qin and Han periods themselves.¹⁵⁷ But despite the relative uniformity of the Chinese language itself, and the considerable assimilation of originally non-Chinese speakers, bi- and multilingualism most likely were common phenomena especially in lower social strata. Curiously, the political and economic challenges that must have come along with widespread multilingualism were obviously regarded as such trivial matters by the political elite that they are rarely even hinted at by ancient historiographical sources.¹⁵⁸

De facto multilingualism was not at all reflected by the written language, which was undisputedly Chinese across the entire space of the Qin and Han Empires. By the Han period, the Chinese written language (*wenyán* 文言) had already drifted away from colloquial usage to a certain extent, but in comparison to later periods still displayed many vernacular elements and was therefore not entirely alienated from common people's speaking habits.¹⁵⁹ The written language was relatively uniform, but regional and stylistic scriptural variants existed and are likely to have caused problems in written communication, especially during the first decades of Han rule.¹⁶⁰ This is also suggested by the fact that transmitted texts refer to a Han legal statute stipulating that officials were to be instantly punished for using non-standard characters.¹⁶¹ Script variations never ceased to exist entirely during Han times, but excavated manuscripts suggest that their extent appears to have de-

¹⁵⁷ Handel 2015.

¹⁵⁸ Behr 2004, 182–185; Sanft 2019, 71–76.

¹⁵⁹ Meisterernst 2015.

¹⁶⁰ Galambos 2004.

¹⁶¹ Galambos 2004, 197–198.

creased sufficiently so as to make mutual misunderstandings much less likely.¹⁶² Another notable observation in this regard is that excavated letters from the Han period share a very similar style and diction, even though they were found in places that were hundreds or thousands of kilometers apart. It has been suggested that these similarities speak in favor of “a unified empire-wide letter writing culture by mid-Han times,”¹⁶³ which is likely to have greatly facilitated written communication across distant regions of the empire.

To summarize, one might say that with regard to both spoken and written language, early imperial China featured a relatively high degree of standardization in comparison to other geographically and demographically large ancient polities or macroregions. In general terms, this standardization, which affected both administrative and private (e.g., contractual) communication, bore the potential of lowering transaction costs with regard to regional and long-distance transactions. Literacy also appears to have increased to a certain extent during this period, which meant that people of relatively low social background (such as the huge number of people trained to work as scribes) could increasingly profit from the privilege that the ability to read and write meant for both bureaucratic careers and economic transactions.¹⁶⁴ By contrast, for the many remaining non-Chinese speakers and illiterate people who could not afford scribal or translation services, this process of standardization is likely to have been a social and economic disadvantage.

V.4 Consumption Patterns

The four hundred years covered by the Qin and Han Empires were also marked by the gradual emergence of what may be called an ‘imperial society’ in a cultural sense.¹⁶⁵ Factors such as the large-scale and long-distance, partly state-orchestrated migration of millions of people,¹⁶⁶ the extension of physical infrastructure (see sec. VI), a high degree of geographic mobility of both high- and low-level state functionaries, increasingly standardized and state-promoted text corpora, and state-managed production and distribution of high-quality luxury consumables, such as

162 See, for instance, the collections of variants for three Chinese characters found on stone inscriptions from the Han and the subsequent Three Kingdoms periods shown by Galambos 2004, 198. The variants do feature inconsistencies, but their extent is unlikely to have unsettled readers with some reading experience. See further Galambos and Hamar 2006; Kern 2002.

163 Giele 2015, 467. As Giele also points out, the few excavated letters from the Qin period show some obvious formal differences when compared to their Han counterparts.

164 On the question of literacy during the early imperial period, see, for instance, Sanft 2019; Yates 2011; Selbitschka 2018b; Barbieri-Low 2011.

165 For some typical aspects of elite cultural self-consciousness and their increasing coherence during the Han period, see Ebrey 1986, 643–646.

166 On the phenomenon of early imperial migration as evidenced in both historical and archaeological sources, see Korolkov and Hein 2020.

lacquer tableware, contributed to a growing set of shared tastes and consumer needs, especially, but not only in higher social strata. Huge imperial banquets at the capital during which court luxuries were both shown off and gifted to participants from all over the empire and beyond, furthermore offered direct incentives for widespread elite emulation.¹⁶⁷

Shared consumption patterns are most easily to be seen in funerary consumption. Han-style tomb assemblages found across the empire very typically include certain products such as bronze mirrors, S-shaped belt hooks, incense burners, and lacquer tableware, as well as burial objects such as figurines and ceramic models of daily-life scenes. Since large parts of Han-style tomb inventories are assemblages of items for daily use, they do not only attest shared aspects of funerary culture and beliefs, but also reflect common grounds in consumerism in more general terms, including shared tastes with regard to everyday items.¹⁶⁸ Sure enough, these similarities must not be overgeneralized. Considering the fact that archaeological research in China has long been focused on sites such as extraordinary, lavishly equipped tombs while largely neglecting smaller tombs and settlements, the evidence is certainly biased toward elite consumption, which is inherently more likely to reveal patterns of convergence. Burials in frontier regions have furthermore often been interpreted with an underlying story line of one-sided acculturation of locals ('Sinicization'), whereas new research has shown that the situation on the ground was much more complex.¹⁶⁹ Whereas future research in both of these areas is thus likely to bring to light important evidence for more social and regional variation, the high extent of similarities in consumption patterns at least among the higher social strata in the more central regions of the empire can hardly be neglected. Certain trends, such as the high-elite appreciation of steppe-style objects and artistic elements, or wider-spread waves of stylistic extravagance or simplicity, can also be determined not as local, but empire-wide phenomena. Widely shared consumption patterns and demands must therefore be acknowledged as an important factor to the wider spread of mass and modular production techniques in both state and private production, which then promoted consumptive standardization even further.

V.5 Conclusion: Economic Impacts

In all of the three fields discussed above, i.e., measures, language, and consumption patterns, the early imperial period was characterized by considerable levels of standardization, with the former two obviously superseding levels of the Mediterranean.

¹⁶⁷ See Leese-Messing, ch. 6, II.1.3, this volume.

¹⁶⁸ Erickson 2010; Shelach-Lavi 2015, 325–328.

¹⁶⁹ Wu et al. 2019; Shelach-Lavi 2015, 328–336; Erickson, Yi, and Nylan 2010.

Taken by themselves, these high levels of standardization would have to be taken into account as favorable preconditions for transaction cost reduction and economic exchange across larger spaces. Nevertheless, high standardization levels alone do not necessarily result in an increase in large-scale and long-distance trade. As the examples given for the Mediterranean region demonstrate, other factors are crucial in creating demand and opportunity for products such as ‘bulk luxuries’ to be traded in large quantities and over long distances, such as the distribution of resources and production facilities, as well as production techniques and their correlation to economies of scale.¹⁷⁰ The interplay of all these and other factors with regard to certain products or production branches is in need of further specific research in order to better assess the impact of standardization levels in early imperial economic processes.

VI Infrastructure

Different components of physical infrastructure have always been crucial factors for interregional connectivity and economic integration. Major infrastructural investments necessarily entailed bundling resources on a grand scale. In early imperial China, centralized state power was essential in building up and expanding road and riverine networks through large-scale projects, which often needed tens of thousands of laborers and years of construction time. In addition to waterways and roads themselves, certain physical and intellectual components of supporting infrastructure created a functional network that enhanced interregional connectivity to unprecedented levels.

VI.1 Waterways

Scholars have often emphasized the fact that early imperial China was landlocked. In contrast to the Roman Empire and its maritime connectivity, it has been suggested that the Qin and Han Empires were essentially characterized by their geographically determined “tight spatial circumspection,” which profoundly limited their fiscal and overall economic integration.¹⁷¹ According to this view, the Qin and Han

¹⁷⁰ See Weaverdyck and Fabian, ch. 8.A, VI.3, this volume.

¹⁷¹ A recent and very explicit advocacy of this view is Lewis 2015. See also Adshead 1988, 15–16. Scheidel also emphasizes the lack of maritime connectivity as a key factor of differences between the Qin/Han and the Roman fiscal regimes, suggesting that “[i]n the Han system, which could not yet rely on the great canals of later dynasties, geography impeded massive transfer of staples” (2015, 180). On the issue of long-distance grain transport, see also Leese-Messing, ch. 15, IV.4, this volume.

Empires resembled a mosaic of relatively isolated regions, with the capital and other cities largely depending on their own hinterlands, and long-distance transportation of bulk goods, especially grain, being a marginal feature.

New evidence in the form of excavated travel itineraries, distance tables, maps, and officials' travel diaries are challenging this view at least to a certain extent. They show that the riverine transportation system was much more important and efficient than has been assumed, and that the transportation of grain over large distances was quite a common phenomenon. The evidence further shows the scale of state involvement in securing both local and long-distance riverine infrastructure, and in the large-scale shipment of bulk commodities, particularly grain, which also took place between the two large river basins of the Yangzi in the south and the Yellow River in the north.¹⁷²

The dense web of rivers in the south in particular provided ideal natural conditions for water transport. Both northern and southern waterways were further improved, for instance by massive canal construction projects during both the pre-imperial and early imperial periods, and allowed for highspeed travel already during Qin times.¹⁷³ Han historians, too, attest to the fact that investing in riverine infrastructure was regarded as an essential part of state activity. The extensive chapters they dedicated to this matter include many examples of high-investment canal construction (for both transport and irrigation purposes) and other water management projects across the empire.¹⁷⁴ Former Han legal statutes mention specialized boat crews employed by state institutions as well as state officials appointed to manage state-owned boats.¹⁷⁵

Thanks to the discovery of Qin-era distance lists, we now have what appear to be quite reliable figures on the speed of southern riverine transport.¹⁷⁶ The figures distinguish between speeds on major and minor rivers, during different seasons, upstream and downstream travel, as well as empty and loaded cargo status. The individual figures suggest an average downstream travel speed of approximately 54 km per day for major rivers, of 43 km per day with the inclusion of minor rivers, and an average upstream travel speed of 32 and 27 km per day, respectively. Riverine transport was therefore generally speedier than overland travel, as well as requiring less labor.¹⁷⁷

Since almost all evidence we have on riverine infrastructure is related to state activity, we know a lot less about its use for private trade. Some administrative documents, however, offer glimpses into spheres in which state and private activi-

¹⁷² Korolkov 2020, ch. 5.

¹⁷³ Korolkov 2020, 448–449.

¹⁷⁴ On these chapters, see Leese-Messing, vol. 1, ch. 12.A, II.4.

¹⁷⁵ Barbieri-Low and Yates 2015, 392–393, with n. 38 on 418.

¹⁷⁶ The reliability of the Qin figures is suggested by the fact that they match very well with corresponding figures for the Tang period, which stem from an entirely independent source.

¹⁷⁷ Korolkov 2020, 466–471.

ties crossed. For instance, one document from the Qianling County archive (Liye) indicates that local government institutions may have been lending state-owned boats to private merchants.¹⁷⁸ If this interpretation is correct, it would mean that state institutions even actively promoted private use of riverine infrastructure for trading purposes. In any case, the impression that private trade indeed relied heavily on riverine transport is also unambiguously conveyed by transmitted texts. For instance, this reliance is obvious from the fact that one of Emperor Wu's approaches to increasing fiscal revenues from commerce consisted in introducing a double-rate tax on merchants' vehicles, which explicitly included both carts and boats.¹⁷⁹

VI.2 Overland Routes

Whereas the south had a natural advantage with regard to waterborne transport, the bulk of state investment into overland routes concerned the northern part of the empire, where the net of rivers was less dense.¹⁸⁰ The centuries before the Qin and Han periods had been characterized by long and large-scale warfare, which facilitated the development of a road system that eventually linked all major cities even before the beginning of the imperial era.¹⁸¹ In the fourth century BCE, the expanding Qin state strategically built a set of roads that connected its center in the Guanzhong region with Shu (modern Sichuan) to its southwest, and the ensuing economic exploitation has often been described as one of the main factors for Qin's ultimate dominance over all the states to its east.¹⁸² During imperial times, both the Qin and Han regimes further expanded the system, e.g., by the famous 'Direct Road' (or 'Straight Road,' *Zhidao* 直道) that the First Emperor of Qin had his general Meng Tian 蒙恬 (d. 210 BCE) build from Ganquan (some 160 km northwest of the capital of Xianyang) northward to Jiuyuan (north of the Ordos loop). The primary incentive for this, too, was military logistics.¹⁸³ The overall length of specially made roads has been estimated at ca. 35,000 km for the end of the Later Han period.¹⁸⁴

178 W. Chen 2012, 72–76 (tablet 8–135); Korolkov 2020, 436.

179 *Shiji* 30.1430, trans. Watson 1993, 72.

180 This also explains why excavated legal statutes focus on regulations regarding overland rather than riverine transport, because the former demanded more input both in construction and control over efficient use. Korolkov 2020, 450, 464, 471.

181 Kiser and Cai 2003, 522 Some of the major long-distance routes were, however, already in use during the second millennium BCE. See Liu and Chen 2003, 50–56. For a map of the Warring States road network system, see *Zhongguo gonglu jiaotong shi bian* shen weiyuanhui 1994, 20–21. See also Feng 2006, 300–342.

182 E.g., Nylan 2012, 36.

183 On the 'Direct Road' see *Shiji* 6.256, trans. Nienhauser 1994, 148; Sanft 2011; 2014, 107–121; Sun 2018.

184 This would have meant a less dense road network than the Roman Empire. See, e.g., Adshead 1988, 15–16. See also Nylan 2012, 33–35, with a map of the early imperial road system on 34.

During both Qin and Han times, the maintenance and expansion of the road system was essential for the empire's very survival, which depended heavily on the mobility of tax incomes, soldiers, conscript and convict laborers, state officials, and document couriers. State institutions did not only invest in the major roads of the highway system. Construction and annual maintenance of the simpler local roads and paths, bridges, and fords, belonged to the primary tasks of local labor levies and were officially declared to serve "the benefit of the counties' common people" 縣黔首利.¹⁸⁵ Private initiatives certainly also played a considerable role in road maintenance (and even smaller-scale construction), even though the available source material rarely mentions them.¹⁸⁶

The 'Direct Road' was only one of several 'highways' (*chidao*) that connected Xianyang (and the later Han capital Chang'an) with distant parts of the empire in all directions. At least parts of these highways were extremely broad, with transmitted sources mentioning a width of almost 70 m, and the archaeologically studied sections being 45–50 m wide.¹⁸⁷ The contemporary Chinese highways were typically made from several layers of rammed earth, which could have been advantageous with regard to their elasticity and resistance to various kinds of weather-induced deformations.¹⁸⁸ Their surface engineering further may have been beneficial to the traveling speeds of oxcarts and foot porters alike. Early Han legal statutes expected loaded carts, empty carts, and foot porters to travel at a speed of 20.8 km, 29 km, and 33.3 km per day, respectively.¹⁸⁹

Apart from the size and quality of the road network, another important question concerns its users. The central lanes of highways were marked off by trees and walls, and strictly reserved for the emperor's travel alone, thus also serving to communicate imperial presence. Furthermore, at least during Qin and early Former Han times, side lanes of highways were officially reserved for authorized people (such as officials). There may have been additional outside lanes that could be used by other people, and illegal use of restricted lanes is also well attested for Han times.¹⁹⁰ In any case, it seems likely that in a practical sense, lane restrictions mainly concerned the roads in and near the capital and maybe other larger cities. It can therefore be assumed that roads were highly frequented for nonofficial use, which likely included private trading activities to a large extent. This type of mobility across the road network was facilitated by the fact that the Han dynasty renounced custom

185 S. Chen 2015, 118 (slip 151); Korolkov 2020, 461–463.

186 Nylan 2012, 44.

187 *Hanshu* 51.2328 and 2329, n. 10; Z. Wang 1994, 256–258.

188 Needham and Ronan 1978, 1–2; Korolkov 2020, 455–456.

189 Barbieri-Low and Yates 2015, 902–903; Korolkov 2020, 440–461.

190 Sanft 2014, 106–107. In addition to the 'highways,' an excavated document from the Yuelu Academy collection also mentions "high-speed roads" (*chong dao* 衝道) as being reserved for use by high officials and military and labor conscripts. S. Chen 2017, 195–196 (slips 292–294); Korolkov 2020, 461.

taxes at barriers and bridges early on, which reportedly prompted a considerable increase in merchant travel across the empire.¹⁹¹

VI.3 Supporting Infrastructure

The network of roads, rivers, and canals was accompanied by other state-run infrastructural facilities, including dense networks of granaries, guard posts, postal stations, and staffed travel accommodations for state officials at various convenience levels. Furthermore, the state heavily invested in the ‘intellectual infrastructure’ that was required for an efficient use of the existing physical infrastructure, e.g., by centrally coordinating the empire-wide fabrication and regular updating of local and regional maps and itineraries in order to gain and distribute reliable geographic knowledge.¹⁹² The truly imperial, supraregional scale of this mapping project may be illustrated by the find of an itinerary covering a route of more than 3,000 km between the southern county of Qianling (modern Liye, Hunan province), several hundred km south of the Yangzi, to Anyang county north of the Yellow River (in modern Henan).¹⁹³

Certainly, the benefits of these surrounding and intellectual infrastructures were largely restricted to the economic and administrative activities of the state by securing the mobility of tax commodities, state functionaries, and information. It is much more difficult to know the extent to which they benefited the mobility of private traders. As for the geographic knowledge, it is to be assumed that it did not remain in closed bureaucratic circles, but also spread to other groups, such as those engaged in regional or supraregional trade. It is further easy to imagine that the state’s security infrastructure in the form of guard posts (or ‘police stations’) may have had a stimulating effect on private business undertakings that involved travel beyond the local level, as long as these undertakings were themselves compatible with legal regulations.

The security offered by an imperial military presence alongside traveling routes in frontier regions such as the northwestern Hexi corridor may also be interpreted in this way. But according to our sources, the large groups of people that were traveling on these frontier roads and using the state’s infrastructure of relay stations and accommodations were indeed not private traders, but state officials with their entourages as well as gigantic foreign diplomatic missions, which could easily comprise hundreds of individuals.¹⁹⁴ The early Han legal statutes concerning the state’s

191 *Shiji* 129.3261, trans. Watson 1993, 440.

192 On granaries, see, e.g., Nylan 2015, 108–113; Lee Kim 2016, 558–567; on the postal relay system, Lien 2015. On “intellectual infrastructure,” Korolkov 2020, 477–490.

193 Korolkov 2020, 487–488.

194 On the diplomatic missions as economic actors, see Leese-Messing, ch. 6, X, this volume. See also Leese-Messing, vol. 1, ch. 12.A, II.5.

conveyance stations do not mention private customers except for the regulation that ‘people employed in private capacity’ 私使人 were strictly forbidden to be handed out food rations.¹⁹⁵ Whether this also means that private people (such as traders) were not allowed to make use of the convenience stations at all, for example by paying for food or an overnight stay, is not quite clear.¹⁹⁶ In the meticulous accounts of kitchen purchases, expenditures, and food recipients of the Xuanquan relay station, the only parties being served meals while not being classified as either messengers, officials, envoys, or their attendants, were the wife of a county chief, a “group of three, including messengers,” a marquis and his large entourage, and a group of Qiang leaders.¹⁹⁷ The Xuanquan documents so far do not indicate private traders to have been common customers of the station, even though some of the travelers on ‘official business’ may also have conducted trade along the way.¹⁹⁸ Most private traders are likely to have been excluded from using these stations and would have had to use private lodging facilities, which definitely existed, but evidence on which is very limited.

But the official diplomatic missions to and from the Han court, which often involved massive, long-distance gift transfers, were also using these routes and were officially permitted to use the state’s conveyance and other stations. This infrastructure can therefore be interpreted as an essential facilitator of long-distance movement of goods, even in exclusion of private trade. After all, both the legal statutes and the administrative documents from conveyance stations suggest that the easiest (if not the only) way of making use of the dense web of the state’s traveling infrastructures – also for private trading activities – would have been to get hold of an official authorization to use them, that is, by being an official, by otherwise traveling on the state’s official behalf, or by accompanying one of the former

195 Barbieri-Low and Yates 2015, 682–683 (no. 2 of the “Statutes on Food Rations at Conveyance Stations”).

196 The possibility of paying money for food at conveyance stations is attested in the statute, but only under certain conditions. It stipulates that travelling officials or envoys who were for some reason not eligible to be served a free ration (for instance because they were not on official business just then), could buy food at the station on the basis of the ‘fair-market price.’ Whether this possibility also existed for people without any official affiliation is not mentioned by the statute.

197 Lee Kim 2016, 575–579. The centrally organized system of relay stations in the Achaemenid Empire that has been reconstructed on the basis of the *Travel Rations* compares in many ways with the Han system. For the Achaemenid system, see Briant 2012. For some comparisons with the relay system on Roman roads, see Kolb and Speidel 2015, 139–140.

198 J. Yang strongly argues that “the Xuanquan manuscripts have provided indisputable evidence that many of the ‘envoys’ were actually merchants” (2015, 429). The ‘envoys’ in his central example deliver camels as ‘gifts’ by the kings of Kangju and Suxie to the Han governor of Jiuquan (in the Hexi corridor), and the latter turns out to be dissatisfied with the quality of the animals. Yang interprets this instance as a typical example of diplomacy being used as what Yü (1967) had famously coined a ‘cloak for trade.’ This might have been the case, but the document does not show this as ‘indisputably’ as Yang suggests. For instance, the document does not bear any evidence for Yang’s argument that “the Han government clearly paid for the camels.”

two as their acknowledged ‘attendant.’ It is therefore possible that it was these groups of people that were particularly likely to engage in long-distance trade – either on their own or a client’s behalf – at least on routes where other means of lodging and feeding oneself and one’s pack or draft animals were scarce or unavailable.

VI.4 Prospects

Future archaeological excavations in the context of the physical infrastructural network, alongside a more systematic interpretation and regional specification of both archaeological and textual evidence, promise to bring new breakthroughs for a better understanding of infrastructural connectivity in the near future. As for the current trend, recent research suggests that whereas many hinterland populations and resources were difficult or even impossible to access for topographic and other reasons, this did not mean regional isolation. The well-established infrastructural network of the early empires, including its potential for long-distance transport of grain and high-value commodities, was an important foundation for enhanced interregional and inter-imperial connectivity.¹⁹⁹

VII Technology

VII.1 Introduction

The Han period has long been credited as one of the important phases in Chinese history with regard to technological advancement.²⁰⁰ From a theoretical point of view, larger underlying historical developments may be considered to be potential facilitators of such a general trend. First, the early imperial period succeeded an era that was essentially characterized by long and intensive interstate competition, which has often been claimed as a major promoter of technological innovation. And second, at least some of the Han rulers themselves were technophilic enough to promote technological innovation on a wide geographic scale. This personal interest, combined with a strong intellectual current toward the quantifiability of production in administrative contexts, made the Han state a facilitating factor in the diffusion and further development of certain technologies.²⁰¹ But how these preconditions actually affected individual technologies, and which economic significance

¹⁹⁹ Korolkov 2020, 548–551.

²⁰⁰ E.g., Needham and Wang 1954, 111–112.

²⁰¹ On the importance of these two factors for technological developments in medieval Europe and in Tang/Song China, respectively, in contrast to the Roman Empire, see Terpstra 2020.

can be associated with the latter, needs to be reassessed on an individual basis. Three examples will be introduced in what follows: metallurgy, agriculture, and silk weaving. In all three cases, both pre-imperial technological foundations as well as early imperial state sponsorship play important roles. Driven by its fiscal interest in each of the branches, the government used its infrastructural power to propel technological change. While the technologies were characterized by highly different material and structural affordances, all three of them can be associated with significant economic ramifications.

VII.2 Metallurgy

Both wrought and cast iron had been produced in the centuries predating the Qin and Han periods.²⁰² The widespread use of iron implements as well as some crucial technological developments, however, characterized the time from the third century BCE onward and the Han period in particular. The third century BCE witnessed a development toward large-scale iron production in the hands of wealthy private entrepreneurs running ‘iron plantations’ with hundreds of or even more than a thousand laborers, with the facilities typically located close to mountains and forests that provided a reliable supply of charcoal.²⁰³ The technological advances in iron casting technology, especially the ability to produce malleable cast iron, and the introduction of blast furnaces, which radically superseded the older technology of bloomery smelting, were crucial for moving toward mass production.²⁰⁴

Under the reign of Emperor Wu, this well-established industry, technologically equipped for concentrated large-scale iron production, met with the interests of an interventionist government eager to secure new sources of revenue for large-scale military campaigns, to enhance agricultural production, and to break the power of the local wealthy. The result of this politico-technological concurrence was the aforementioned establishment of a total state monopoly of the iron industry in 117 BCE, under which both private production and sale of iron were prohibited.²⁰⁵

The *Hanshu* localizes 48 ‘iron offices’ spread across Han territory, which most likely took the form of large ironwork facilities, using the labor of hundreds of convicts and others each.²⁰⁶ Several of these are indicated as places of production in

202 Wagner 2008, 83–114.

203 Wagner 2008, 140–147.

204 On the invention, spread, technological details, and benefits of malleable cast iron, see Wagner 2008, 114, 159–169. With regard to Europe, malleable cast iron is known as an invention of the seventeenth century, and became industrially important in the nineteenth century. Wagner 2008, 167. On the technology of early imperial blast furnaces, see Wagner 2008, 231–237.

205 See sec. II.3.5 above.

206 Wagner 2001, 38–52.

inscriptions on excavated iron tools.²⁰⁷ Emperor Wu appointed an experienced iron entrepreneur to be in charge of the monopolization of the industry and sent him across the empire in order to establish iron offices staffed by other successful local ironmasters.²⁰⁸ This purposeful inclusion of established specialists must have been crucial for the transfer of expert knowledge, including technological expertise.

It is interesting that most excavated blast furnaces date from the period after the establishment of the monopoly. Even though other potential factors may also play a role in this observation, such as the regionally and geographically unequal distribution of previous excavations, it also might be an indication of the state monopoly being an important stimulator for large-scale iron production and technology diffusion.²⁰⁹

VII.3 Agricultural Tools and Cultivation Methods

Widespread use of iron agricultural tools among the common peasant population is attested archaeologically and historically from the third century BCE onward. It must have meant a considerable facilitation of agricultural work and an increase in productivity in general. Active intervention by the Han government may have further promoted this development, such as the monopolization of the iron industry and its attempts to spread iron implements throughout its populace and keeping their prices low.²¹⁰ While the often-quoted ancient critics of the monopoly who said that state-produced iron implements lacked quality and variety are not to be neglected, they must be seen in their polemic context. They are, after all, not supported by the archaeological evidence.²¹¹

There were considerable changes not only regarding the material, but also the technology of farming tools. Simple version of moldboard or turn plows had already

207 See the list in Wagner 2001, 89–99.

208 The scarce evidence for the Later Han period suggests that the highest posts in iron offices were by that time filled by bureaucrats rather than by entrepreneurs. Wagner 2001, 45.

209 It is also worth noting that many of the ironworks were located close to contemporary cities, which would hardly have been first-choice locations from an economic or environmental perspective, but only make sense from an administrative point of view. One needs to consider, however, that the fact that many facilities have been found near ancient cities is also connected to the fact that the latter are often located in or nearby modern cities, and that sites are more likely to be discovered there than, for instance, those in remote, mountainous areas. Wagner 2001, 36–38.

210 Bray 1979, 5.

211 Wagner correctly argues that generalizing interpretations on the basis of the ancient critics' statements, such as Nishijima's assertion that "iron implements manufactured under the state iron monopoly were too large for practical use" (Nishijima 1986, 563), are highly unconvincing. Also, during the second century CE, Cui Shi, in a critique of contemporary state-produced iron implements, refers to earlier state-produced products as being of such high quality that they were "famous throughout the empire." This suggests that product quality fluctuated over time, and state products were not generally regarded as being of low quality. Wagner 2001, 25 (n. 13), 56–62.

been in use in pre-imperial times, but became more common and sophisticated during Han times. They could be drawn by one or two oxen even on heavy soil. Their efficiency was increased by features such as a dished, cast-iron moldboard and an adjustable sheath for regulating plowing depth. Their design reduced friction to an extent suggested to be unequaled in Europe until the eighteenth century.²¹² Furthermore, oxen-drawn, multitube seed drills were introduced during the first century of Han rule, which enabled a precise planting of seeds in several ridges at the same time. Another agro-technological novelty of the Former Han period was the rotary-fan winnowing machine, several pottery models of which have been found in tombs in different regions of the Han Empire. A crank-operated fan at the end of a sloping tunnel blew away chaff and bran (which could further be separated by some of the machines), letting only the heavier grain fall below the hopper through which it was poured. This technology, the first European evidence for which dates from the seventeenth century, made winnowing many times more efficient than shovels or baskets. It must have meant enormous labor-saving for those who could afford the device.²¹³

Several new cultivation methods were tested and put into practice during the Han period, the most famous ones being a ridge-and-furrow system called the ‘alternating fields’ (*daitian* 代田) method, which economized on seeds and facilitated the thinning and spacing of plants, and a method of ‘pit-cultivation’ (*ouzhong* 區種). Both were intensively tested and promoted by the central Han government and reportedly resulted in extraordinary yield increases.²¹⁴

While it is difficult to assess the overall economic effect of new farming techniques and tools, taken together they likely contributed to an increase in *per capita* productivity at least in certain regions. As for the social effects, the new cultivation methods are likely to have benefited large landowners more than common farming households, since both of them required high investments in either livestock and new equipment (i.e., large and heavy moldboard iron plows and the newly invented seed-drills) in the case of the *daitian* method, or in human labor in case of the *ouzhong* method. That the government provided farmers with tools and draught animals on loan, may have worked against this imbalance to a certain degree, but are unlikely to have compensated for the relative disadvantage to small peasant households.

VII.4 Silk Weaving Technology

Technological sophistication of another kind and with very different economic implications concerns the production of silk fabrics. Indications for Han consumerism

²¹² On Han ploughs, see Bray and Needham 1984, 169–196.

²¹³ On the winnowing machines, see Bray and Needham 1984, 366–381; Vogel 2006.

²¹⁴ In Guanzhong, the *daitian* method reportedly increased yields by at least one bushel *per mu*, up to doubled yields. Its use became especially widespread in the Guanzhong area and in agricul-

in high elite and even middling social strata are typically associated with a heightened demand for luxury textiles.²¹⁵ Even though luxurious and technologically sophisticated types of patterned silk cloth, such as *qi* 綺 and *jīn* 錦 fabrics,²¹⁶ had already been produced during pre-imperial times, they were apparently produced on much larger scales during the Han period. The technology of looms seems to have kept up with this heightened demand for extremely high-quality textiles and for woven textile patterning with lively pictorial images in particular. These increasingly replaced silk embroidery and painting, which had characterized luxury textiles during the Warring States and the early Han era.²¹⁷ For instance, treadle-operated looms with multiple, quickly operating shafts and treadles offering an “advanced and highly efficient patterning equipment” were used by Later Han times for the production of the polychrome *jīn* silks.²¹⁸ And the highly complex drawloom, described by a contemporary as a “supernatural machine” (*dēng shén jī* 登神機), probably replaced the pattern-rod loom in Later Han times as a result of higher economic demands.²¹⁹

Technological advancement in this case did not mean a potential for extended availability in a social sense. The complex looms required highly qualified weavers and considerable financial investment, which restricted their operation to large-scale workshops and state-run textile production centers in particular.²²⁰ State workshops are known to have produced luxury silk fabrics for consumption in imperial palaces and redistribution to high elite circles, including large-scale exports in the context of diplomatic relations. The highly advanced technological finesse of largely state-produced *jīn* silks was obvious to viewers and consumers both within and far beyond the cultural sphere of the Han Empire’s core region. Technological advancement in silk production must therefore be considered as one central factor for Han *jīn* silks to be appreciated as prestige goods across the Eurasian region, which was the essential precondition for them to find their ways to places such as the Tarim Basin polities and eventually as far as Palmyra.²²¹

tural garrisons (*tuntian*) along the northwestern frontier. Especially in drier regions, the success of the system, which relied on deep plowing, depended on the maintenance of reliable irrigation systems. Bray 1979, 5–6.

215 See Leese-Messing, ch. 15, III.2, this volume.

216 *Qi* silk was a “technologically sophisticated, monochrome, patterned, damask-like weave,” while *jīn* silk was an “even more complex polychrome, patterned, warp-faced, compound tabby weave.” Selbitschka 2018a, 22.

217 Models of four complex weaving looms for the production of sophisticated *jīn* silks have been found in a second-century BCE tomb in Chengdu (in modern Sichuan). See Chengdu wenwu kaogu yanjiusuo et al. 2014.

218 Kuhn 1995, 90–92.

219 Kuhn 1995, 95–102.

220 Kuhn 1995, 102.

221 Selbitschka 2018a.

VIII Conclusion

The economic tools discussed in this chapter essentially suggest three more general observations. First, in all the discussed spheres, the early imperial period witnessed institutional and structural developments that substantially enhanced opportunities for increased economic activity and connectivity. Second, the role of state institutions in providing and promoting these tools suggests to have been relatively active, also in comparison to other contemporaneous societies. This picture may be biased to a certain degree, however, because of a likely underrepresentation in our sources of the economic tools of, for instance, private trading networks. And third, the comparatively active role of state institutions in economic matters (as consumers, producers, distributors, and regulators), as well as concrete observations with regard to certain toolsets (e.g., the tendency of the fiscal system to distribute tax burdens and to cap private capital accumulation to a certain degree, as well as the limitations observed with regard to the credit system and agency law), point toward the understanding that the ensemble of economic tools in early imperial China presented in this chapter may have promoted both extreme private capital accumulation and massive long-distance private trading activities to a lesser extent than suggested in the case of the Roman world.

References

- Adshead, S. A. M. 1988. *China in world history*. 3rd ed. London: Palgrave Macmillan.
- . 2004. *T'ang China: The rise of the east in world history*. London: Palgrave Macmillan.
- Bai, Y. 2015. “The studies on the measuring devices of the Han dynasty and the relevant issues.” *Chinese Archaeology* 15.1, 188–194.
- Bang, P. F. 2009. “Commanding and consuming the world: Empire, tribute, and trade in Roman and Chinese history.” In W. Scheidel (ed.), *Rome and China: Comparative studies in ancient world empires*, 100–120. Oxford: Oxford University Press.
- Barbieri-Low, A. J. 2007. *Artisans in early imperial China*. Seattle, WA: University of Washington Press.
- . 2011. “Craftsman’s literacy: Uses of writing by male and female artisans in Qin and Han China.” In L. Feng and D. P. Branner (eds.), *Writing and literacy in early China: Studies from the Columbia Early China Seminar*, 370–400. Seattle, WA: University of Washington Press.
- Barbieri-Low, A. J. and R. D. S. Yates. 2015. *Law, state, and society in early imperial China: A study with critical edition and translation of the legal texts from Zhangjiashan tomb no. 247*. 2 vols. Leiden: Brill.
- Behr, W. 2004. “‘To translate’ is ‘to exchange’ 譯者言易也 – Linguistic diversity and the terms for translation in ancient China.” In N. Vittinghoff and M. Lackner (eds.), *Mapping meanings: The field of New Learning in late Qing China*, 173–209. Leiden: Brill.
- Bielenstein, H. 1980. *The bureaucracy of Han times*. Cambridge: Cambridge University Press.
- Bray, F. 1979. “Agricultural technology and agrarian change in Han China.” *Early China* 5, 3–13.
- Bray, F. and J. Needham. 1984. *Science and civilisation in China*. Vol. 6, *Biology and biological technology*. Part 2, *Agriculture*. Cambridge: Cambridge University Press.

- Bresson, A. 2021. "Metal-object currency before coinage: China and the West." In L. Rahmstorf, G. Barjamovic, and N. Jalongo (eds.), *Merchants, measures and money: Understanding technologies of early trade in a comparative perspective*, 289–303. Kiel: Wachholtz.
- Briant, P. 2012. "From the Indus to the Mediterranean: The administrative organization and logistics of the great roads of the Achaemenid Empire." In S. E. Alcock, J. Bodel, and R. J. A. Talbert (eds.), *Highways, byways, and road systems in the pre-modern world*, 185–201. Malden, MA: Wiley-Blackwell.
- Cang Zhifei 臧知非. 2012. *Qin Han fuyi yu shehui kongzhi* 秦漢賦役與社會控制 [*Qin and Han taxation and social control*]. Xi'an: Sanqin chubanshe.
- Chen Songchang 陳松長, ed. 2017. *Yuelu shuyuan cang Qin jian* 岳麓書院藏秦簡 [*Qin bamboo slips from the Yuelu Academy collection*]. Vol. 5. Shanghai: Shanghai cishu chubanshe.
- . 2015. *Yuelu shuyuan cang Qin jian* 岳麓書院藏秦簡 [*Qin bamboo slips from the Yuelu Academy collection*]. Vol. 4. Shanghai: Shanghai cishu chubanshe.
- Chen Wei 陳偉, ed. 2012. *Liye Qin jian du jiaoshi* 里耶秦簡牘校釋 [*Annotated edition of the Qin documents on wooden slips from Liye*]. Vol. 1. Wuhan: Wuhan daxue chubanshe.
- Chengdu wenwu kaogu yanjiusuo 成都文物考古研究所 et al. 2014. "Chengdushi Tianhuizhen Laoguanshan Han mu" 成都市天回鎮老官山漢墓 [A Han tomb at Laoguanshan near the Tianhui hamlet in Chengdu]. *Kaogu* 考古, no. 7, 59–70.
- Coşgel, M. M. and T. J. Miceli. 2009. "Tax collection in history." *Public Finance Review* 37.4, 399–420.
- Ebrey, P. 1986. "The economic and social history of Later Han." In D. Twitchett and M. Loewe (eds.), *The Cambridge history of China*, vol. 1, 608–648. Cambridge: Cambridge University Press.
- Erickson, S. N. 2010. "Han dynasty tomb structures and contents." In M. Nylan and M. Loewe (eds.), *China's early empires: A re-appraisal*, 13–82. Cambridge: Cambridge University Press.
- Erickson, S. N., S. Yi, and M. Nylan. 2010. "The archaeology of the outlying lands." In M. Nylan and M. Loewe (eds.), *China's early empires: A re-appraisal*, 135–168. Cambridge: Cambridge University Press.
- Feng, L. 2006. *Landscape and power in Early China. The crisis and fall of the Western Zhou 1045–771 BC*. Cambridge: Cambridge University Press.
- Galambos, I. 2004. "The myth of the Qin unification of writing in Han sources." *Acta Orientalia Academiae Scientiarum Hungaricae* 57.2, 181–203.
- . 2006. *Orthography of early Chinese writing: Evidence from newly excavated manuscripts*. Budapest: Department of East Asian Studies, Eötvös Loránd University.
- Gale, E. M., trans. 1967. *Discourses on salt and iron: A debate on state control of commerce and industry in ancient China, Chapters I–XXVIII*. Taipei: Ch'eng Wen.
- Gao Dalun 高大倫. 1998. "Yinwan Han mu mudu 'jibu' zhong hukou tongji ziliao yanjiu" 尹灣漢墓木牘'集簿'中戶口統計資料研究 [A study of the household statistics in the 'collected registers' on a wooden tablet from the Han burial at Yinwan]. *Lishi yanjiu* 历史研究, no. 5, 110–123.
- Gao Min 高敏. 2003. "Cong Zhangjiashan Han jian 'Ernian luling' kan Xi-Han qianqi de tudi zhidu: Du 'Zhangjiashan Han mu zhujian' zhaji zhi san" 從張家山漢簡《二年律令》看西漢前期的土地制度: 讀《張家山漢墓竹簡》札記之三 [The Han-period 'Ernian Luling' slips from Zhangjiashan as evidence for the early Western Han system of land tenure]. *Zhongguo jingji shi yanjiu* 中国经济史研究, no. 3, 143–147.
- Garraty, C. P. 2010. "Investigating market exchange in ancient societies: A theoretical review." In C. P. Garraty and B. L. Stark (eds.), *Archaeological approaches to market exchange in ancient societies*, 3–32. Boulder, CO: University Press of Colorado.
- Giele, E. 2015. "Private letter manuscripts from early imperial China." In A. Richter (ed.), *A history of Chinese letters and epistolary culture*, 399–474. Leiden: Brill.

- Han Shufeng 韓樹峰. 2011. “Qin Han tuxing jiegou” 秦漢徒刑結構 [The structure of penal labor during Qin and Han times]. In *Han Wei falü yu shehui: Yi jiandu, wenshu wei zhongxin de kaocha* 漢魏法律與社會：以簡牘、文書為中心的考察, 49–76. Beijing: Shehui kexue wenxian chubanshe.
- Handel, Z. 2015. “Dialect diversification, major trends.” *Encyclopedia of Chinese language and linguistics online*. Brill. http://dx.doi.org/10.1163/2210-7363_ecll_COM_000303.
- Hanshu* 漢書 [Documents of the Han]. 1962. Composed by Ban Gu 班固 (32–92 CE). Beijing: Zhonghua shuju.
- Hinsch, B. 1998. “Women, kinship, and property as seen in a Han dynasty will.” *T’oung Pao* 84.1, 1–20.
- Hou Chunping 侯春平. 2014. “Qin Han caichan sunhai peichang falü zhidu kaozheng” 秦漢財產損害賠償法律制度考證 [A study of the legal regulations on property damage reimbursement during Qin and Han times]. *Lantai shijie* 蘭台世界 27, 22–23.
- Hou Hanshu* 後漢書 [Documents of the Later Han]. 1965. Composed by Fan Ye 范曄 (398–445 CE). Beijing: Zhonghua shuju.
- Hsing, I-tian 邢義田. 2014. “Qin-Han census and tax and corvée administration: Notes on newly discovered materials.” In Y. Pines, G. Shelach, L. Falkenhausen, and R. D. S. Yates (eds.), *Birth of an empire: The state of Qin revisited*. Berkeley, CA: University of California Press.
- . 2017. “Zailun sanbian quan: Du Yuelu shuyuan cang Qin jian zhaji zhi si” 再論三辨券：讀岳麓書院藏秦簡札記之四 [A rediscussion of tripartite tallies: Reading notes on the Qin Documents from the Yuelu Academy Collection, part four]. *Jianbo* 簡帛 14, 29–35.
- Hsu, C. 1980. *Han agriculture: The formation of the early Chinese agrarian economy (206 BC–AD 220)*. J. L. Dull (ed.). Seattle, WA: University of Washington Press.
- Hulsewé, A. F. P. 1978. “‘Contracts’ of the Han period.” In L. Lanciotti (ed.), *Il diritto in Cina*, 11–38. Florence: Leo S. Olschki.
- . 1979. “A lawsuit of AD 28.” In W. Bauer (ed.), *Studia sino-mongolica: Festschrift für Herbert Franke*, 23–34. Wiesbaden: Franz Steiner.
- . 1985a. *Remnants of Ch’in law: An annotated translation of the Ch’in legal and administrative rules of the 3rd century BC discovered in Yün-Meng Prefecture, Hu-Pei Province, in 1975*. Leiden: Brill.
- . 1985b. “The influence of the ‘legalist’ government of Qin on the economy as reflected in the texts discovered in Yunmeng county.” In S. R. Schram (ed.), *The scope of state power in China*, 211–235. London: School of Oriental and African Studies.
- . 1988. “The wide scope of tao 盜 ‘theft,’ in Ch’in-Han law.” *Early China* 13, 166–200.
- Kakinuma Yōhei 柿沼陽平. 2015. *Chūgoku kodai no kahei* 中国古代の貨幣 [The currencies of ancient China]. Tokyo: Yoshikawa Hironikan.
- Katō Shigeru 加藤繁. 1952. “Kandai ni okeru kokka zaisei to teishitsu zaisei to no kubetsu” 漢代に於ける国家財政と帝室財政との區別 [The division between the public and the private purse during the Han dynasty]. In *Shina keizaishi kōshō* 支那經濟史考証. Tokyo: Tōyō bunko.
- Kern, M. 2002. “Methodological reflections on the analysis of textual variants and the modes of manuscript production in early China.” *Journal of East Asian Archaeology* 4.1, 143–181.
- Kiser, E. and Y. Cai. 2003. “War and bureaucratization in Qin China: Exploring an anomalous case.” *American Sociological Review* 68.4, 511–539.
- Kolb, A. and M. A. Speidel. 2015. “Perceptions from beyond: Some observations on non-Roman assessments of the Roman Empire from the great eastern trade routes.” *Journal of Ancient Civilizations* 30, 117–149.
- Korolkov, M. 2012. “Greeting tablets’ in early China: Some traits of the communicative etiquette of officialdom in light of newly excavated inscriptions.” *T’oung Pao* 98.4/5, 295–348.
- . 2015. “Convict labor in the Qin Empire: A preliminary study of the ‘registers of convict laborers’ from Liye.” In Fudan daxue lishi xi 復旦大學歷史學系 et al. (eds.), *Jianbo wenxian yu gudai*

- shi: *Di er jie chutu wenxian qingnian xuezhe guoji luntan lunwenji* 簡帛文獻與古代史: 第二屆出土文獻青年學者國際論壇論文集, 132–156. Shanghai: Zongxi shuju.
- . 2016. “Calculating crime and punishment: Unofficial law enforcement, quantification, and legitimacy in early imperial China.” In “The New Ancient Legal History.” Special issue, *Critical Analysis of Law* 3, 70–86.
- . 2020. “Empire-building and market-making at the Qin frontier: Imperial expansion and economic change, 221–207 BCE.” PhD diss., Columbia University.
- . 2021a. “Between command and market: Credit, labour, and accounting in the Qin Empire (221–207 BCE).” In E. Sabatini and C. Schwermann (eds.), *Between command and market: Economic thought and practice in Early China*, 160–241. Leiden: Brill.
- . 2021b. “Fiscal transformation during the formative period ancient Chinese empire (late fourth to first century BCE).” In J. Valk and I. S. Marín (eds.), *Ancient taxation: The mechanics of extraction in comparative perspective*, 203–261. Albany, NY: State University of New York Press.
- Korolkov, M. and A. Hein. 2020. “State-induced migration and the creation of state spaces in early Chinese empires: Perspectives from history and archaeology.” *Journal of Chinese History*, 1–23. <https://doi.org/10.1017/jch.2020.45>.
- Kuhn, D. 1995. “Silk weaving in ancient China: From geometric figures to patterns of pictorial likeness.” *Chinese Science* 12, 77–114.
- Lau, U. and M. Lüdke. 2012. *Exemplarische Rechtsfälle vom Beginn der Han-Dynastie: Eine kommentierte Übersetzung des Zouyanshu aus Zhangjiashan/Provinz Hubei*. Tokyo: Research Institute for Languages and Cultures of Asia and Africa, Tokyo University of Foreign Studies.
- Lau, U. and T. Staack. 2016. *Legal practice in the formative stages of the Chinese Empire: An annotated translation of the exemplary Qin criminal cases from the Yuelu Academy Collection*. Leiden: Brill.
- Lee Kim, M. 2016. “Discrepancy between laws and their implementation: An analysis of granaries, statutes, and rations during China’s Qin and Han periods.” *Journal of the Economic and Social History of the Orient* 59.4, 555–589.
- Lewis, M. E. 2015. “Early imperial China, from the Qin and Han through Tang.” In A. Monson and W. Scheidel (eds.), *Fiscal regimes and the political economy of premodern states*, 282–307. Cambridge: Cambridge University Press.
- Li, C. 2019. “The system of tribute equalisation in the Han.” In L. Cheng, T. Peach, and F. Wang (eds.), *The political economy of the Han dynasty and its legacy*, 101–114. London: Routledge.
- Li Yiming 李一鸣. 2018. “Shilun Han dai de minjian jiedai xisu yu guanfang zhixu 试论汉代的民间借贷习俗与官方秩序 [A preliminary discussion of people’s lending practices and their treatment by the state during the Han period].” *Minsu yanjiu* 民俗研究, no. 1, 78–88.
- Lianyungang shi bowuguan 連雲港市博物館 et al. 1997. *Yinwan Han mu jiandu* 尹灣漢墓簡牘 [Bamboo and wooden documents on from the Han tomb at Yinwan]. Beijing: Zhonghua shuju.
- Lien, Y. E. 2015. “Reconstructing the postal relay system of the Han period.” In A. Richter (ed.), *A history of Chinese letters and epistolary culture*, 17–52. Leiden: Brill.
- Liu, L. and X. Chen. 2003. *State formation in early China*. London: Duckworth.
- Loewe, M. 1967. *Records of Han administration*. 2 vols. Cambridge: Cambridge University Press.
- . 2016. *Problems of Han administration: Ancestral rites, weights and measures, and the means of protest*. Leiden: Brill.
- Meisterernst, B. 2015. “Warring states to medieval Chinese.” *Encyclopedia of Chinese language and linguistics online*. Brill. http://dx.doi.org/10.1163/2210-7363_ecll_COM_00000445.
- Miyake Kiyoshi 宮宅潔. 2013. “Han dai guanliao zuzhi de zuixia ceng: ‘guan’ yu ‘min’ zhijian” 漢代官僚組織的最下層:‘官’與‘民’之間 [The lowest tier of the Han bureaucratic organization: Between ‘officials’ and ‘people’]. *Zhongguo gudai falü wenxian yanjiu* 中國古代法律文獻研究, no. 7, 127–161.

- . 2016a. “Laoyixing tixi de jiegou yu bianqian” 勞役刑體系的結構與變遷 [Structure and development of the system of convict labor]. In Yang Zhenhong 楊振紅 (trans.), *Zhongguo gudai xingzhi shi yanjiu* 中國古代刑制史研究 [Studies in ancient China's penal system], 60–158. Guilin: Guangxi shifan daxue.
- . 2016b. “Sikong xiaokao: Qin Han shiqi xingtu guanli zhi yi ban” 司空小考: 秦漢時期刑徒管理之一斑 [A study on the office of controller of works: Management of convicts during the Qin and Han periods]. In Yang Zhenhong 楊振紅 (trans.), *Zhongguo gudai xingzhi shi yanjiu* 中國古代刑制史研究, 188–243. Guilin: Guangxi shifan daxue.
- Momiyama Akira 初山明. 1998. “Kechi jian du chutan: Han jian xingtai lun” 刻齒簡牘初探: 漢簡形態論 [A preliminary examination of bamboo and wooden documents with notches: On the form of Han documents]. In *Zhongguo shehui kexueyuan jianbo yanjiu zhongxin* 中國社會科學院簡帛研究中心 (ed.), *Jianbo yanjiu yicong* 簡帛研究譯叢, 147–177. Changsha: Hunan renmin chubanshe.
- Needham, J. and C. A. Ronan. 1978. *The shorter science and civilisation in China*. Vol. 5. Cambridge: Cambridge University Press.
- Needham, J. and L. Wang. 1954. *Science and civilisation in China*. Vol. 1, *Introductory orientations*. Cambridge: Cambridge University Press.
- Nienhauser, W. H., ed. 1994. *The Grand Scribe's records*. Vol. I, *The basic annals of pre-Han China*. Bloomington, IN: Indiana University Press.
- Nishijima, S. 1986. “The economic and social history of Former Han.” In D. Twitchett and M. Loewe (eds.), *The Cambridge history of China*, vol. 1, 545–607. Cambridge: Cambridge University Press.
- Nylan, M. 2012. “The power of highway networks during China's classical era (323 BCE–316 CE): Regulations, metaphors, rituals, and deities.” In S. E. Alcock, J. Bodel, and R. J. A. Talbert (eds.), *Highways, byways, and road systems in the pre-modern world*, 33–65. Malden, MA: Wiley-Blackwell.
- . 2015. “Supplying the capital with water and food.” In M. Nylan, G. Vankeerberghen, and M. Loewe (eds.), *Chang'an 26 BCE: An Augustan age in China*, 99–130. Seattle, WA: University of Washington Press.
- Peng, K. 2000. “Coinage and commercial development in Eastern Zhou China.” PhD diss., University of Chicago.
- Peng, X. 1994. *A monetary history of China*. E. H. Kaplan (trans.). 2 vols. Bellingham, WA: Western Washington University.
- Qianfu lun jian jiaozheng* 潛夫論箋校正 [Comments of a Recluse with collated commentaries]. Composed by Wang Fu 王符 (ca. 85–163 CE). Collation of commentaries by Wang Jipei 汪繼培 and Peng Duo 彭鐸. Beijing: Zhonghua shuju, 1997.
- Qiu Guangming 丘光明. 1992. *Zhongguo lidai duliangheng kao* 中國歷代度量衡考 [Investigations into the length, capacity and weight measures of China through the ages]. Beijing: Kexue chubanshe.
- Sanft, C. 2011. “Debating the route of the Qin Direct Road (*Zhidao*): Text and excavation.” *Frontiers of History in China* 6.3, 323–346.
- . 2014. *Communication and cooperation in early imperial China: Publicizing the Qin dynasty*. Albany, NY: State University of New York Press.
- . 2019. *Literate community in early imperial China: The northwestern frontier in Han times*. Albany, NY: State University of New York Press.
- Scheidel, W. 2008. “The divergent evolution of coinage in eastern and western Eurasia.” In W. V. Harris (ed.), *The monetary systems of the Greeks and Romans*, 267–286. Oxford: Oxford University Press.
- . 2009. “The monetary systems of the Han and Roman Empires.” In W. Scheidel (ed.), *Rome and China: Comparative studies in ancient world empires*, 137–207. Oxford: Oxford University Press.

- . 2010. “Coin quality, coin quantity, and coin value in early China and the Roman world.” *American Journal of Numismatics* 22, 93–118.
- . 2015. “State revenue and expenditure in the Han and Roman empires.” In W. Scheidel (ed.), *State power in ancient China and Rome*, 150–180. Oxford: Oxford University Press.
- . 2017. “Slavery and forced labour in Early China and the Roman world.” In H. J. Kim, F. Vervaet, and S. Adali (eds.), *Eurasian empires in antiquity and the early Middle Ages: Contact and exchange between the Graeco-Roman world, Inner Asia and China*, 133–150. Cambridge: Cambridge University Press.
- Scogin, H. T. Jr. 1990. “Between heaven and man: Contract and the state in Han dynasty China.” *Southern California Law Review* 63.4, 1326–1404.
- Selbitschka, A. 2018a. “Genuine prestige goods in mortuary contexts: Emulation in polychrome silk and Byzantine *solidi* from northern China.” *Asian Perspectives* 57.1, 2–50.
- . 2018b. “‘I write, therefore I am’: Scribes, literacy, and identity in early China.” *Harvard Journal of Asiatic Studies* 78.2, 413–477.
- Shelach-Lavi, G. 2015. *The archaeology of Early China: From prehistory to the Han dynasty*. Cambridge: Cambridge University Press.
- Shen, K., J. N. Crossley, and A. W. Lun. 1999. *The nine chapters on the mathematical art: Companion and commentary*. Oxford: Oxford University Press.
- Shiji 史記 [The Scribe’s Records]. 1959. Composed by Sima Qian 司馬遷 (145 or 135–ca. 87 BCE). Beijing: Zhonghua shuju.
- Shi Yang 石洋. 2018. “Qin Han shiqi jiedai de qixian yu shouxi zhouqi” 秦汉时期借贷的期限与收息周期 [Time limits for repayment and frequencies of interest collection during the Qin and Han periods]. *Zhongguo jingji shi yanjiu* 中国经济史研究, no. 5, 16–29.
- Shuihudi Qin mu zhujian zhengli xiaozu 睡虎地秦墓竹簡整理小組. 1990. *Shuihudi Qin mu zhujian* 睡虎地秦墓竹簡 [Bamboo slips from a Qin tomb at Shuihudi]. Beijing: Wenwu chubanshe.
- Sun Wenbo 孙闻博. 2018. “Qin zhidao de lishixue tansuo: Yi zouxian, xiuzhu yu yanxian yicun wei zhongxin” 秦直道的历史探索: 以走向、修筑与沿线遗存为中心 [A historical study of the Qin Direct Road: With a focus on its direction, construction, and archaeological remains along its route]. *Zhongguo shi yanjiu dongtai* 中国史研究动态, no. 3, 56–59.
- Swann, N. L. 1950. *Food and money in ancient China: The earliest economic history of China to AD 25: Han Shu 24 with related texts, Han Shu 91 and Shih-Chi 129*. Princeton, NJ: Princeton University Press.
- Terpstra, T. 2019. *Trade in the ancient Mediterranean: Private order and public institutions*. Princeton, NJ: Princeton University Press.
- . 2020. “Roman technological progress in comparative context: The Roman Empire, Medieval Europe and Imperial China.” *Explorations in Economic History* 75.
- Thierry, F. 1993. “De la nature fiduciaire de la monnaie chinoise.” *Bulletin du Cercle d’Études Numismatiques* 30, 1–12.
- . 1997. *Monnaies chinoises*. Vol. 1, *L’Antiquité préimpériale*. Paris: Bibliothèque Nationale de France.
- . 2001. “Sur les spécificités fondamentales de la monnaie chinoise.” In A. Testart (ed.), *Aux origines de la monnaie*, 109–144. Paris: Errance.
- . 2003. *Monnaies chinoises*. Vol. 2, *Des Qin aux Cinq dynasties*. Paris: Bibliothèque Nationale de France.
- . 2017. *Les monnaies de la Chine ancienne: Des origines à la fin de l’Empire*. Paris: Belles Lettres.
- Twitchett, D. C. 1970. *Financial administration under the T’ang dynasty*. Cambridge: University of Cambridge.
- Vogel, H. U. 1996. “Zur Frage der Genauigkeit antiker Längenmaße und ihrer interkulturellen Zusammenhänge im Lichte chinesischer metrologischer Sachüberreste.” In R. S. Elkar,

- C. Neutsch, K. J. Roth, and J. H. Schawacht (eds.), *Vom rechten Maß der Dinge: Beiträge zur Wirtschafts- und Sozialgeschichte. Festschrift für Harald Witthöft zum 65. Geburtstag*, 1–32. St. Katharinen: Scripta Mercaturae.
- . 2006. “The diffusion and transmission of the rotary-fan winnowing machine from China to Europe: New findings and new questions.” *History of Technology* 27, 1–41.
- von Glahn, R. 2016. *The economic history of China: From antiquity to the nineteenth century*. Cambridge: Cambridge University Press.
- . 2020. “Modalities of the fiscal state in imperial China.” *Journal of Chinese History* 中國歷史學刊 4.1, 1–29.
- Wagner, D. B. 2001. *The state and the iron industry in Han China*. Copenhagen: Nordic Institute of Asian Studies.
- . 2008. *Science and civilisation in China*. Vol. 5, *Chemistry and chemical technology*. Part 11, *Ferrous metallurgy*. Cambridge: Cambridge University Press.
- Wang, H. 2004. *Money on the Silk Road: The evidence from eastern Central Asia to c. AD 800, including a catalogue of the coins collected by Sir Aurel Stein*. London: British Museum Press.
- . 2007. “Official salaries and local wages at Juyan, north-west China, first century BCE to first century CE.” In J. Lucassen (ed.), *Wages and currency: Global comparisons from antiquity to the twentieth century*, 59–76. Bern: Peter Lang.
- . 2013. “Textiles as money on the Silk Road?” *Journal of the Royal Asiatic Society* 23.2, 165–174.
- Wang Yongbo 王永波. 2005. “Handai huangjin zhubi jiliang biaoji yanjiu” 汉代黄金铸币计量标记研究 [A study on Han-era gold money measure marks]. *Gudai wenming* 古代文明, no. 4, 263–301.
- Wang Zijin 王子今. 1994. *Qin Han jiaotong shigao* 秦漢交通史稿 [A study on the history of traffic during the Qin and Han periods]. Beijing: Zhonggong zhongyang dangxiao chubanshe.
- . 2002. “Han chu chachu guanyuan feifa shouru de zhidu” 漢初查處官員非法收入的制度 [Early Han regulations concerning officials’ illegal means of income]. *Zhengfa luntan* 政法論壇, no. 5, 3–8.
- Watanabe Shinichirō 渡辺信一郎. 2010. *Chūgoku kodai no zaisei to kokka* 中国古代の財政と国家 [Finance and the state in ancient China]. Tokyo: Kyūko shoin.
- Watson, B. 1993. *Records of the Grand Historian: Han dynasty II*. Revised ed. New York, NY: Columbia University Press.
- Wilbur, C. M. 1943. *Slavery in China during the Former Han dynasty, 206 BC–AD 25*. Chicago, IL: Field Museum of Natural History.
- Wu, X., A. Hein, Z. Jin, D. Wei, F. Huang, and X. Yin. 2019. “Resettlement strategies and Han imperial expansion into southwest China: A multimethod approach to colonialism and migration.” *Archaeological and Anthropological Sciences* 11.12, 6751–6781.
- Xie Guihua 谢桂华. 1989. “Hanjian he Han dai de quyong daishu zhidu” 汉简和汉代的取庸代戍制度 [Han bamboo slips and the system of frontier service substitution during the Han period]. In Gansu sheng wenwu kaogu yanjiusuo 甘肃省文物考古研究所 (ed.), *Qin Han jian du lunwenji* 秦汉简牍论文集, 77–112. Lanzhou: Gansu renmin chubanshe.
- Xie Quanfa 谢全发. 2007. “Han dai zhaifa yanjiu” 汉代债法研究 [A study of Han-era debt law].” PhD diss., Xinan zhengfa daxue.
- Yamada Katsuyoshi 山田勝芳. 1993. *Shin Kan zaisei shūnyū no kenkyū* 秦漢財政收入の研究 [A study on Qin and Han fiscal revenue]. Tokyo: Kyūko shoin.
- Yang, J. 2015. “Transportation, boarding, lodging, and trade along the early Silk Road: A preliminary study of the Xuanquan manuscripts.” *Journal of the American Oriental Society* 135.3, 421–432.
- Yang Zhenhong 楊振紅. 2003. “Qin Han ‘mingtianzhai zhi’ shuo: Cong Zhangjiashan Han jian kan Zhanguo Qin Han de tudi zhidu” 秦汉‘名田宅制’说: 从张家山汉简看战国秦汉的土地制度

- [The 'mingtianzhai system' of the Qin and Han: The Han slips from Zhangjiashan as evidence for the systems of land tenure during the Warring States, Qin, and Han periods]. *Zhongguo shi yanjiu* 中国史研究, no. 3, 49–72.
- . 2008. “Cong xin chu jian du kan Qin Han shiqi de tian zu zheng shou” 從新出簡牘看秦漢時期的田租徵收 [Collection of the land tax in the Qin and Han periods as reflected in the newly excavated bamboo and wooden documents].” *Jianbo* 簡帛, no. 3, 331–342.
- Yantie lun jiaozhu* 鹽鐵論校注 [*The Discourses on Salt and Iron with collated commentaries*]. 1992. Composed by Huan Kuan 桓寬 (first century BCE). Commentaries compiled by Wang Liqi 王利器. Beijing: Zhonghua shuju.
- Yates, R. D. S. 2001. “Slavery in early China: A socio-cultural approach.” *Journal of East Asian Archaeology* 3.1, 283–331.
- . 2011. “Soldiers, scribes, and women: Literacy among the lower orders in early China.” In F. Li and D. P. Branner (eds.), *Writing and literacy in Early China: Studies from the Columbia Early China Seminar*, 339–369. Seattle, WA: University of Washington Press.
- . 2014. “The changing status of slaves in the Qin-Han transition.” In Y. Pines, G. Shelach, L. Falkenhausen, and R. D. S. Yates (eds.), *Birth of an empire: The state of Qin revisited*, 206–223. Berkeley, CA: University of California Press.
- Yü, Y. 1967. *Trade and expansion in Han China: A study in the structure of sino-barbarian economic relations*. Berkeley, CA: University of California Press.
- Zhang Jinguang 张金光. 2007. “Pubian shoutian zhi de zhongjie yu siyou diquan de xingcheng: Zhangjiashan Han jian yu Qin jian bijiao yanjiu zhi yi” 普遍授田制的终结与私有地权的形成: 张家山汉简与秦简比较研究之一 [The end of the system of universal land allocation and the formation of private land ownership: A comparison between the Zhangjiashan Han bamboo slips and the Qin bamboo slips]. *Lishi yanjiu* 历史研究, no. 5, 49–65.
- Zhang Xiande 张先得. 1985. “Ji gedi chutu de yuanxing jinbing: Jianlun Handai linzhi jin, matijin” 记各地出土的圆形金饼: 兼论汉代麟趾金、马蹄金 [Notes on round gold biscuits unearthed from various sites: A survey of Han-era Qilin toe and horse hoof gold pieces]. *Wenwu* 文物, no. 12, 39–49.
- Zhang, Z. 2013. “Revisiting the AD 28 case from Juyan 居延: How was civil justice different from criminal justice in Han China?” *Journal of Asian History* 47.1, 51–79.
- Zhongguo gonglu jiaotong shi bianshen weiyuanhui 中国公路交通史审委员会, ed. 1994. *Zhongguo gudai daolu jiaotong shi* 中国古代道路交通史 [A history of road transportation in ancient China]. Beijing: Renmin jiaotong chubanshe.
- Zhu Degui 朱德贵 and Xia Hailan 夏海兰. 2013. “Qin Han ‘shaofu’ wenti zhiyi” 秦汉‘少府’问题质疑 [Addressing some questions concerning the Qin and Han ‘Lesser Treasury’]. *Bianjiang jingji yu wenhua* 边疆经济与文化, no. 12, 67–71.



Part III: **Processes**

Lara Fabian

Introduction

In the final section of this volume, we bring the actors and tools discussed in parts I and II together within synthetic considerations of the outcomes of their combined activities. Despite the clear focus on change-over-time in any discussion of outcomes, these chapters build from a treatment of underlying structures with two goals: First, we explore the outcomes of actor-tool interaction in individual regions and how these intersected with institutional structures. Second, we consider how these dynamic developments transformed the circuits of exchange and webs of connectivity, acting simultaneously at a local and regional level, and also in the context of increasingly global inter-imperial, transcontinental connectivity.

What unifies the section is a set of fundamental questions that run under the varied discussions: What changes in economic outcomes did the period from 300 BCE–300 CE bring? What forces drove or underpinned these transformations, and who benefited (or lost) as a result? How did the changes restructure relationships at local, regional, and imperial scales? At the same time, the chapters are considerably more variable in their structure than the rest of the volume – a feature that is not accidental, but instead is a response to both the underlying regional diversity and the diversity of evidence, and to preexisting scholarly discourse. While it was possible to achieve a certain amount of standardization in parts I and II without losing regional resolution, at the macroscale of the ‘Processes’ chapters, such a conceit seemed no longer helpful. In a further departure from previous sections, we have treated the Hellenistic and Roman periods individually here, for despite the many continuities in actors and tools, the cumulative processes are clearly distinguishable.

A consideration of the varied structural choices that shape the chapters offers a helpful overview of our key lines of argument concerning the question of outcomes. Von Reden’s contribution on Hellenistic economies is structured as a set of hypotheses that link development, regional diversity, central factors, and outcomes. Fabian’s treatment of the Arsakid world takes these hypotheses as a starting point, and considers how the picture that emerges from the Arsakid world departs from them. Weaverdyck, writing on the Roman Empire, centers the question of coordination, and examines factors that were centrally enmeshed in shifting patterns of coordination at various scales. In her treatment of Central Asia, Morris selects three specific processes of development and explores both the driving factors that spurred them on and their results. Dwivedi begins by identifying central stimulants of economic change – including social, institutional, and political factors – and tracks their impact on both economic and networking developments. Finally, treating China, Leese-Messing concentrates on the question of consumption and distribution, looking at both the forces propelling them, and those facilitating them.

Processes, finally, are intrinsically diachronic, and it is in these chapters that we deal most directly and comprehensively with questions of temporality and development. In keeping with the perspectives on development laid out by von Reden (ch. 2, II.1) and in an effort to move beyond narratives of economic growth, we approach transformation in expansive ways that stretch from quantifiable developments (e.g., Morris, ch. 13, III; Leese-Messing ch. 15, III), to institutional factors that facilitated coordination (e.g., von Reden ch. 12.A, VI; Weaverdyck, ch. 12.C, V). Keeping in mind the unevenness of globalization discussed by Hoo (ch. 1, IV.2), these chapters also place particular emphasis on the sociocultural and spatial rootedness of the visible transformations (e.g., Fabian, ch. 12.B, III; Dwivedi ch. 14, II).

To pick up on a thread from Hoo's consideration of globalization, what emerges from these chapters is a picture of transformations that were rooted to varying degrees socioculturally or spatiotemporally, but which came to ripple – or perhaps better, to echo – across the vast open networks that knitted Afro-Eurasia together.

12 Mediterranean, Near East, and Iran

Sitta von Reden

12.A Economic Dynamics in the Hellenistic Empires

I Introduction

The Hellenistic economy was a complex interplay of numerous regionally connected economies, on the one hand, and overarching fiscal-military regimes, on the other.¹ The greater fragmentation of the Achaemenid Empire after the establishment of the successor kingdoms created new dividing lines and new political centers in the imperial space of the Afro-Eurasian region. There were now three imperializing monarchies and several breakaway polities that sustained capitals, courts, and armies with the productive capacity of the regions they dominated. Yet despite much regional heterogeneity, the strategies the kings adopted appear to have been similar enough to allow us to approach the Hellenistic world as a connected economic space with recognizable structures that aimed at concentrating imperial capital.² All successor kingdoms inherited common institutions from the Achaemenids, and the innovations they introduced were informed by the same Graeco-Macedonian experience. Differences accrued from long-term local continuities and the multipolarity of the underlying economic systems that continued to mark the Afro-Eurasian region. The economies of Egypt and Babylonia were shaped by strong institutional traditions that had developed over millennia in response to particular ecologies, social contexts, and religious structures. The economies of the city-states of the Mediterranean, western Asia, the Levant and Judaea profited from their civic organization, agrarian hinterlands, and local networks of exchange that had also developed over

1 Chronologically, this chapter covers the third to first centuries BCE. Yet, many of the regions under Graeco-Macedonian domination ceased to be ruled by Hellenistic kings from the mid-second century onward. Macedonia became a Roman province in 169 BCE, Greece and the Aegean by 146 BCE, and the kingdom of Pergamon turned itself over to the Romans in 133 BCE. The Parthian and Bactrian *satrapies* had defected from Seleukid rule by the mid-third century, but arguably remained just semiautonomous for several generations. Yet from the mid-second century Hellenistic Asia transformed. With the expansion of the Arsakids into Media and Mesopotamia, Seleukid Asia was reduced to its Syrian core, while the Hellenistic connections of the Central Asian kings declined together with the growth of Arsakid, Indian, and other connections reaching into the nonsedentary Inner Asian world. The central focus of this chapter is thus the third century BCE, while Hellenistic institutions continued to reverberate in the Greek and non-Greek cities that had developed in the first generations of the Hellenistic period. For the fluidity of premodern empires and many aspects of heterogeneity discussed in this chapter, see Strootman 2019.

2 Haldon 2021 for this notion, and for patterns of imperial economies in comparative perspective.

several centuries. The economies of the Caspian and Bactrian *satrapies* are not well documented, but their lasting military strength after breaking away from the Seleukid core suggests that they also had long-established tributary and economic structures that continued to be effective across periods of imperial rupture. There were, moreover, immense inequalities and imbalances within the Hellenistic Empires. Large mountain ranges and desert regions were hard to penetrate, both politically and physically, and the potential for economic exploitation and control of people from faraway imperial centers must have seemed limited. All economies, furthermore, maintained and expanded relationships of exchange beyond the local and regional level; some economic actors – traders, financiers, and agents of local powerholders – were active in long-distance trade and exchange.

The great challenge of approaching the Hellenistic economy is therefore to balance the effects of the fiscal and military regime of the imperial states, on the one hand, and local responses to this regime, on the other. What were the new, common outcomes of the loosely connected economies under Hellenistic rule? What were the driving factors of these outcomes, and who benefited from them either directly or indirectly? Another challenge is the degree to which the relationships between imperial centers and local economies changed over time. As these relationships became increasingly institutionalized, and as local economies developed their own new dynamics, the Hellenistic economy also developed over time. What were the long-term effects of regime change in the Hellenistic period? And how did they affect circuits of exchange within and across imperial frontiers?

II Models of the Hellenistic Economy

These questions have not been asked since the great prewar economic historians who described the Greek and Near Eastern economies against the background of the globalizing economies of their own times. Following the modernizing historical trend of contemporary scholarship, Fritz Heichelheim and Michael Rostovtzeff believed that, from the beginning of the Hellenistic period, international markets for staples, construction materials, labor, and luxuries developed in the Mediterranean and Near East that supplied the demand of courts and elites in the thriving metropolises of the newly established kingdoms.³ Heichelheim concentrated on the indices for market development, which he detected in related price developments and interest rates extant from Egypt, Delos, and Uruk. According to his analysis, they fluctuated in tandem and according to common economic rhythms. Rostovtzeff proposed a more comprehensive model of political, social, and economic change. The con-

³ Rostovtzeff 1941; Heichelheim 1930; cf. von Reden and Speidel, vol. 1, ch. 17, 704–705 for further discussion.

sumption of the Hellenistic courts, armies, and administrations stimulated new volumes of trade that both served and enriched urban bourgeoisies who were concentrated in the Hellenistic metropolises. The payment of mercenaries, moreover, who were employed in the incessant campaigns of the kings and their dynastic rivals, required massive volumes of coinage that was minted in large numbers of mints across Egypt and Asia. The expenditures of migrating mercenaries oft on the move poured money into local economies that, through the sale of local produce in the market, generated the monetary tribute that fueled international trade. Money and markets drove an economy whose potential was halted only by the lack of integration of local peasantries into this thriving economy. Rostovtzeff adopted a very Greek perspective: It was Alexander and the Macedonian kings, the Greek urban elites, Greek money, and Greek mercenaries that drove economic development, while the rural population and the oriental structure of agrarian organization in the conquered territories undermined the potential consolidation and growth of the imperial economy. In a grand summarizing statement, he emphasized the great division between city and countryside, and between Greek freedom and Oriental state control:

Within the great monarchical states (other than Macedonia) the rulers never succeeded in attaining stabilization and consolidation. They never found a way to escape from the great antinomy in the political, social, and economic life of their dominions, to which the conquest of Alexander had given rise: the conflict between the two leading forms of civilized life, the Eastern and the Western, between Greek city-states and Oriental monarchies – between Greek ‘*politai*’ and Oriental subjects; between the Greek economic system, based on freedom and private initiative, and the State economy of the East, supervised, guided, and controlled. And finally they were faced with the great eternal problem of human society, as acute in the ancient world as it is in the modern: the antinomy between the rulers and the ruled, the haves and the have-nots; the bourgeoisie and the working class, the city and the country.⁴

Rostovtzeff’s ideas were strongly influenced by his disenchanting experience of early twentieth-century Russia, where prosperous urban bourgeoisies thrived, moving toward western capitalism and parliamentarianism in face of a still feudal agrarian empire.⁵ Yet apart from the orientalizing and colonial observation of failed modernization, Rostovtzeff’s model has been rejected on substantive grounds. First, extant evidence for prices, monetization, and market development does not sustain a theory of connected international markets of supply and demand across the Mediterranean and Near East. Second, the urban model that underlies the supposed division of city and countryside does not apply to the ancient world. Ancient cities were agro-towns with a highly permeable urban-rural divide. Urban elites maintained strong social and cultural investments in the countryside, either by combined rural and urban residence, or by the fact that land ownership granted civic status and

⁴ Rostovtzeff 1941, 2:1031.

⁵ See Fabian, vol. 1, ch. 13, 582–584 and 603–604.

reliable social and financial relationships in the urban economy. The Greek *poleis* of the Mediterranean in particular brought about a powerful connection between urban and rural culture. This political and social structure proved very successful in the Hellenistic period, precisely because it linked urban and rural development. And third, the analogy that Rostovtzeff suggests between rulers and ruled, haves and have-nots, is not borne out fully by ancient evidence: tributary extraction was most successful where local and imperial elites combined their interests. Where this collaboration failed, social instability and unrest were the near-predictable consequence.

Scholars of the post-Rostovtzeff age have turned instead to more regional perspectives. This was partly due to the antimodernizing turn following Moses Finley's influential Sather lectures.⁶ Yet it evolved also, and probably more importantly, from the greater disciplinary specialization that marked postwar scholarship. Given the different expertise that is required for understanding Hellenistic Asia Minor, Judaea, Babylonia, and Egypt, as well as other economic regions of the Hellenistic economy, the Hellenistic economy is now an interdisciplinary field of study. The local impact of fiscal administration, monetization, and royal agrarian politics is noted in all regional perspectives, as is the new culture of political communication and urban organization.⁷ Yet the greater specialization of the field has made scholars shy away from attempts to characterize the Hellenistic economy as a totality.⁸ Overall economic outcomes, the behavior of different actors, and the different roles of tools that contributed to such outcomes have become more difficult to fathom than ever before.

This chapter thus proceeds by proposing a number of hypotheses rather than a model for the political economy of the Hellenistic imperial space as a whole. It will start by suggesting indications of economic growth (III), followed by an outline of the temporal and geographical variation of economic development (IV). I will then discuss various factors of change, from a social (V), institutional (VI), and technological (VII) perspective. Finally, I will look at changing circuits of exchange that emerged from the multipolarity of the Hellenistic Empires, on the one hand, and their maritime orientation, on the other (VIII).

III Indications of Growth

There are some indications that the Hellenistic World experienced what has been termed extensive or aggregate economic growth. Extensive growth refers to the pos-

⁶ Finley 1973; von Reden and Speidel, vol. 1, ch. 17, 707.

⁷ As suggested in von Reden, ch. 2, this volume.

⁸ Recent overviews include Reger 2002; Davies 2006; von Reden forthcoming, while Reger 2007; Manning 2007; and van der Spek 2007 concentrate on individual regions of the Hellenistic world.

sibility that the total productive outcome in an expanding imperial space grew. It is much more difficult, and indeed impossible, to show that the productivity of every productive unit grew (intensive growth).⁹ While the total productive outcome of the Hellenistic economies across the empires cannot be assessed, let alone set in relation to previous levels of outcome, the growth of armies and the growth of royal capitals suggest that greater tax income and supplies for urban populations were generated by agrarian development, or that there were more effective ways of concentrating surplus. I will suggest that a combination of both was achieved around royal capitals and in areas well integrated into the royal administrations.

III.1 Growth of Armies

The Hellenistic period was one of not only almost incessant warfare but also growing armies, larger ships and crews, and changing military technology, including catapults, siege engines, and war elephants. Alexander started with an army of 40,000 to 50,000 men,¹⁰ which may be compared to the 13,000 soldiers (plus 16,000 reserve) that the Athenians led into the war against the Peloponnesians.¹¹ Ptolemy IV's army in the battle of Raphia, in contrast, is said to have numbered around 75,000. Antiochus III mobilized 62,000 infantrymen and 6,000 cavalrymen for the same encounter.¹² Kings also experimented with larger and heavier ships. The first 'hexareme' (six-oared warship) is attributed to Dionysius II of Sicily (396–ca. 337 BCE). The fleet of Ptolemy II is said to have included two thirty-oared ships, 1 'twenty,' 4 'thirteens,' 2 'twelves,' 14 'elevens,' 30 'nines,' 37 'sevens,' 5 hexaremes, and 224 'fours,' plus triremes and smaller ships. Possibly the largest of these ships were built just for representative purposes.¹³ Elephants became part of the shock troops of Hellenistic armies. Much of the growing maritime infrastructure along the Red Sea can be explained by the Ptolemies' demand for elephants from Nubia and Aithiopia. The Seleukid supply originated in the border politics between Seleukos I and the first king of the Mauryan Empire.¹⁴

Military costs rose accordingly. Fischer-Bovet has calculated that the annual costs of maintaining the Ptolemaic fleet at war would have reached between 4,000–6,700 *talents* (= 28,000,000–40,200,000 *drachms*), with the land army swallowing

⁹ Von Reden, ch.2, 48–49, this volume, and Saller 2001 for discussion.

¹⁰ Diodoros Siculus (Diod. Sic.) 17. 3–5.

¹¹ Thucydides 2. 13. 5.

¹² For the Ptolemaic army, Polybios (Polyb.) 5. 65 with Fischer-Bovet 2014, 77–81; for the Seleukid figures, Sekunda 2007, 347.

¹³ E.g., Plutarch *Demosthenes* 34. De Souza 2007, 357–367; von Reden 2010.

¹⁴ Bugh 2006; Sekunda 2007 for changing military technology; Sidebotham 2011, 39–53 for Red Sea development and elephant imports; Kosmin 2014, 31–58 for Seleukid Indian diplomacy and the supply of war elephants.

another 6,200–6,700 *talents* (= 37,200,000–40,200,000 *drachms*).¹⁵ Apart from the costs of larger fleets, armies, and new technologies, there was a competition for the highest honoraria to be paid to soldiers on the occasion of victory. Many of these occasions had a highly celebratory character, so that new coinages were minted in the name of a victorious king.¹⁶ After the battle of Raphia, 300,000 gold coins, equivalent to 6,000,000 *drachms*, were distributed to the troops.¹⁷ It is no surprise that the best offers made to mercenary soldiers became a hallmark of royal power in the Hellenistic period.¹⁸

It has often been argued that by the end of the third century BCE, the Hellenistic kings had exhausted their economic potential. There was almost no silver currency left in Egypt; the Antigonids, never a strong economic player after the death of Alexander, succumbed to the stronger Roman armies in two great battles at Kynoskephalai (197 BCE) and Pydna (167 BCE); and the Seleukid Empire quickly disintegrated after the energetic military campaigns of Antiochos III that for a short time recovered the lost *satrapies* in Central Asia and the Middle East. Yet the capacity of the Hellenistic kings to field considerable armies right up to the very end of their political power militates against the argument of economic decline. The Antigonid king Perseus was still able to pay for an infantry of 26,000 men at Pydna despite the fact that the Macedonians had just paid 1,000 *talents* (6,000,000 *drachms*) in indemnities to the Romans.¹⁹ Massive indemnities were also demanded from other states, such as 15,000 *talents* from Antiochos III in 188 BCE, 500 *talents* from the Aetolian league in 189 BCE and 300 from Kappadokia in 188 BCE.²⁰ The Ptolemies no longer expanded their empire after the first three generations, but their financial resources still enabled them to maintain their core, suppress internal warfare, and engage in substantial local building activity.²¹ At the same time, Roman businessmen flooded Eastern Mediterranean markets. Trade and credit flourished when the Romans declared Delos a taxfree port, and Roman provincial governors and tax collectors were able to squeeze enormous amounts of tribute from the eastern provinces from the second century BCE onward. While the political power of the Graeco-Macedonian dynasties declined, the economies of their imperial realms and the fiscal income derived from them continued to thrive. Financial resources to pay for strong armies did not shrink substantially until the wreckage that was caused by the Mithridatic Wars in the first century BCE.²²

¹⁵ Fischer-Bovet 2014, 72, 64–78 for comparison with the Seleukid empire; several comparative discussions also in Burrer and Müller 2008.

¹⁶ Thonemann 2015, 24–42.

¹⁷ Raphia Decree Gr. Text A, ll. 1–20 (Thissen); von Reden 2007, 50 and 76.

¹⁸ E.g., Theocritus *Idylls* 14.

¹⁹ Millett 2009, 503.

²⁰ Chaniotis 2005, 139 for these figures.

²¹ Fischer-Bovet 2014, 114; Manning 2003, 230.

²² Chaniotis 2005; von Reden vol. 1, ch. 1, 47–48.

III.2 Urban Growth

The nature of urban growth in the Hellenistic Empires has been outlined in the previous volume.²³ Large numbers of garrison towns were founded and veterans settled along the routes of Alexander's campaigns. A policy of internal colonization and settlement of soldiers continued under the Successors and early kings, especially in Asia Minor, Syria, and Mesopotamia but also in Egypt, Greece and Macedonia.²⁴ There were several Ptolemaic foundations on Cyprus, Crete, and Cyrene, while some Macedonian and early Seleukid foundations flourished also in Central Asia and Iran. Not all foundations were newly built cities. Some were simply refoundation acts that granted existing cities a royal cult and a new identity in a dynastic geography. Many new settlements were very small. The significance of city foundations, therefore, does not so much lie in their number but in the demographic significance of some of these foundations.

By the third century BCE that some ancient cities exceeded the demographic threshold of 100,000 inhabitants, and these were all royal capitals. The densely populated metropolises of Alexandria, Ptolemais Hermiou, Seleukeia-Tigris, and the Seleukid Tetrapolis including Antiocheia-Orontes were massive by pre-Hellenistic standards.²⁵ Antiocheia-Orontes and Seleukeia-Tigris are estimated to have housed something like 100,000 to 300,000 people, Alexandria possibly as many as half a million by the mid-third century BCE. The populations of central administrative cities of secondary size were still considerable. The hinterland of Ai Khanoum, built in the fertile irrigated Oxus valley early in the Seleukid period, may have supported a population of 20,000 to 30,000.²⁶ In all these cases it was the new centrality of the settlements combined with the expansion of agrarian hinterlands and riverine connections that facilitated their growth. Population sizes of urban centers can only increase, and be sustained, if the negative factors of urban living, such as a greater susceptibility to infectious disease, are set off by an absolute improvement of standards of living.²⁷ This includes not only nutritional and housing standards, but also heating, clothing, freshwater supply, and protection against manmade and natural enemies. The famous splendor of Alexandria, its airy streets and impressive water supply system, show the aesthetic side of this correlation.²⁸

Ancient authors attributed the prosperity of cities to the ingenious vision of heroic founders who had chosen the perfect sites for their towns. The reality was a

²³ Von Reden, vol. 1, ch. 1, 35–39.

²⁴ Millett 2009, for Macedonia under Philipp II and Alexander; Kosmin 2014 for the Seleukid Empire; Müller 2006 for the Ptolemies.

²⁵ Pella, the capital of the Antigonids, experienced its main urban growth at the time of Philipp II and somewhat missed out on the opportunities that the conquests implied; see further Millett 2009.

²⁶ Von Reden, vol. 1, ch. 1, 37.

²⁷ Scheidel 2007.

²⁸ E.g., Diod. Sic. 17. 52. 1–5; Strabo (Strab.) 17. 1. 8–10; Pseudo-Caesar *Bellum Alexandrinum* 5–6.

little more imperial. The well-being of urban conglomerations was not just the product of fertile surroundings and proximity to navigable waterways. Comparative research into premodern urban development suggests several factors that impact the growth of metropolitan cities: imperial (overseas) expansion, regime change, and a changing position in an urban hierarchy.²⁹ Alexandria's growth is the best example for the triangular relationship of maritime expansion, regime change, and the changing position of a city vis-à-vis several rivals. Alexandria was founded by Alexander, Ptolemy I made it the capital of Egypt, Ptolemy II made it the cultural center of a maritime empire, and the economic structures that developed in this course sustained large populations in the long term. The establishment of Alexandria as the royal capital happened at the cost of several other cities that had assumed some centrality in the urban system along the southeastern Mediterranean coast and the Nile Delta: Memphis, Naukratis, and possibly Tyros.³⁰ The rise of Alexandria to the status of a capital was symbolized early on by the transfer of the mint from Memphis to Alexandria and the burial of Alexander's physical remains in Alexandria, which signaled the city's centrality in the Hellenistic imperial space as a whole. The urban development of Alexandria had started before Alexander's death and continued after its establishment as a capital city of the Ptolemies. Its first phase of urban growth, however, was spurred by the rapid expansion of the Ptolemies into Cyrene (321 BCE), Cyprus (312, reconquered in 295/4 BCE), Syria-Phoenicia (301 BCE), and coastal Asia Minor (280/279 BCE). The Ptolemies in Alexandria could draw on the resources of these possessions, most notably bronze from Cyprus, wine and choice products from the Greek islands, subsidiary grain from Cyrene and Syria in times of low domestic yields, and human capital from Asia Minor and the Aegean.³¹ Alexandria's major growth phase is likely to have happened under Ptolemy II (279–246 BCE) when the empire had reached a new peak, with archaeological remains of imperial architecture, such as the subterranean foundations of the Serapieion, the Pharos, and the Heptastadion, dated to the phase.³² The *museion*, library, and court life, founded on Greek cultural experts drawn from the Greek speaking world, also created a major demographic pull to the city.³³

29 Scheidel 2004.

30 The motivations for centralizing Alexandria as a capital city may have been manifold, the competition with inland Memphis, Tyros on the Levantine coast, and the formerly Greek port town of Naukratis being among them; Cohen 2006, 356 for the latter; for competition with Memphis, Strab. 17. 1. 32; Scheidel 2004, 30.

31 Hölbl (1993) 2001, 48 with note 78; Huss 2012, 33–45 for further imports.

32 McKenzie 2011, 41–52; Sabottka 2008 for the Alexandrian Serapieion.

33 The intellectual attraction of Alexandria as a pull factor for immigration should not be underestimated. Egyptians and Jews, willing to express themselves in Greek, also became part of Alexandrian science and court life.

The growth of Seleukeia-Tigris shows similar patterns. The foundation of the town situated on the western bank of the Tigris some 60 km away from Babylon took away the political centrality of the former royal capital. Seleukeia-Tigris was established as a Seleukid capital most likely soon after 312 BCE when Seleukos had taken control of the eastern part of Alexander's empire and created a new temporal era in his name.³⁴ The growth of the city benefitted from the fertility of Mesopotamia, Seleukeia's new centrality in the urban network of the region, and the canal system that facilitated the transportation of bulk goods into the city. New *poleis* were founded under Seleukos I in order to increase agrarian hinterlands. The development of the alluvial plains along the Diyala River, a tributary of the Tigris, is particularly noteworthy in this context, as it shifted the productive gravity from the Euphrates to the Tigris.³⁵ The proximity of Opis situated opposite Seleukeia across the Tigris, called by Strabo the *emporion* of all Assyria,³⁶ may have linked the supply systems of the city into a wider commercial network (though it is possible that this was a later development).³⁷ Scholars tend to attribute the prosperity of Seleukeia to its location on the great trade route between the Caspian Sea and Indian Ocean.³⁸ But there is little evidence that the road between Persepolis and Ekbatana (and possibly beyond) had been intensely used by traders before the Hellenistic period, and there is no evidence that Babylonian priesthoods were particularly interested in the products of long-distance trade.³⁹ Such trade is more likely to have been a secondary development in the course of Seleukeia's growth rather than the reason for its prosperity in the first instance. Of more immediate importance were the connections to the Zagros Mountains and Seleukid westward expansion toward the Mediterranean.⁴⁰ The colonization of Asia Minor and Northern Syria under Seleukos I and Antiochos I, all going along with substantial land donations and agrarian development, also contributed to a better supply and thus population growth of Seleukeia.⁴¹

A considerable degree of administrative, agrarian, and monetary reconstruction in the regions under direct imperial control sustained the size of imperial capitals

34 For different dates for the shift of the capital to Seleukeia, Cohen 2013, 163. Cohen argues convincingly for an earlier rather than later chronology in light of the battle of Ipsos (301 BCE), which shifted Seleukid attention further to the west, resulting in the establishment of another royal capital, Antiocheia-Orontes.

35 Monerie 2018, 218–221.

36 Strab. 16. 1. 9.

37 Cohen 2013, 161.

38 Thus, e.g., Hoo 2018. Henkelman 2017, 137–138, and Briant 2012 for this route and its use by travelers and workers in the Achaemenid period.

39 Aperghis 2004, 73 with McEwan 1981, 199.

40 For the importance of regional trade, Aperghis 2004, 75.

41 Von Reden, vol. 1, ch. 1, 37–38, with Kosmin 2014 for Seleukid settlement policy in Northern Syria.

in the long term. Although none of these changes were motivated by a deliberate policy of urban supply, demographic stability was the effect. Examples are the development of the Diyala valley, just mentioned, and the Fayum in Egypt. The Diyala valley had been irrigated and settled from the neo-Babylonian period onward, but urbanization and irrigation massively increased in the Seleukid period. From the late third century onward, well into the Arsakid period, the population of the area increased from about 20,000 to ca. 300,000 in the first century CE. More people lived in towns and cities, which meant a considerable restructuring of the region from a system of small farmsteads and villages to one of cities with urban hinterlands.⁴² The combined papyrological and archaeological evidence of the Fayum allows detailed insights into the nature of agrarian development.⁴³ Like the Diyala valley, the Fayum Oasis had been settled before, but its cultivable area was considerably extended, which resulted in the growth of numerous local towns and larger *metropoleis*. Making the new land cultivable required the collaboration of Greek engineers and local landlords as well as an existing infrastructure for mobilizing labor that cleared the land of shrubs and built the irrigation and drainage system.⁴⁴ Yet the Alexandrian court stimulated the project by settling large numbers of soldiers in the Fayum and by making land donations to the most trusted friends of the court. In the early years of the project, the district was renamed from *limne* ('the marshes') to the Arsinoite *nome*, thus making it part of a dynastic geography with Alexandria at its center. Agriculture in the Fayum, as in other parts of Egypt, was dominated by wheat production. Yet viticulture received particular administrative attention, and the development of new vineyards was encouraged by a favorable tax rate. The policy had long-term economic effects. From a second-century BCE *apomoira* (tax on vineyards and orchards) account, it has been estimated that the total production of wine in the Fayum was on the order of 220,000 hl.⁴⁵ Depending on average adult consumption rates (ca. 0.5 liter per day) and estimated population figures of the Fayum in the second century BCE (somewhere between 50,000–100,000 adults), such an output would have doubled, if not quadrupled, the estimated consumption of wine in the Fayum itself. Large quantities of surplus wine would have been available for marketing outside the Fayum, as with other products suitable for the Alexandrian market.

⁴² Monerie 2018, 220–221; Manning 2018, 116 for increased irrigation in the Middle Euphrates and Tigris valleys; Adams 1981 for both. Kosmin 2014, 196–197 for further canalization programs; Van der Spek 2000, 31–32 for the use of newly reclaimed temple land at Uruk under Antiochos III.

⁴³ Weaverdyck and Fabian, ch. 8.A, IV.1.2, this volume.

⁴⁴ Thompson 1999a; Römer 2017.

⁴⁵ Clarysse and Vandorpe 1997, 67–70 with *P. Köln* 5. 221 (second century BCE).

IV Rhythms of Change and Geographies of Growth

Economic development did not happen in an uninterrupted upward curve from the beginning of the Hellenistic period to the political decline of individual empires at different times. Such an interpretation would be misleading not just because of the lack of an overall political economy of the Hellenistic imperial space but also because at either end of the period there was much institutional continuity.⁴⁶ Empires have their own temporal structures. Given that we cannot assume a homogenous political economy across the Hellenistic imperial space, continuity and change were also not synchronous in all regions.

Arguably, there was a phase of intense economic transformation during the first 70 years of the Hellenistic period in the new imperial centers, gradually also spilling over to the administrative *metropoleis* of constituencies further away. It needs no further elaboration that the first three generations during and after the conquests, between 330 and about 240 BCE, were marked by a great mobility of soldiers, voluntary and involuntary migration, urbanization, increase of coinage in circulation, and increase in state expenditure.⁴⁷ This was the time when the core regions in Asia and Egypt benefitted from expansion, population politics, and the intense efforts of the Successors and kings to increase their fiscal income by introducing new administrative institutions. The foundation of new administrative centers such as Ptolemais Hermiou in Upper Egypt under Ptolemy I and Ai Khanoum in Bactria under Seleukos I extended the administrative practices of the courts into more remote imperial regions. The settlement of migrant soldiers who did not intend to return home was most intense during this period.⁴⁸ Agrarian reorganization (where it happened), colonization, and strategic refoundation of cities concentrated during these decades. The volume of coinage in circulation did not decrease after this period, but the push of monetization that had been caused by the unprecedented volume of coins put into circulation during Alexander's lifetime was exceptional.⁴⁹

A second and very different period of transformation evolved from the late third and early second century BCE onward. Greater degrees of institutionalization of administrative practices and local adaptations to these practices weakened the central power of the kings vis-à-vis their local constituencies. Roman military expansion into the Eastern Mediterranean began to be felt either directly, as in Macedonia, or indirectly by the greater presence of Italian merchants and Roman diplomats in Eastern Mediterranean cities and capitals. The period from the beginning of the sec-

⁴⁶ See esp. Taasob, ch. 8.B, this volume, regarding the Arsacid Empire.

⁴⁷ Reger 2007; Manning 2007; van der Spek 2007.

⁴⁸ Stefanou 2013 argues that immigration continued to the end of the third century BCE; yet it was most intense in the first 80 years of the Hellenistic period (Clarysse 2019). Chaniotis 2005 and Reger 2007 for Hellenistic migration more generally.

⁴⁹ De Callatay 2009.

ond century onward has therefore often been regarded as one of political and economic decline. Yet the successful campaigns of Antiochos III and continuing stability of Ptolemaic rule in Syria-Phoenicia, Thrace, Cyrene, and Cyprus, combined with continuing urban development (in parts of Asia), local building activity (especially in Egypt), and royal munificence, do not evince economic decline. It is better considered, following Fischer-Bovet, a period of crisis leading to substantial reform.⁵⁰ In Egypt, for example, economic relationships between the rulers and ruled and between the kings and local priesthods were renegotiated, leading to a greater integration of local populations and a more stable institutional framework for economic activity that was shared by a wider range of people. In Seleukid Asia, there was dynastic change during the mid-second century when the local Arsakid dynasty took over the core regions of the empire. Yet Seleukid administrative institutions, law, and money continued to operate and developed further under the Arsakids along the paths that had been set by their predecessors.⁵¹ If economic development in the early Hellenistic period concentrated in the core regions and was driven above all by royal politics, this changed in the second century. Unfortunately, the fragmentary evidence prevents us from gaining a full picture of individual local developments and their interplay.

The empire of the Antigonids – Macedonia, parts of Thrace, Greece and the northern Aegean islands as well as some tribute-paying territories in Asia – profited least from Alexander's conquests. There had been considerable economic restructuring and urban development under Philip II (r. 359–336 BCE), which had allowed him and his successor to build a formidable army. But the impact was limited in the long term, most likely because any fruits of restructuring, most notably the reformation of the coinage and a more intense exploitation of the gold and silver mines, went into the royal army rather than the productive economy at home.⁵² The output of the mint in Amphipolis between 332 and 318/7 BCE was massive.⁵³ Yet much of this coinage was spent elsewhere. Any economic upward trend of this region seems to have ebbed away already at the end of the fourth century BCE. However, the Macedonian economy continued to benefit from the restructuring under Philip. Its particular assets can be taken from the measures the Romans undertook to weaken Macedonia after their victory at Kynoskephalai: They closed the gold and silver mines, prohibited production of timber, and cut up the kingdom into four districts.⁵⁴

The Greek *poleis* in Greece and the Aegean both profited and suffered from the rise of the Hellenistic monarchies. Most if not all of these *poleis* in the Classical

⁵⁰ Fischer-Bovet 2014, 86.

⁵¹ For the great continuities of Seleukid institutions under the Arsakids, see Taasob, ch. 8.B, this volume.

⁵² Millett 2009.

⁵³ De Callatay 2012, 178–179.

⁵⁴ Millett 2009, 503.

period had transformed into monetized market economies in connection with the precarious grain supply of larger cities combined with a great degree of intercity division of labor required for the manufacturing of special local products.⁵⁵ The Athenian maritime alliance in the fifth century BCE, moreover, had yet increased coordinated economic behavior, which continued to affect the Aegean after the dissolution of the alliance. Athenian coinage had become the dominant currency acceptable anywhere in the Eastern Mediterranean and beyond, and was widely imitated.⁵⁶ There were special maritime courts in Athens, open also to all merchants, for the speedy settlement of disputes.⁵⁷ There was a thriving economy of credit and banking across the cities. And the constant need for grain in many of them had created a trade network extending from the Black Sea to North Africa. Yet from the time of the Macedonian rise to power, the treasuries of Greek *poleis* were heavily affected by the new magnitude of military expenditure. Urban infrastructures, harbors, and defensive walls to protect against heavy artillery had to be financed from special funds and the pooling of federal income.⁵⁸ It was typical for Greek cities not to impose regular taxes on their citizens but to rely on harbor tolls, indirect taxes, and the generosity of wealthy citizens to finance collective projects.⁵⁹ Elite donations for protecting the city, repairing walls, or supporting allied cities increased in importance (see below). The general tendency of *poleis* to organize their resources and manpower in leagues expanded considerably in the Hellenistic period and helped to meet increasing military expenditure.⁶⁰ Another source of strength lay in harbor tolls. Not all *poleis* profited from the common two percent harbor tax (*pentekoste*) to the same extent. Yet the large harbors of Athens, Byzantium, Rhodes and Delos massively did so. Athens had been able to finance the entire final phase of the Peloponnesian War with the harbor dues of its allies. By the beginning of the second century BCE, Rhodians claimed to have had an annual income of almost one million *drachms* (127 *talents*) from harbor taxes.⁶¹ Although we do not know figures from other *poleis*, there can be no doubt that cities with a strong maritime orientation profited much from increasing volumes of trade in the Eastern Mediterranean from the Hellenistic period onward.

Archaeological evidence combined with a strong statement by the historian Polybios has been taken to indicate that economies of Aegean *poleis* suffered from

55 Bresson 2016, 299–381; 2011 for the distributional capacity of Greek cities at times of food shortage; von Reden 2019, for discussion and further bibliography on all these developments.

56 Van Alfen 2005.

57 Weaverdyck and Fabian, ch. 8.A, III.1.4, this volume.

58 Chaniotis 2005; Van Alfen 2005 for the expenses for repairing walls.

59 Chaniotis 2005, 115–142; Boehm 2018, 93–97; Bresson 2016, 345–350 on the effect of market exchange on the volume of harbor tolls and market fees.

60 Mackil 2013.

61 Polyb. 30. 31. 12.

the military and political transformations of the Hellenistic period.⁶² The interpretation of the evidence is by no means straightforward. Polybios states that cities were deserted and fields had become unproductive (Polyb. 36. 17. 5–6). Yet this statement is part of a complaint about low birth rates and changing attitudes to marital relationships, and may not be based on morally neutral observation. There may have been also changing patterns of landholding and settlement, with more dispersed plots of land being cultivated from fewer sites. By the second half of the fourth century BCE, magnificent and lavishly furnished private houses and tower farmsteads appear in the Athens and Attica, suggesting that some estate holders profited from new agrarian strategies, at least in Attica.⁶³ More conspicuous consumption of political elites continued in the Hellenistic period, with wealthy citizens showing off their spending power through impressive funerary monuments, golden statues, generous spending on public buildings, contributions to the grain supply, festivals, city walls, and porticos surrounding Hellenistic agoras. *Euergetism* and the public display of status which benefactors gained in return for their generosity became a structural pattern of Hellenistic *poleis*.⁶⁴ Men of economic power had started to dominate political life from the late fourth century BCE onward, and continued to do so in the Hellenistic period.⁶⁵ A recent analysis of floor plans of Hellenistic houses (as proxy for standards of living) suggests, however, that the greater prosperity of the elite did not happen necessarily on the costs of poorer people. On the basis of samples from Delos and Olynthos (on the Macedonian Chalkidike), Geoffrey Kron has argued that with an increase in the size and luxury of some elite and sub-elite houses, median house size slightly declined, but the trend was modest. This evidence reflects continued widespread prosperity and greater poverty for only a small part of the population.⁶⁶ More research of this kind is needed, but if the example is representative, the greater luxury of elite displays combined with the relative stability of general standards of living suggests a rather robust economy of the Greek cities until the beginning of the first century BCE.⁶⁷

In Asia and Egypt there was marked, though probably regionalized, economic development and growth of markets in connection with the growth of the royal capitals and the settlement politics of the kings.⁶⁸ The cities of Seleukid Asia and

⁶² Alcock 1993, 33–92 for the archaeological evidence of *poleis* in the Argolis; Reger 2007, 466–468 for discussion.

⁶³ Lohmann 1995.

⁶⁴ Reger 2007, 472–474.

⁶⁵ Von Reden 2021 for discussion and further literature on this tendency.

⁶⁶ Kron forthcoming. For continuous prosperity of the cities in Asia Minor, Walser forthcoming; for increase of number of sites, especially toward the east, Alcock 2007, 681.

⁶⁷ Thus Bresson (2007–2008) 2016 for the classical and Hellenistic period; Alcock 1993, 13–14; and Chaniotis 2005, 140 suggest heavy destruction and economic decline in the Greek cities from the mid-second century onward.

⁶⁸ To judge from their minting activity, Susa and Ekbatana remained flourishing urban centers in the Seleukid period.

Egypt grew into large consumption centers from which the economies of their immediate hinterland as well as regional and interregional trade profited. Kings settled soldiers in particular areas where land was either desolate or newly developed for this purpose. They made land donations to high-ranking officials and granted tax relief to cities and harbors, which encouraged economic activity. They interfered with agricultural and commercial practices where they expected to raise tax income. Examples are the land grants and development scheme in the Fayum by Ptolemy II, those on the island of Failaka in the Arabian Gulf, around cities in western Asia Minor and Phrygia by Antiochos III, and the regulations that Antiochos III passed in Babylonia to raise the productivity of land planted with dates.⁶⁹ New cities were founded in fertile regions of northern Mesopotamia and northern Syria. In Parthia, cities were founded in the oases of the Elburz and Kopet Dag ranges, others in the fertile valley of Hyrkania.⁷⁰ Tax exemption was granted, for example, to Jerusalem and Judaea by Antiochos III, Demetrios I and II, and by Antiochos III to Herakleia.⁷¹ City foundations, land grants, and tax remissions were part of royal diplomacy and cannot be regarded as targeted economic strategy.⁷² They did have economic effects, however. They brought additional land under cultivation, created incentives to participate, allowed better control of free-floating resources in local constituencies, and resulted in administrative integration and market development within particular circuits of extraction and exchange.⁷³ Yet if we look at the Hellenistic imperial space as a whole, they nevertheless seem to have been relatively localized.

V Social Contexts of Change

When looking for agents of change in the Hellenistic economy, scholars have naturally turned to Greek actors – courts, kings, elites, armies, and immigrant settlers. Rostovtzeff's model has been cited above. The growth of the royal capitals in Asia and Egypt with significant Greek-speaking populations seems to point in similar directions. The Belgian papyrologist Jean Bingen, moreover, has argued that especially Greek immigrants, skilled in the use of money and markets, introduced new entrepreneurial strategies into the economy of Egypt which up to then was characterized by weak markets and low degrees of monetization. As tax farmers and agrar-

⁶⁹ Van der Spek 2000; Ma 2013.

⁷⁰ Aperghis 2004, 90–91 for these and other city foundations in fertile territories.

⁷¹ Aperghis 2004, 168–171 with Josephus *Antiquitates Judaicae* 12. 138–144; 13. 49–53; 1 *Maccabees* 2. 34–35; Herakleia: Mileta 2008, 47 with *I. Ilion* 33, 47–48.

⁷² Aperghis 2004, 91 goes too far in suggesting a cohesive economic and fiscal policy in Seleukid land grants and urban foundations.

⁷³ Ma 2013, 344; for the importance of free-floating resources as an imperial asset, Manning 2010, 125 with Eisenstadt (1963) 2010, 33 and 121–124.

ian middlemen, well-off Greek civilians invested money into the purchase of tax companies, or gave advance payments of rents to landholders that were short of cash, so as to make a profit from the margins to be earned.⁷⁴ Their activities were typical examples of entrepreneurial strategies we identified as portfolio-capitalism in chapter 2 of this volume.

While the economic impact of Graeco-Macedonian immigrants, royal capitals, Greek coinages, and the development of hinterlands in the course of Greek-style urbanization cannot be denied, it would be wrong to focus just on Greek populations as agents of change in the Hellenistic Empires.⁷⁵ The proportion of Greek immigrants, many of them being ordinary soldiers and mobile civilians, among the populations of Asia and Egypt was in fact quite small. For Egypt, it has been estimated at 5 to 10 percent, including Alexandria, of an estimated total population of about 4 million.⁷⁶ Total estimates, however, conceal important local variation. In the Fayum, the number of Greek military settlers was around 15 percent plus perhaps a further 15 percent of civil tax Hellenes (a category of privileged tax payers that included some Hellenized non-Greeks). The number of Greek Alexandrians is more difficult to calculate, but if the size of the city was in the range of half a million, a concentration of Greeks in this hypertrophic urban center implies that in large parts of Egypt, the number of Greeks was negligible.⁷⁷

The ways in which Greek presence influenced local economic cultures and agrarian systems has taken center stage in research on the Hellenistic world. First, the strong opposition between Greek and ‘oriental’ economic behaviors that informed Rostovtzeff’s and to some degree still Bingen’s research has been abandoned in favor of more detailed analyses of control over land and people and their gradual transformation in different parts of the Hellenistic world.⁷⁸ In particular, scholars have focused on different categories of land – royal, temple, civic, and private – to which the kings had different claims.⁷⁹ There has also been a greater emphasis on varying degrees of change. While there were regions where administrative changes had considerable effect, such as in Lower Egypt, Syria, or Asia Minor, there were also remoter regions where administrative change happened far more gradually. Given the small proportion of Greeks that were present in the conquered territories, more emphasis is now put on the adaptation of Greek institutions to local

74 Bingen (1978) 2007b.

75 Fabian and Weaverdyck, ch. 3.A, III, this volume.

76 Fischer-Bovet 2011; Rathbone suggests about 10 percent. Clarysse 2019 expresses some doubt about the low figure.

77 Aperghis (2004, 56–58, cf. 247–8) has estimated population figures for Seleukid Asia, yet on the basis of very different data. He suggests a total number of people under Seleukid control in the range of 20 million in 280 BCE. The proportion of Greeks in this total cannot be compared to that of Egypt, as the Seleukid Empire included a large number of traditionally Greek cities in Asia Minor.

78 Manning 2003; Capdetray 2007; Mileta 2008.

79 Monerie 2018, 217 comparing royal land in Egypt and in Babylonia.

conditions, and on the ways immigrant and nonimmigrant populations and elites interacted in creating new institutional forms.

None of the actors considered in chapter 3.A of this volume were culturally or socially homogenous. They became increasingly mixed collectives that were open to newcomers. If we ask what was new in the Hellenistic economy, we must focus on how these collectives transformed and interacted in their mutual interest. In the early years of Hellenistic rule, the conquerors were confronted with a number of status groups. Such were the Greek-speaking *poleis*, *demoi* (cities without the status of *poleis*) and *ethne* ('tribes') in Asia Minor, the *dynasteis* ('kings') in various vassal kingdoms and imperial constituencies, or the priesthoods in Egypt, Judaea and Babylonia.⁸⁰ In addition, there were the military status groups, infantry and cavalry, whose status was reflected in the agrarian economy through the allotment of differently sized *kleroi* (land grants). A further status group was the holders of large estates, being either attached to temples or, as gift estates, to the royal courts. The kings themselves were holders of large estates (the royal land) and thus particularly powerful players in this latter group. All status groups, except landless occupational groups (which in the Egyptian tax records were referred to by the term of *ethne*), were defined by particular titles to land, and in some cases, territorial rights and rights over people. Status groups structured the fiscal administration and were the addressees of royal edicts, correspondences and administrative intervention. They were also important factors in taxation and the legal system.⁸¹ Most importantly, transfers of land and interpersonal credit operations happened most typically within particular status groups or between people bound as agents into their hierarchies. This created some social restrictions to economic activity, especially on the transfer of land. But it also created trust in transactions among people belonging to the same status. The prevalence of economic activity within status groups, in short, constrained the growth of free markets in land, labor, and credit, as well as the development of strong 'middling' social groups.⁸² Yet given that status groups also provided trust within new social and economic environments, they reduced costs of transactions, and facilitated communication between central and local economic activities.

The ability to act across status groups created interesting further dynamics in the Hellenistic economy. Kings collaborated with civic proprietors, local aristocrats, dynasts and priesthoods both in their capacity as landlords and as fiscal overlords in order to negotiate control over local income, populations, and resources. Local elites had their own interest in collaborating with the kings that not only strength-

⁸⁰ Capdetray 2007, 90–91; Musti 180–181; Manning 2007, 450–451.

⁸¹ The Ptolemaic tax system, for example, favored Hellenic status, which included not just Greeks but also non-Greeks; Clarysse 2019.

⁸² See, in contrast, the Roman and Han Empires, Weaverdyck ch. 12.C and Leese-Messing, ch. 15, this volume.

ened their local social power but also offered support in times of crisis. Both the kings and local elites orchestrated moments of demonstrative cooperation that bridged the gap between cultural and religious differences between them. Such moments were festivals and processions, worship of common gods, ruler cult, invention of common histories, and expressions of common decisions in multilingual inscriptions.⁸³ In the context of such events, incentives to cooperate were encouraged and reinforced by the bestowal of gifts from the kings, special rights, and fiscal privileges. Such expressions of goodwill were reciprocated in the form of inscriptions praising the privileges granted, by honorific decrees, and statues to the kings.

At a less conspicuous level, cooperation between Greek immigrants and local populations happened in the context of households, local *metropoleis*, temples, armies, and military settlements. Such cooperation was indispensable for the successful development of agriculture, irrigation, and administration, especially in regions of intense Greek settlement.⁸⁴ Social upward mobility and the chances to broaden one's sources of monetary gain and agricultural income were the most important incentives for local populations.⁸⁵ Many individuals cut across their status groups by their involvement in administrative and economic contexts dominated by Greeks, while remaining firmly grounded in their own cultural tradition.⁸⁶ There developed also an entirely new, supralocal status group that was not so much constituted by common social or military backgrounds but by reference to specifically Greek cultural behavior and ideals – a typical globalization process that Grewal refers to as network standardization.⁸⁷ Thus, while notable cultural and sociopolitical distinctions persisted, cosmopolitan elites and “cultural brokers” developed forms of communication and interaction that allowed cooperation and economic relationships across status groups.

Local power holders could be extremely effective in operating across status groups. A particularly instructive example is the history of a powerful local dynasty, the Toubiads, who controlled large agricultural territories in Transjordan.⁸⁸ Several

83 Fischer-Bovet 2016, for Egyptian transcultural festivals, gods, multilingual decrees, and shared collective memories; Hauboldt 2016 for shared histories; Sherwin-White 1991 on the Antiochos cylinder as an expression of shared goals of the kings and the priesthood of Nabû/Ezida in Babylon; Johannsen 2020, on the building inscriptions of the Milkashart temple in Hammon/Um-el-Hamed near Tyros.

84 On tax collection, Thompson 2001; on agriculture and irrigation, Thompson 1999a; 1999b; Römer 2017.

85 Fischer-Bovet 2014, 318–319 for people working both in Egyptian temples and the army; Lewis (1986) 2001, 104–136 for the economic advantages of cooperation in the administration.

86 For an example for this much explored social phenomenon, Lewis (1986) 2001, 88–103; generally, Clarysse 2019; and Hauboldt 2016.

87 Von Reden, ch. 2, this volume; for the development of this status group, von Reden, vol. 1, ch.1, 28; Ma 2013; Hauboldt 2016.

88 For other individuals bridging Greek and Egyptian culture, Fischer-Bovet 2016, 124–128; Johannsen 2020, 297–311; for cultural brokers, Kettering 1986.

representatives of the Toubiad dynasty are known to us over a period of 200 years. Already under Artaxerxes I (465–424 BCE) one Toubias held the important position of ‘servant of Ammon’ in the province of Ammon, also called the Ammonites in the Old Testament.⁸⁹ In the early third century BCE, when the region across the Jordan River was under Ptolemaic control, another Toubias of the same family appears as local dynast in control of large stretches of land. According to several of the Zenon papyri, he held an important position as an eponymous officer commanding cavalry and infantry soldiers that called themselves by his name.⁹⁰ Also entertaining diplomatic contacts with the Ptolemaic court, Toubias sent gifts accompanied by Greek letters to Ptolemy II. In one dispatch, a eunuch and four boys were sent to Alexandria; in another, horses, dogs, mules, and asses.⁹¹ Yet the connections of the Transjordan dynast with the Alexandrian court did not end with diplomatic gifts. Two of his agents, one of them a Greek immigrant, also had business with Zenon, at that time traveling agent of Apollonios the *dioiketes* of Egypt. As might be unsurprising in this Hellenized context of interaction, the three agents made an agreement in Greek contractual form:

[In the reign of Ptolemy] son of Ptolemy and of his son Ptolemy, year 27, [the priest] of Alexander and of the Brother and Sister Gods and the *kanephore* of Arsinoe Philadelphos being those in office in Alexandria, in the month of Xandikos, at Birta in the Ammanitis: Nikanor son of Xenokles, Knidian, in the service of Toubias, sold to Zenon son of Agreophon, Kaunian, in the service of Apollonios the *dioiketes* a [Babyl]onian (or [Sid]jonian?) named Sphragis, about seven years of age, for 50 *drachms*. [Guarantor ...] son of Ananias, Persian, *kleruch* of the troop of Toubias. Witnesses [...] *dikastes*; Polemon son of Straton, Macedonian, *kleruch* of the cavalrymen of Toubias, Timopolis son of Botes, Milesian, Herakleitos, son of Philippos, Athenian, Zenon son of Timarchos, Colophonian, Demostratos, son of Dionysos, Aspendian, all four in the service of Apollonios the *dioiketes*.⁹²

The guarantor and one of the witnesses were members of Toubias’ troops; four other witnesses were in the service of Apollonios. This shows the degree of social in-group behavior that we mentioned as structurally typical for the Hellenistic economy.⁹³ At the same time, Toubias was neither Greek nor was he a direct subject of the Ptolemaic king. Zenon’s men when traveling through his territory describe it as “the

⁸⁹ Nehemiah 3. 35; for a historical reconstruction of the Toubiads, Pfeiffer 2011; Johannsen 2020, 336–338.

⁹⁰ For Toubias’s position of eponymous *strategos*, Pfeiffer 2010.

⁹¹ *P. Cair. Zen.* I, 59075 and 59076; trans. in Bagnall and Derow 2004, no. 65.

⁹² *P. Cair. Zen.* I, 59003 (May 259 BCE) = Durand 1997, no. 3; trans. Bagnall and Derow 2004, no. 143, with minor adaptations; for *dioiketes* (top financial administrator in Alexandria), *dikastes* (judge), and *kleruch* (military settler), see von Reden, vol. 1, ch. 1, 33–34. The *kanephore* (basket bearer) was the eponymous maiden in the cult for the Ptolemaic dynasty and part of every official dating formula.

⁹³ Terpstra 2019, 83–124.

territory of Toubias.”⁹⁴ Apparently, Toubias enjoyed considerable autonomy and control over people while being the commander of an army in the service of King Ptolemy. The gifts he paid to the Ptolemaic court were part of the way he negotiated his role in the Ptolemaic imperial state. Yet the business relationships his agents maintained with the agents of the Ptolemaic *dioiketes* were voluntary and in his own social and economic interest. If Johannsen is correct in his recent analysis of Ptolemaic Syria, the territory of the Toubiad family, unlike the surrounding areas, shows exceptional settlement continuity from the Persian to the Hellenistic period. This continuity, Johannsen suggests, was indicative of the social and economic success that resulted from the opportunities the Toubiad family gained from combining their local economic power with the benefits that resulted from acting in the imperial service.⁹⁵

The formation and transformation of particular status groups would not have been possible without a great degree of geographical mobility and social change. In the Greek cities of the Classical period, for example, civic status and landed property had been determining factors for an influential and prestigious career in politics. Land ownership remained an important priority in the Hellenistic period, but wealth earned in trade, manufacture, or banking allowed individuals to increase their political status. Grants of citizenship to outsiders became more common, and an increasing number of people could gain double citizenship. Noncitizens, such as women, resident aliens and slaves, became more visible – and valued – by being included in civic rituals that became crucial moments of urban life.⁹⁶ Festivals, processions, and common feasting, often generously financed by wealthy benefactors, were now by no means exclusive to male citizens. Many foreign residents (*metics*) were awarded with citizen rights or improved legal status, which could include the right to hold land, exemption from taxes and from customs, marriage rights, and access to the local law courts.

There were several reasons for greater mobility and political reintegration. The most important one, of course, was the army. Recruitment was not by force, nor through patriotism, but through economic incentives. The Hellenistic kings, and independent cities following their model, pursued a combined military and settlement strategy in which the award of land attracted individuals to leave their home, while at the same time providing for the courts a loyal fighting force in strategically useful places. In Egypt they were settled in selected areas along the Nile valley and in Asia in colonies endowed with a fertile hinterland. In Egypt, these settlers obtained a privileged tax status, and in Asia, the colonies of soldiers could attain the status of a *polis*, which also entailed improved fiscal and political status. Thousands of mercenaries were attracted by the prospect of land ownership. In some cases,

⁹⁴ *P. Zen. Pal.* 6, 175–176 with Johannsen 2020.

⁹⁵ Johannsen 2020, 338–339 with Ji 2001, and Ji and Lee 2004.

⁹⁶ Von Reden 2021.

they came in large groups. We happen to have a series of inscriptions that tell us about some 1,000 Cretans who had been called by the Milesians to serve in their army and were subsequently invited to settle in newly conquered territory.⁹⁷ The Cretans who came with their families were given Milesian citizenship rights with full control over their land. The generosity was explained by the long-term kinship between Cretans and Milesians. There may also have been economic push factors at play. As Chaniotis suggests, economic opportunities in Crete were in decline at the end of the third century due to overpopulation and land concentration.⁹⁸ Military service did not just offer opportunities for individuals but propelled the expansion of economic opportunities in an expanded imperial world.

Other mobile groups also benefitted from the expansion of opportunities, including artisans, doctors, and artists. While these had been typically mobile occupations in previous centuries, the wider geographical radius and greater demand for particular styles, skills, and expertise spread more people more widely. Local festival cultures, ruler cult, and games in all parts of the Hellenistic world required dancers, actors, and musicians, while the spread of Greek art and monumental building affected the mobility of sculptors, carvers, metalworkers, and so on. The greater specialization of skills and mobility of artisans can also be seen archaeologically in the increase and greater spread of fine pottery styles and amphora stamps stating the origin of transport containers that appear in much greater numbers and more widely distributed.⁹⁹

VI Institutional Change, Fiscal Regime, and Incentive Structures

The constituencies of the Hellenistic Empires have revealed very different kinds of institutional change. In the old Hellenic *poleis*, institutions that responded to greater community interaction and integration, such as *synoikism* (merging of *poleis*, usually under the supremacy of one of the cities), *proxenia* (grants of the status of ambassador to individuals), and agreements of *isopoliteia* or *sympoliteia* (mutual citizenship rights in two or more *poleis*) have been discussed as responses to greater mobility, more intense relationships between *poleis*, and a response to greater financial and economic hardship as they allowed coordinate action and sharing of resources.¹⁰⁰ In the context of the cities in Asia Minor, the effects of the grants of

⁹⁷ Chaniotis 2018, 308–309 with *Milet.* 6.1, 33–38; Daubner 2011 for further examples of resettlement and invitation to citizen rights.

⁹⁸ Chaniotis 2018, 308–309.

⁹⁹ Chaniotis 2018, 309–310.

¹⁰⁰ Reger 2007; Mackil 2013, 264–325.

land to the cities by Alexander have received particular attention. Through a clear demarcation of royal land vis-à-vis the land of *demoi*, *ethne* and *poleis*, the king had full control over the management and income of his own royal land while allowing a high degree of fiscal autonomy and property rights over land to the urban communities.¹⁰¹ A notable increase of urbanization in the region and greater opportunities for trade and exchange seem to have been the effects of this policy.¹⁰² In the cuneiform documentation of Babylonia, relatively little institutional change has been detected down to the early second century. Yet there was more intense use of coined money instead of weighed silver and a gradual adoption of Greek contractual forms that offered to the contractual partners a greater chance to claim their rights.¹⁰³ The economic effects of such changes are difficult to assess. Commercial exchange and market integration had been highly developed in the pre-Hellenistic period and remained so in the Seleukid and Arsakid periods. Land could be conveyed, yet full property rights were still encumbered by ownership rights of temples, a network of noble families, and the king.¹⁰⁴

In Egypt, where the papyrological evidence provides the best conditions for studying institutional change, several changes are regarded as the most significant in the long term:¹⁰⁵ The introduction of a general coinage resulted in a much greater degree of monetization and flexibility of money use. The plurality of legal traditions led to new contractual arrangements and improved enforcement of contracts. The land tenure regime led to better opportunities to mobilize labor and money. The bureaucratization of the fiscal administration (land registration, census lists, accounting, issuance of tax receipts, etc.) also affected the administration of large estates. In combination, these changes created stronger and more reliable state structures and facilitated the coordination of financial resources, production, consumption, and trade at a nonstate level.¹⁰⁶ Yet the economic impact of such changes was still limited in comparison to those of the Roman period. A still rather high tax burden and restricted property rights resulting from entrenched social conventions and institutional claims of ownership of land, not just by the king,¹⁰⁷ discouraged investment in land and other assets, while a formal judicial infrastructure that ensured the enforcement of contracts or protected cashless monetary instruments also remained limited.¹⁰⁸

101 Mileta 2008; for contrast with the Achaemenid period, Walser forthcoming.

102 Walser forthcoming.

103 Monerie 2018, Klinkott forthcoming; van der Spek 1995 for the use of Greek contractual forms.

104 Van der Spek 2014, 225.

105 Weaverdyck and Fabian, ch. 8.A, this volume; see also the excellent discussion in Manning 2005; cf. Manning 2003; 2010. For monetization and monetary instruments, von Reden 2007, 181–204.

106 For more reliable state structures, Manning 2010.

107 Monson forthcoming.

108 Manning 2005; 2012; forthcoming for the former; Terpstra 2019 for the latter; von Reden 2007, 290–294 for the limits of giro transfer in the Ptolemaic period.

The fiscal demand of the imperial states was the single most powerful institutional interference in local economies.¹⁰⁹ Initially addressing an intermediary level of the administrative hierarchy, the Hellenistic kings soon penetrated more deeply into the economic fabric of local economies.¹¹⁰ A greater interest in the fiscal coordination of larger political spaces is probably best reflected in Ps.-Aristotle's *Oikonomika*, which can be read as a theoretical manual systematizing the fiscal levels and range of taxes that existed in the post-Achaemenid empire. It is a broad-brush order of different categories of revenues of a royal (imperial) household subdivided into *satrapies* and cities, enriched by a collection of tricks gathered to demonstrate how kings, tyrants, and cities could collect money and special taxes in extraordinary circumstances. In practice, the Hellenistic kings did not impose a fiscal grid on their empires, nor did they cheat their members into contributions they were unwilling to pay. Such strategies would have exceeded the network power of the foreign rulers and risked local unrest. It is interesting to observe, in contrast, that the kings – apart from benefitting from the hierarchical and military structures on which their ‘spear-won’ empires rested – made great efforts to establish an infrastructure of communication and to make local economies gradually more ‘legible’ to them.¹¹¹ This involved ritualized gatherings with local elites, communication in the form of royal orders and letters, and above all interaction and reciprocity: *do ut des*.¹¹² Greater legibility was achieved by the establishment of a common terminology for local fiscal institutions, the establishment of Greek coinage as a general unit of account and medium of exchange and payment, and the standardization of a range of direct and indirect taxes. Beyond this, the kings relied to a large extent on knowledge and practices embedded in local experience, meaning that they built on existing fiscal practices and instruments, gradually changed them, or translated them into their own administrative idioms.¹¹³ A good example of the latter is the famous “Letter to an *Oikonomos*,” discovered among the Tebtunis papyri in Egypt.¹¹⁴ The form of this letter of instruction is regarded as pre-Ptolemaic, but under the Ptolemies it turned into a means of carefully supervising taxable assets such as cultivated land, animals, and royal monopolies in order to maximize the fiscal revenue of the king.

An important aspect of Hellenistic fiscal politics was the negotiation of rights over assets through offers of tax relief and self-governance. The Hellenistic kings were confronted with different sociopolitical systems, and they dealt with the differences accordingly. As we just said, already Alexander had granted the cities of Asia

109 For detailed discussion, Weaverdyck and Fabian, ch. 8.A, II, this volume.

110 Monson forthcoming, also for the following.

111 Monson forthcoming with Scott 1998.

112 Ma 2000, 106–235 for Seleukid Asia Minor; Manning 2019 for Egypt. For the role of priestly synods, von Reden, vol. 1, ch. 1, 30.

113 Again Scott 1998.

114 *P. Tebt.* 703.

Minor a high degree of autonomy by separating a civic *chora* from royal land.¹¹⁵ A clear distinction between revenues designed for the civic treasury (*to politikon*) and for the king (*to basilikon*), however, remained. Royal revenues could be waived or ceded to the civic treasury by acts of royal benefaction.¹¹⁶ The Seleukids also tended to avoid the term *phoros* ('tribute') in a civic context, replacing it with the more euphemistic term *suntaxis* ('contribution') instead.¹¹⁷ In Judaea, royal taxes and tribute were not collected directly but farmed out to a hierarchical pyramid of tax farmers and local rulers, thus maintaining a system of taxation by intermediaries that was abandoned in other parts of the Hellenistic world.¹¹⁸ In the *nomes* of Lower Egypt and the Delta, the Ptolemies were able to establish a rather direct system of taxation based on land surveys and census lists run by the local branches of the royal administrations. Only monetary taxes and income from the state monopolies were auctioned to tax farmers, the function of whom was not so much to create a space of autonomy as to guarantee a stable monetary income to the treasury. The larger part (in terms of aggregate value) of taxes on grain land and grain harvests were collected in kind by the royal administration directly.¹¹⁹ In the Thebaid (Upper Egypt), by contrast, the temples remained major administrative institutions down to the late third century BCE. Although being subordinate to an *epistates ton hieron* ('supervisor of the temples') who was a royal functionary, temple personnel (*arch-hiereis* or *lesoneis*) collected the rents and taxes from the vast temple estates from which the temples still drew considerable income.¹²⁰ Only after the great revolt of the Thebaid were temple scribes replaced by royal scribes, and temple granaries became royal granaries.¹²¹ The situation was yet again different in Babylonia, where the Seleukids inherited separate royal and temple administrations from the previous Neo-Babylonian and Achaemenid regimes.¹²² Since the Neo-Babylonian period, there had been a royal official (*epistates* in Greek) who oversaw the economic, administrative, and judicial activities of the temples. In the Hellenistic period, this official was still active, although he was no longer a member of the Seleukid administration but was drawn from the temple staff itself.¹²³ In total, these flexible policies made self-governance and control over taxes and income negotiable assets, which granted local constituencies a degree of agency in the arrangement of their economic affairs, though not complete autonomy.

115 Mileta 2008, and above.

116 Monson forthcoming.

117 Aperghis 2004, 149.

118 Monson forthcoming.

119 Monson 2019, forthcoming; Manning 2007.

120 Monson 2019, 154.

121 Vanderpe 2000 for a detailed analysis of this transformation.

122 Clancier and Gorres 2021.

123 Clancier and Gorres 2021 with examples from the Rēš temple at Uruk and Esagila in Babylon.

For some reasons that are not yet fully explained, Hellenistic cities, confederacies, and other corporate bodies developed *polis*-like institutions and forms of communication in the course of the Hellenistic – and early Roman – periods.¹²⁴ The process by no means happened at the same time and to the same degree everywhere. Most of the newly founded garrison towns strove for the grant of *politeia* (*polis* status) throughout the Hellenistic period as it brought with it the chance of being addressees of royal grants and other kinds of munificence. Greek city leagues (*koina* or *sympoliteiai*) coordinated their institutions to express themselves in common. Polybios (mid-second century BCE) enthusiastically praised the Achaean League for their common *pragmata* – their ability to act in common like a single *polis* – using the same laws, coinages and institutions.¹²⁵ Many old cities, most famously Jerusalem and Susa, had an assembly, council, magistrates, and municipal law by the Roman and Arsakid period. New Hellenistic cities and refoundations of preexisting towns developed *polis*-like urbanism and monumental buildings like theaters (functioning as meeting places for popular assemblies) and *gymnasia* (where adolescents served the *ephebeia*, i.e., civic-military training, as a precondition for citizenship) from the time of their inclusion into the royal geography.¹²⁶ In the royal capitals, where the courts created their own political infrastructures alongside the *polis* organization of the cities, *polis* institutions and the citizenry became more influential in the course of the later Hellenistic period. In the city of Babylon, a collective of *puliṭê/puliṭanu* (= Gr. *politai*, citizens) appears in the time of Antiochos IV as a civic assembly that acted either separately from, or overlapping with, the Babylonians who were ruled by the Esagila temple and the old Babylonian nobility.¹²⁷ From that time onward, it appears that the importance of Esagila as the main interlocutor of the king inside Babylon declined, political responsibilities shifted from the Babylonians to the *puliṭu*, and from the role of the *šatammu* to that of the *epistates*. The old Esagila temple organization continued to exist but with little power left.¹²⁸

124 In the past, the phenomenon was understood in terms of Hellenization, but this explanation has become unsatisfactory with a changing perspective on the concept of Hellenization and its colonial undertones. Out of a vast bibliography, Chaniotis 2018, 122–147 summarizes key aspects in a broad overview; Clancier 2017 on Bablyon; Tcherikover 1964 for the *polis* status of Jerusalem; Mitchell 2017 on cities in Anatolia; Cohen 2006 and 2013 for summary evidence of *polis* institutions in individual cities.

125 Polyb. 2. 37. 10–11. This, of course, was an ideal rather than a reality, but shows the desire for community building under changed political circumstances; see Mackil 2013, 5 note 15 on this passage.

126 See also Weaverdyck and Fabian, ch. 8.A, II.2.2, this volume, and Boehm 2018.

127 See also Taasob, ch. 3.B, this volume.

128 Clancier 2017, 80, and *passim* for the controversial issue of the ethnic composition of the citizenship and their relationship with the assembly of the Babylonians; for an alternative view, i.e., that Babylonian *politai* remained a distinct political group acting vis-à-vis the assembly of the temple, van der Spek 1987.

The development of Greek-style institutions in Babylon and elsewhere, shows the role of political assemblies, not necessarily composed of ethnically Greek citizens, as interlocutors of the king and their representatives. Such assemblies were the addressees of *euergetism* and privileges. If successfully integrated into the royal system of communication they formed the most effective instruments of ‘governance by consent.’¹²⁹ While in Egypt there were few *poleis* comparable to the self-organized cities in the Aegean and Asia, the temple organizations, too, began to express themselves as political assemblies. They deployed Greek epigraphic forms to express their decisions the moment these had been developed in negotiation with the kings.¹³⁰ Arguably, Greek-style institutions, including the very specific articulation of decisions by decrees following a particular form and language, reduced the costs of communication between kings and constituencies, increased the bargaining power of the collectives involved, and above all created new normative orders that were expressed in universally comprehensible terms. Collective decision making, collective honorific decrees, and their inscription on stone proved to be immensely popular forms of public communication in the Hellenistic and well into the Roman period. In their function of not just speaking to faraway kings, but also to local populations and travelers, they fostered network standardization that mobilized humans, resources, innovation, and knowledge.

Already in the mid-fourth century when Athens was in financial distress, the Athenian Xenophon had recommended to his fellow citizens that they attract merchants to settle in Athens by honoring them with front seats in the assembly and treating them as benefactors of the state.¹³¹ This culture of incentivizing individuals by praising them in public took on completely new dimensions in the Hellenistic period. *Euergetism* in the form of material benefactions and munificence was only one aspect of a much wider phenomenon.¹³² Kings were honored for their benevolence in any matter, embassies for their settlement of disputes or sacrifices to local deities. Generals were honored for their bravery, money lenders for their loans, merchants for their grain imports, doctors for their healing skills, officials for their irrigation and construction works – the list is endless.¹³³ If we search for the reason for this astonishing explosion of praise, the answer must be found in the multiple functions it served. Frequently accompanied by a fine statue of the benefactor (which he financed by himself), honorific decrees gave value to participation, made the success of individuals part of the city’s story, praised its institutions, and created a paradigmatic order that connected the local, regional, and imperial order by in-

129 For the benefits of and limits to governance by consent in the Hellenistic fiscal regime, Monson forthcoming.

130 Fischer-Bovet 2016.

131 Xenophon *Poroi* 3. 3.

132 Fabian and Weaverdyck, ch. 3.A, II.1, this volume.

133 An excellent discussion of the aspects involved in the language of *euergetism* can be found in Ma 2000, 235–242; most recently Strootman 2021.

cluding all benefactors into a universal community of mutual goodwill (*eunoia*). Any social upward mobility that was offered to individuals in the imperial order fed back into local cities where the participants in that order were praised by their local compatriots.¹³⁴ The stories told in the inscribed texts served as a model, and incentive, for any beholder, both present and future. Greek and non-Greek assemblies cultivated this culture of public display with enormous consequences for communal building, network development and the spread of ‘standards’ across the geographical and temporal space of the Hellenistic world.¹³⁵

VII The Development of Science and Technology

Greeks and Romans were not quite as averse to technological progress as was once argued.¹³⁶ A shift of perspective from a history of invention to one of innovation has changed the nature of the debate.¹³⁷ Important technical innovations of the Hellenistic period have been discussed by Fabian and Weaverdyck in ch. 8.A of this volume. Particularly noteworthy are improvements in hydraulic technology, (including the extension of pipeline systems, and the (real!) invention of the Archimedean screw as a water-lifting device), as well as the growing size of ships.¹³⁸ Many Hellenistic innovations grew out of Assyrian, Babylonian, and Pharaonic science and engineering.¹³⁹ Yet in the *museia* and libraries of the Hellenistic capitals and cities, most notably Alexandria, Pergamon, and Seleukeia-Tigris, there emerged a new intellectual tradition, which spread knowledge also into non-Greek centers of learning.¹⁴⁰

There developed also a greater connection between science, technology, and opportunities of their practical application. While the foundations of ancient scientific thought went back many centuries, the Hellenistic world saw a surge of theoret-

134 Chaniotis 2018, 299–304.

135 Von Reden 2021 for the degree of community building that was involved in the public praise of benefactions.

136 Weaverdyck and Fabian, ch. 8.A, VII, this volume.

137 Cuomo 2007, 1–7. Schneider 2007 for a survey of technological changes in the Greek and Roman world.

138 Wilson 2008, esp. 293–96 on hydraulic engineering; Archibald 2007, 264–268; and Foy 2018 for the growth of glass production, and distribution of finished glass products, in the Hellenistic period.

139 Wilson 2008 notes Assyrian antecedents of Hellenistic hydraulic technology; there were, of course, great pre-Hellenistic scientific traditions in other fields of knowledge, which cannot be discussed here.

140 The interpenetration of Greek and non-Greek thought in the Hellenistic period is a complex issue; suffice it to emphasize that by no means all scientific thought developed in Greek-speaking institutions; see Kosmin 2018.

ical and practical literature that was produced in and read by ever growing intellectual circles. Scientific work was patronized by the kings and became part of their competitive cultural politics that affected all those that actively participated in it. Hundreds of treatises on geography, astrology, mechanics, and botany were written and stored in libraries, rendering science a form of knowledge accessible to many elite audiences. The Roman scholar Varro in his *De re rustica* (“On Agriculture,” 37 BCE) claims knowledge of 52 works on agriculture that had been written or translated into Greek in the two centuries before his time.¹⁴¹ Such works did not influence the cultivators in the fields as much as they inspired kings, generals, royal engineers, and administrators, who proudly demonstrated the success of the imperial regime and its power to conquer nature. While mass production and standardized work processes were developments under the Roman Empire, the spread of science was the fruit of the Hellenistic period.

Much applied science developed in the context of warfare and imperialism.¹⁴² The construction of catapults and siege engines had become a specialized discipline (*belopoiike*) already in the course of the fourth century BCE.¹⁴³ Military construction work developed into a theoretical and experimental subject studied by specialists who accompanied armies on campaign. Many scientists and military engineers are known to us by name, either because their work in the field found its way into historiographical writing or because their treatises were quoted by later authors: Diades of Pella and Epimachos of Athens, who joined Alexander’s armies during their Persian conquests; Epimachos and Diognetos, who worked under Demetrios Poliorketes in the siege of Rhodes; Ktesibios of Alexandria, Philo of Byzantion, and Archimedes of Syracuse all worked at the Alexandrian court, the latter also participating in the defense of Syracuse against the Romans. Diades invented siege towers that could be disassembled and carried along by the army, and his machinery with which the city of Tyros was besieged was remembered as particularly spectacular.¹⁴⁴

There were other scientific writings that had long-term impacts on economic processes. Hellenistic geography, ethnography, and *Periplus* (‘circumnavigation’) literature also became part of the new scientific culture connected to the specific interests of the kings to control nature, the territory, and the people of their realms.¹⁴⁵ While, once again, such works were not written for traders and travelers, they were also not autonomous productions reserved for consumption at the courts. There was still a long way to go from Hellenistic *Periploi* to the anonymous *Periplus Maris Erythraei* (*PME*) written in the first century CE. But significantly, the author of that

¹⁴¹ Varro *De re rustica* 1. 7–9. Reger 2007, 465.

¹⁴² For research on individual aspects, Oleson 2008.

¹⁴³ Schneider 1996, Cuomo 2007, 47–67.

¹⁴⁴ Vitruvius *De architectura* 10. 13. 3; Arrian *Anabasis* 1. 1. 16–24; Schneider 1996, 78.

¹⁴⁵ Gehrke 2011 for Alexander; Kosmin 2017 for the imperial aims of Eratosthenes’ geography; Cuomo 2007, 67–71 with Polyb. 9. 12–16; for the *Periplus Maris Erythraei* and *periplus* as a literary genre, von Reden, vol. 1, ch. 10.B, 469–475.

text adopted the *Periplus* literary form for communicating his practical knowledge about shipping and market opportunities in the Indian Ocean. The geographer Agatharchides of Knidos, who in the mid-second century BCE wrote a *Periplus* of the Erythraean Sea up to the Arabian Peninsula, stimulated the long process of making this space more familiar to travelers and merchants. He is not believed to have explored the oceans himself, nor was he particularly favorable toward commerce. Yet his book is full of economic observations, including toll stations, gold mining, elephant hunting, and the trade of the Nabataeans.¹⁴⁶ The explorer Eudoxos of Kyzikos, who led a maritime expedition from Egypt to the south Arabian coast under the patronage of Ptolemy VIII, is also noteworthy in this context.¹⁴⁷ Either he or an otherwise unknown Graeco-Egyptian explorer called Hippalos is credited with the ‘discovery’ of the monsoon winds. The lives of Eudoxos and Hippalos are dated to the last quarter of the second and first half of the first century BCE, respectively, just when the first Hellenistic pottery appears at southwestern Indian coastal sites that became the major ports of call for Indo-Roman trade.¹⁴⁸ It may not be accidental that the office of “*strategos* and *epistrategos*” of the Erythraean Sea is also attested for the first time in a Ptolemaic inscription dated to the late second or early first century BCE.¹⁴⁹

The impact of Hellenistic science and technology on economic processes must still be regarded as spasmodic and limited to specific contexts.¹⁵⁰ Yet the Hellenistic courts created a new environment for the production of knowledge in a wide range of fields. Moreover, the integration of science and technology into the cultural politics of the kings and ideologies of imperial domination created new incentives for the development of ideas in a competitive political context. The financial patronage of royal courts and the mobilization of knowledge in military, political, and civil contexts fostered the emergence and dissemination of a new culture of knowledge that, like many other Hellenistic developments, affected economies and theoretical thought far beyond the Hellenistic period itself.

VIII Multiple Centers and Maritime Connections

All Hellenistic kings invested heavily in the development of their capitals as places of imperial representation, the strength of their armies, and the maritime orienta-

¹⁴⁶ *FGrH* 86 23b–24b; 54b; 89b trans. in Burstein 1989, 58–60; 95–96, 148–149.

¹⁴⁷ Strab. 2. 3. 4 on Eudoxos; Pliny *Naturalis historia* 6. 100 and Ptolemy *Geographia* 4. 7. 41 attribute the discovery to Hippalos.

¹⁴⁸ Cobb 2018, 41–45 for discussion about when the Greeks were first able to make use of the monsoon winds and for the increase of trade in the Indian Ocean.

¹⁴⁹ Cobb 2018, 45–46 with *SB* 8036 (= Bernand 1969, nos. 352 and 353); Sidebotham 2011, 37.

¹⁵⁰ Schneider 2007, 167.

tion of their empires. The connections developing between a number of wealthy centers of consumption and exchange, on the one hand, and the maritime spaces of the Mediterranean and Arabian Sea/Indian Ocean, on the other, expanded circuits of exchange and laid the grounds for the intensification of Afro-Eurasian trade in the Roman period. The Hellenistic states were heirs to long-established riverine-maritime networks. The connections between the Mediterranean and the Black Sea, the Oxus-Caspian-Black Sea and Tigris-Mediterranean axes, the maritime relationships between the Levant, Cyprus, and Egypt, and the Indian Ocean coastal trade networks including sites along the Arabian Gulf and the Red Sea developed during the early first millennium, and some of them reached back to the Bronze Age.¹⁵¹ Yet the Hellenistic kings more than their predecessors invested in maritime expansion by means of conquest, administrative control, coastal city foundations, protection of itineraries, and customs politics.¹⁵² None of these investments were driven by isolated economic purposes, but they were part of wider fiscal, military, ritual, and ideological schemes that created their own dynamics through the various actors that were involved.¹⁵³

We outlined the imperial politics of the Seleukids and Ptolemies in the first volume: Focal points of expansion and rivalry were the Mediterranean and Pontic coastal cities and kingdoms followed by city foundations by the Seleukids along the roads in Asia Minor and Northern Syria. The Ptolemies were eager to dominate the coastal cities of Asia Minor, controlled some islands in the Cyclades, and founded new cities along the Red Sea coast.¹⁵⁴ Seleukid efforts were also directed toward the control of coastal kingdoms in the Arabian Gulf.¹⁵⁵ Continental imperial network

151 Broodbank 2013 covers most of these connections down to the fifth century BCE; Briant (1996) 2002, 357–387 on Achaemenid royal roads stretching between Persia, Susa, and Ecbatana; Manning 2015 for a long-term perspective on pre-‘Silk-Road’ connections down to the Hellenistic period; for the Caspian-Pontic connections, Lerner 2014, and in a wider chronological frame, Parzinger 2008; Radner 2004 for the Assyrian connections between the upper Tigris valley and the Mediterranean and Levantine coastal cities; Briant (1996) 2002, 381 for Babylonian connections to Elam; Potts 2010 for Achaemenid presence in the Gulf; for Mesopotamian pottery on Fialaka/Ikarios, Aperghis 2004, 75. Kosmin (2013) suggests, on the basis of a new Greek inscription from Bahrain/Tylos that mentions a *strategos*, that this archipelago and Falaika had a Seleukid administration. Kitchen (1997) suggests that the entire coastal zone of the Arabian Peninsula formed a semidependent kingdom called Hagar issuing its own Hellenizing coins from the later third century onward (Robin 1974). Given this limited evidence, the idea of a sprawling trade between the Arabian Gulf and Mesopotamia and Seleukid attempts to control it, seems overstated; for the Oxus-Caspian-Caucasus/Black Sea connection, see also Morris, ch. 13, V.1, this volume.

152 Aperghis 2004, 160–163 may exaggerate the degree of economic policy behind Seleukid administration, but lists the evidence for internal and external customs well; also Mileta 2008.

153 Strootman 2019; Archibald 2007 for the interdependence between empire, economics, religion, and elite consumption involved in the economic relationships between Egypt and the Black Sea.

154 Von Reden, vol. 1, ch. 1, 37–39; for the Ptolemaic maritime empire, see esp. Strootman 2019.

155 For Seleukid presence in the Arabian Gulf, Kosmin 2013. Trade connections between the Seleukid core and the Gulf region are poorly attested. The city of Spasinou Charax, first founded by

building, though by no means absent, was less dynamic and less successful; Parthia, Hyrkania, Bactria, and the Indian *satrapies* were soon given up or lost to local usurpers. Both for continental and maritime connections, the advantages of a royal network of military garrisons for protecting routes and markets, a universally valid coinage, a shared official language, recognizable urban structures, and the maintenance of infrastructures of movement offered new economic opportunities for itinerant individuals and groups such as merchants, artisans, envoys, and explorers.

The evidence of shipwrecks, and stamped and unstamped amphora handles found in hundreds of thousands in the Mediterranean and beyond, is notoriously difficult to interpret, and archaeologists are reluctant to offer this evidence as an indication for changing volumes of trade.¹⁵⁶ But the massive increase of amphora handles extant from the third century BCE in combination with that of Mediterranean shipwrecks from the second cannot fully be ignored. More ships and more goods moved around the Mediterranean in the Hellenistic than in the previous periods. Once again, the greater movement of goods did not just take the form of trade, and the purposes of people moving around were not limited to private commercial enterprises. Commercial and diplomatic voyages often overlapped. Envoys, kings, or *proxenoi* brought or received gifts, negotiated grain imports, or granted reduction of customs and tolls; traders in turn participated in interstate diplomacy.¹⁵⁷ Pirates promoted the slave trade.¹⁵⁸ Yet, although we cannot prove in comparative figures, much of the movement of goods across the Hellenistic imperial space was genuine trade.

While the royal capitals turned into massive nodes of consumption and hubs of exchange, none of them became an unrivalled economic core like the city of Rome. The capital cities successfully took over economic supremacy in regional urban networks, as we argued above, extended their hinterlands, and took advantage of the concentration of resources and tribute mobilized in the wider imperial space. But the political divides that cut across the Hellenistic world, and the successful struggle for political autonomy of the connected Aegean cities, prevented the orientation of trade and production toward a primary consumption center.

Alexandria was the uncontested political and economic hub of the Ptolemaic maritime empire that drove large amounts of trade and exchange from places on the Black Sea and coastal Asia Minor via Rhodes and the southern Levant toward Alexandria, and from there to Ptolemaic allies in the Aegean, the Greek mainland,

Alexander under the name Alexandria, and then refounded as Antiocheia Charax by subsequent kings, was 100 km away from the coast. The site has revealed so far very little continuous urban development in the Hellenistic period; Hauser forthcoming.

156 Gibbins 2001 for shipwrecks; Gabrielsen 1997, 64–71 for amphora handles in Rhodes.

157 Gabrielsen 1997, 74–80 for the interconnections between trade, gift-giving, and diplomacy in the case of Hellenistic Rhodes; Archibald 2007 for a similar argument for the Ptolemaic connections with Pontos.

158 Menander *Sikyonioi* 3–19, trans. Austin 2006, no. 104.

Northern Africa, Sicily, and the Tyrrhenian Sea.¹⁵⁹ Egypt's role in the production and supply of grain for the Mediterranean contributed to this centrality in trade and exchange.¹⁶⁰ Seleukeia-Tigris assumed centrality in the Mesopotamian-Mediterranean trade axis. Antiocheia-Orontes, probably equal in size to Seleukeia-Tigris, was both politically and economically equally important. There were, moreover, other hubs in the Eastern (and Western) Mediterranean like Carthage, Corinth, Rhodes, Byzantium, and the Ionian cities, each taking advantage of their regional networks that dated back to the early millennium. Many Aegean cities became more visible as prosperous centers of consumption, elite public displays, and exchange in the Hellenistic period.¹⁶¹ The genuine market competition among some of these cities might be evident from the fact that Delos prospered once Corinth was destroyed, and that the Rhodians complained before the Roman senate to have lost most of their customs duties when Delos was declared a free port by Rome.¹⁶² Some Greek states took active measures to maintain such competition. This may be taken from the fact that the Rhodians declared war on an ally of Byzantium when the city introduced a tax for the passage through the Bosphorus.¹⁶³ The Hellenistic Empires fostered the growth of royal capitals, created new infrastructures for their supply, and new geographies that served their interests, while local estate holders, bankers, and entrepreneurs took advantage of the new opportunities which fed back into their local economies.¹⁶⁴

IX Conclusion

Extraordinary demographic growth in some urban centers and new scales of military expenditure suggest extensive economic growth in the Hellenistic economy, that is, the mobilization and concentration of greater amounts of resources from an extended economic space. The large royal capitals benefited from imperial expansion and the exchange networks that became part of them. Several initiatives, moreover, to develop productive hinterlands by irrigation and settlement together with tighter supervision of cultivation processes are likely to have increased the total

159 Foy 2018 for Hellenistic shipwreck evidence attesting the trade of Egyptian glass in the Tyrrhenian Sea; Huss 2012 and Arnaud 1995 for Sicily.

160 Gabrielsen 1997, 71 for distances and travel times between Byzantium, Rhodes, Alexandria, and Athens.

161 Gabrielsen 1997 for Rhodes; Archibald 2007 and Reger 2007 for Byzantium; Bresson 2016, 93–94 for Corinth.

162 Bresson 2016, 95 for Delian prosperity after Corinth's destruction; Gabrielsen 1997, 64–71 with Polyb. 30. 31. 9–12 for the tax complaint and continuous prosperity of Rhodes after 166 BCE.

163 Mileta 2008 with Polyb. 4. 49–51.

164 Bintliff 2013, 288.

agrarian output of the Hellenistic economies. But this increase is impossible to measure, and the number of known instances too small to assess their overall effect. More significant economic stimulation, though with equally unquantifiable outcomes, stemmed from greater geographical mobility and new volumes of trade that benefited from imperial connectivity, administrative networks, and political alliances. However, some of these benefits were spoiled by the enormous costs of almost continuous warfare that swallowed large amounts of tribute and local money. The Hellenistic economies never enjoyed a *pax Hellenica* comparable to the *pax Romana* the Romans were able to establish in the first century CE.

The beneficiaries of the new imperial opportunities seem to have been above all mobile individuals and immigrants at all levels of society who succeeded in integrating themselves into new sociopolitical environments. Locally, cosmopolitan elites who translated their local social power into bargaining power vis-à-vis the imperial courts were the greatest winners. For ordinary people, integration into the network of the Greek ethno-class through learning and acting Greek offered new opportunities in the administration and army. At the same time, it extended the social support group from which the royal administration could draw human resources at the lowest costs. Positive economic dynamics also accrued from the institutional responses to fiscal change in different parts of the empire. An ideology of reciprocity was vital for maintaining social peace in the face of high levels of tribute and taxation. It seems, moreover, that kings were most successful in raising revenues when they developed fiscal institutions out of existing tributary practices.

Yet despite some considerable economic development, the Hellenistic economies suffered from some major structural problems. First, the reach of law and jurisdiction that ensured the enforcement of contracts remained limited to the radius of royal administrative control.¹⁶⁵ Second, there were social and political impediments to the development of free markets in land and capital.¹⁶⁶ And third, a great deal of trade and exchange took place in socially dependent agency relationships, including those of the kings and their personnel, which limited the development of entrepreneurial groups that dynamically expanded their network relationships.

Thus the main contribution of the Hellenistic Empires to the development of inter-imperial trade and exchange lay in creating connections and institutions from which later empires benefited. Continental hinterlands drew closer to interconnected maritime spaces. Coinage developed as a dominant medium of exchange and payment across the Hellenistic imperial space. Greek developed as a shared language that stimulated interaction and exchange between places as far apart as the Mediterranean and Central Asia. There developed a Greek-speaking ethno-class that established standards and norms of behavior across an equally large imperial space.

165 Terpstra 2019 for the former; von Reden 2007 for the latter.

166 Van der Spek 2014 for Babylonia; Manning 2007 for Egypt.

And large numbers of old and new cities and towns developed political institutions that permitted effective communal decision making, legislation, and external communication both with other cities and with imperial centers.

References

- Adams, R. M. 1981. *Heartland of cities: Surveys of ancient settlement and land use on the central flood plain of the Euphrates*. Chicago: University of Chicago Press.
- Alcock, S. A. 1993. *Graecia capta: The landscape of Roman Greece*. Cambridge: Cambridge University Press.
- . 2007. “The Eastern Mediterranean” in Scheidel, Morris, and Saller (2007), 617–698.
- Aperghis, G. G. 2004. *The Seleukid royal economy: The finances and financial administration of the Seleukid Empire*. Cambridge: Cambridge University Press.
- Archibald, Z. H. 2007. “Contacts between the Ptolemaic kingdom and the Black Sea in the early Hellenistic age.” In V. Gabrielsen and J. Lund (eds.), *The Black Sea in antiquity. Regional and interregional economic exchanges*, 253–273. Aarhus: Aarhus University Press.
- Austin, M. 2006. *The Hellenistic world from Alexander to the Roman conquest: A selection of ancient sources in translation*. Cambridge: Cambridge University Press.
- Bagnall, R. S. and P. Derow. 2004. *The Hellenistic period: Historical sources in translation*. 2nd ed. Malden, MA: Blackwell.
- Bernand, A. 1969. *Les inscriptions grecques de Philae: Époque ptolémaïque*. Paris: Édition du Centre National de la Recherche Scientifique.
- Bingen, J., (1978) 2007a. “The Revenue Laws Papyrus: Greek tradition and Hellenistic adaptation.” In R. S. Bagnall (ed.) *Hellenistic Egypt: Monarchy, society, economy, culture*, 157–188. Edinburgh: Edinburgh University Press. Originally published as *Le Papyrus Revenue Laws – Tradition grecque et adaptation hellénistique*.
- . (1978) 2007b “The third-century land-leases from Tholthis.” In R. S. Bagnall (ed.) *Hellenistic Egypt: Monarchy, society, economy, culture*, 206–212. Edinburgh: Edinburgh University Press.
- Bintliff, J. 2013. “The Hellenistic to Roman Mediterranean: A proto-capitalist revolution?” In T. Kerig and A. Zimmermann (eds.), *Economic archaeology: From structure to performance in European archaeology*, 285–292. Bonn: Habelt.
- Boehm, R. 2018. *City and empire in the age of the successors: Urbanization and social response in the making of the Hellenistic kingdoms*. Berkeley: University of California Press.
- Bresson, A. 2011. “Grain from Cyrene.” In Z. H. Archibald, J. K. Davies, and V. Gabrielsen (eds.), *The economies of Hellenistic societies, third to first centuries*, 66–95. Oxford: Oxford University Press.
- . (2007–2008) 2016. *The making of the ancient Greek economy: Institutions, markets, and growth in the city-states*. S. Rendall (trans.). Princeton, NJ: Princeton University Press. Originally published as *L'économie de la Grèce des cites*. 2 vols.
- Briant, P. (1996) 2002. *From Cyrus to Alexander: A history of the Persian Empire*. Winona Lake, IN: Eisenbrauns. Originally published as *Histoire de l'Empire perse: De Cyrus à Alexandre*.
- . 2012. “From the Indus to the Mediterranean: The administrative organization and logistics of the great roads of the Achaemenid Empire.” In S. E. Alcock, J. Bodel, and R. J. A. Talbert (eds.), *Highways, byways, and road systems in the pre-modern world*, 185–201. Malden, MA: Blackwell.
- Broodbank, C. 2013. *The making of the Middle Sea: A history of the Mediterranean from the beginning to the emergence of the classical world*. London: Thames & Hudson.

- Bugh, G. R., ed. 2006a. *The Cambridge companion to the Hellenistic world*. Cambridge: Cambridge University Press.
- . 2006b. “Hellenistic military developments.” In Bugh (2006a), 265–294.
- Burrer, F. and H. Müller, eds. 2008. *Kriegskosten und Kriegsfinanzierung in der Antike*. Darmstadt: Wissenschaftliche Buchgesellschaft.
- Burstein, S. M. 1989. *Agatharchides of Cnidus: On the Erythrean Sea*. London: Haklyut Society.
- Capdetrey, L. 2007. *Le pouvoir séleucide: Territoire, administration, finances d'un royaume hellénistique, 312–129 avant J.-C.* Rennes: Presses universitaires de Rennes.
- Chaniotis, A. 2005. *War in the Hellenistic world*. Malden, PA: Blackwell.
- . 2018. *Age of conquests: The Greek world from Alexander to Hadrian (336 BC–AD 138)*. Croyden: Profile Books.
- Clancier, P. 2017. “The polis of Babylon: A historical approach.” In B. Chrubasik and D. King (eds.), *Hellenism and the local communities of the Eastern Mediterranean: 400 BCE– 205 CE*, 53–82. Oxford: Oxford University Press.
- Clancier, P. and G. Gorre. 2021. “The integration of indigenous elites and the development of poleis in the Ptolemaic and Seleucid Empires.” In C. Fischer-Bovet and S. von Reden (eds.), *Comparing the Ptolemaic and Seleucid Empires*, 86–105. Cambridge: Cambridge University Press.
- Clarysse, W. 2019. “Ethnic identity: Egyptians, Greeks and Romans.” In K. Vandorpe (ed.), *A companion to Greco-Roman and Late Antique Egypt*, 299–314. Malden, MA: Blackwell.
- Clarysse, W. and D. J. Thompson. 2009. *Counting the people in Hellenistic Egypt*. 2nd ed. Vol. 2, *Historical studies*. Cambridge: Cambridge University Press.
- Clarysse, W. and K. Vandorpe, 1997. “Viticulture and wine consumption in the Arsinoite nome (P. Köln V 221).” *Ancient Society* 28, 67–73.
- Cobb, M. A. 2018. *Rome and the Indian Ocean trade from Augustus to the early third century CE*. Leiden: Brill.
- Cohen, G. M. 2006. *The Hellenistic settlements in Syria, the Red Sea Basin, and North Africa*. Berkeley, CA: University of California Press.
- . 2013. *The Hellenistic settlements in the East from Armenia and Mesopotamia to Bactria and India*. Berkeley, CA: University of California Press.
- Cuomo, S. 2007. *Technology and culture in Greek and Roman antiquity*. Cambridge: Cambridge University Press.
- Daubner, F. 2011. “Die Aufnahme von Migranten in hellenistischer Zeit: Kassander, Stymphalos und Milet.” In J. Bahlke, R. Leng, and P. Scholz (eds.), *Migration als soziale Herausforderung: Historische Formen solidarischen Handelns von der Antike bis zur Gegenwart*, 19–32. Wiesbaden: Steiner.
- de Callataÿ, F. 2009. “Royal Hellenistic coinages.” In W. E. Metcalf (ed.), *The Oxford handbook of Greek and Roman coinage*, 175–190. Oxford: University Press.
- de Blois, L. and van der Spek, R. J. *Einführung in die Alte Welt*. Wiesbaden: Steiner.
- De Souza, P. 2007. “Naval forces.” In Sabin, van Wees, and Whitby (2007), 357–367.
- Durand, X. 1997. *Des Grecs en Palestine au IIIe siècle avant Jésus-Christ: Le dossier syrien des Archives de Zénon de Caunos (261–252)*. Paris: Gabalda.
- Eisenstadt, S. (1963) 2010. *The political systems of empires*. New Brunswick: Transaction Publishers.
- Fischer-Bovet, C. 2011. “Counting the Greeks in Egypt: Immigration in the first century of Ptolemaic rule.” In C. Holleran and A. Pudsey (eds.), *Demography and the Graeco-Roman world: New insights and approaches*, 135–154. Cambridge: Cambridge University Press.
- . 2014. *Army and society in Ptolemaic Egypt*. Cambridge: Cambridge University Press.
- . 2016. “Toward a translocal elite culture in the Ptolemaic empire.” In M. Lavan, R. E. Payne, and J. Weisweiler (eds.), *Cosmopolitanism and empire: Universal rulers, local elites, and cultural*

- integration in the ancient Near East and Mediterranean*, 103–128. Oxford: Oxford University Press.
- Foy, D. 2018. “An overview of the circulation of glass in antiquity.” In A. Wilson and A. Bowman (eds.), *Trade, commerce and the state in the Roman world*, 265–300. Oxford: Oxford University Press.
- Gabrielsen, V. 1997. *The naval aristocracy of Hellenistic Rhodes*. Aarhus: Aarhus University Press.
- Gehrke, H.-J. 2011. “Alexander der Große – Welternkundung als Welternberung.” *Klio* 93, 52–65.
- Gibbins, D. 2001. “Shipwrecks and Hellenistic trade.” In Z. H. Archibald, J. Davies, V. Gabrielsen, and G. J. Oliver (eds.), *Hellenistic economies*, 273–312. London: Routledge.
- Hauboldt, J. 2016. “Hellenism, cosmopolitanism, and the role of Babylonian elites in the Seleucid empire.” In M. Lavan, R. E. Payne, and J. Weisweiler (eds.), *Cosmopolitanism and empire: Universal rulers, local elites, and cultural integration in the ancient Near East and Mediterranean*, 89–103. Oxford: Oxford University Press.
- Hauser, S. Forthcoming. “The Arsacid centre of trade: Charax Spasinou, capital of Mesene.” In M. Dwivedi, L. Fabian, K. Leese-Messing, L. Morris, and E. J. S. Weaverdyck (eds.), *Economies of the edge. Frontier zone processes at regional, imperial, and global scales (300 BCE–300 CE)*.
- Heichelheim, F. M. 1930. *Wirtschaftliche Schwankungen der Zeit von Alexander bis Augustus*. Jena: Fischer.
- Henkelman, W. 2017. “Imperial signature and imperial paradigm: Achaemenid administrative structure and system across and beyond the Iranian plateau.” In B. Jacobs, W. E. Henkelman, and M. W. Stolper (eds.), *Die Verwaltung im Achämenidenreich: Imperiale Muster und Strukturen / Administration in the Achaemenid Empire: Tracing the imperial signature*, 45–256. Wiesbaden: Harrassowitz.
- Hölbl, G. (1993) 2001. *A history of the Ptolemaic Empire*. T. Saavedra (trans.). London: Routledge. Originally published as *Geschichte des Ptolemäerreiches*.
- Hoo, M. 2018. *Eurasian localism: Towards a translocal approach to Hellenism and inbetweenness in Central Eurasia, c. 300–1 BCE*. PhD diss., University of Kiel.
- Huss, W. 2012. *Die Wirtschaft Ägyptens in ptolemäischer Zeit*. Munich: C. H. Beck.
- Ji, C. H. C. 2001. “From the Tobiads to the Hasmoneans: The Hellenistic pottery, coins, and history in the regions of ‘Irāq al-Amīr and the Wādī Ḥisbān.” *Studies in the History and Archaeology of Jordan* 7, 177–188.
- Ji, C. H. C. and J. K. Lee 2004. “‘Irāq al-‘Amīr and the Hellenistic settlements in central and northern Jordan.” *Studies in the History and Archaeology of Jordan* 8, 379–389.
- Johannsen, O. 2020. *Konnektivität, Konkurrenz und Kooperation: Studien zur Herrschaft der Ptolemäer in der südlichen Levante und zum ptolemäischen Imperialismus im 3. und 2. Jahrhundert v. Chr.* PhD diss., University of Freiburg.
- Kettering, S. 1986. *Patrons, brokers, and clients in seventeenth-century France*. Oxford: Oxford University Press.
- Kitchen, K. 2001. “Economics in ancient Arabia: From Alexander to the Augustans.” In Z. H. Archibald, J. Davies, V. Gabrielsen, and G. J. Oliver (eds.), *Hellenistic economies*, 157–173. London: Routledge.
- Klinkott, H. Forthcoming. “Hellenistic Babylonia.” In von Reden (forthcoming).
- Kosmin, P. 2013. “Rethinking the Hellenistic Gulf: The new Greek inscription from Bahrain.” *Journal of Hellenic Studies* 133, 61–79.
- . 2014. *The land of the elephant kings: Space, territory, and ideology in the Seleucid Empire*. Cambridge, MA: Harvard University Press.
- . 2017. “The politics of science: Eratosthenes’ geography and Ptolemaic imperialism.” *Orbis Terrarum* 15, 100–111.

- Kron, G. Forthcoming. "Growth and decline. Forms of growth: Estimating growth in the Greek world." In E. Lo Cascio, A. Bresson, and F. Velde (eds.), *The Oxford handbook of economies in the classical world*. Oxford: Oxford University Press.
- Kuhr, A. and S. Sherwin-White 1991. "Aspects of Seleucid royal ideology: The cylinder of Antiochos I from Borsippa." *Journal of Hellenic Studies* 111, 71–86.
- Lerner, J. D. 2014. "On the inland waterways from Europe to Central Asia." *Ancient West & East* 13, 155–174.
- Lewis, N. (1986) 2001. *Greeks in Ptolemaic Egypt: Case studies in the social history of the Hellenistic world*. Oakville, CT: American Society of Papyrologists.
- Lohmann, H. 1995. "Die chora Athens im 4. Jh. v. Chr.: Festungsbau, Bergbau und Siedlungswesen." In W. Eder (ed.), *Die athenische Demokratie im 4. Jh. v. Chr.: Vollendung oder Verfall einer Verfassungsform*, 515–548. Stuttgart: Franz Steiner.
- Ma, J. 2000. *Antiochos III and the cities of western Asia Minor*. Oxford: Oxford University Press.
- . 2013. "Hellenistic Empires." In P. F. Bang, and W. Scheidel (eds.), *The Oxford handbook of the state in the ancient Near East and Mediterranean*, 324–357. Oxford: Oxford University Press.
- Mackil, E. 2013. *Creating a common polity: Religion, economy, and politics in the making of the Greek Koinon*. Berkeley, CA: University of California Press.
- . 2018. "Property security and its limits in Classical Greece." In M. Canevaro, A. Erskine, B. D. Gray, and J. Ober (eds.), *Ancient Greek history and contemporary social science*, 315–343. Edinburgh: Edinburgh University Press.
- Manning, J. G. 2003. *Land and power in Ptolemaic Egypt: The structure of land tenure 332–30 BCE*. Cambridge: Cambridge University Press.
- . 2005. "Texts, contexts and subtexts: Beyond the parochial and toward (dynamic) modelling of Ptolemaic Egypt." *Bulletin of the American Society of Papyrologists* 42, 235–256.
- . 2007. "Hellenistic Egypt." In Scheidel, Morris, and Saller (2007), 434–459.
- . 2010. *The last Pharaohs: Egypt under the Ptolemies, 305–30 BC*. Princeton, NJ: Princeton University Press.
- . 2015. "At the limits: Long distance trade in the time of Alexander the Great and the Hellenistic kings." In V. H. Mair and J. Hickman (eds.), *Reconfiguring the Silk Road: New research on east-west exchange in antiquity*, 6–14. Philadelphia: University of Pennsylvania, Museum of Archaeology and Anthropology.
- . 2018. *The open sea: The economic life of the ancient Mediterranean world from the Iron Age to the rise of Rome*. Princeton: Princeton University Press.
- . 2019. "The Ptolemaic governmental branches and the role of temples and elite groups." In K. Vandorpe (ed.), *A companion to Greco-Roman and Late Antique Egypt*, 103–118. Malden, MA: Blackwell.
- McEwan, G. J. P. 1981. "Arsacid temple records." *Iraq* 43, 131–143.
- McKenzie, J. 2011. *The architecture of Alexandria and Egypt: 300 BC–AD 700*. New Haven: Yale University Press.
- Mileta, C. 2008. *Der König und sein Land: Untersuchungen zur Herrschaft der hellenistischen Monarchen über das königliche Gebiet Kleinasiens und seine Bevölkerung*. Berlin: Akademie Verlag.
- Millett, P. 2009. "The political economy of Macedonia." In J. Roisman and I. Worthington (eds.), *A companion to Macedonia*, 472–504. Malden, MA: Blackwell.
- Mitchell, S. 2017. "The Greek impact in Asia Minor 400–250 BCE." In B. Chrubasik and D. King (eds.), *Hellenism and the local communities of the Eastern Mediterranean: 400 BCE–250 CE*, 13–29. Oxford: Oxford University Press.
- Monerie, J. 2018. *L'économie de la Babylonie à l'époque hellénistique*. Berlin: De Gruyter.
- Monson, A. 2012. *From the Ptolemies to the Romans*. Cambridge: Cambridge University Press.
- . 2019. "Taxation and fiscal reforms." In K. Vandorpe (ed.), *A companion to Greco Roman and Late Antique Egypt*, 147–163. Malden, MA: Blackwell.

- . Forthcoming. “Fiscal regimes.” In von Reden (forthcoming).
- Müller, K. 2006. *Settlements of the Ptolemies: City foundations and new settlement in the Hellenistic world*. Leuven: Peeters.
- Musti, D. 1984. “Syria and the East.” In J. B. Bury, A. Bowman, and A. Cameron (eds.), *The Cambridge ancient history*. 2nd ed. Vol. 7.1, 175–213. Cambridge: Cambridge University Press.
- Oleson, J. P. 2008. *The Oxford handbook of engineering and technology in the classical world*. Oxford: Oxford University Press.
- Parzinger, H. 2008. “The ‘Silk Roads’ concept reconsidered: About transfers, transportation and transcontinental interactions in prehistory.” *The Silk Road* 5.2, 7–15.
- Pfeiffer, S. 2010. “Der eponyme Offizier Tubias: Ein lokaler Vertreter der ptolemäischen Herrschaft in Transjordanien.” *Archiv für Papyrusforschung* 56, 242–257.
- . 2011. “Die Familie des Tubias: Eine (trans-)lokale Elite in Transjordanien.” In B. Dreyer and P. F. Mittag (eds.), *Lokale Eliten und hellenistische Könige: Zwischen Kooperation und Konfrontation*, 191–215. Berlin: Verlag Antike.
- Potts, D. T. 2010. “Achaemenid interests in the Persian Gulf.” In J. Curtis and S. J. Simpson (eds.), *The world of Achaemenid Persia: History, art and society in Iran and the ancient Near East*, 523–534. London: Tauris.
- Radner, K. 2004. “Assyrische Handelspolitik: Die Symbiose mit unabhängigen Handelszentren und ihre Kontrolle durch Assyrien.” In R. Rollinger, and C. Ulf (eds.), *Commerce and monetary systems in the ancient world: Means of transmission and cultural interaction*, 152–169. Stuttgart: Franz Steiner.
- Reger, G. 2002. “The economy.” In A. Erskine (ed.), *A companion to the Hellenistic world*, 331–353. Malden, MA: Blackwell.
- . 2007. “Hellenistic Greece and western Asia Minor.” In Scheidel, Morris, and Saller (2007), 434–459.
- Robin, C. J. 1974. “Monnaies provenant de l’Arabie du Nord-Est.” *Semitica* 24, 83–125.
- Römer, C. 2017. “The Nile in the Fayum: Strategies of dominating and using the water resources of the river in the oasis in the Middle Kingdom and the Graeco-Roman period.” In H. Willems and J.-M. Dahms (eds.), *The Nile: Natural and cultural landscape in Egypt*, 171–191. Berlin: Transcript.
- Rostovtzeff, M. I. 1941. *The social and economic history of the Hellenistic world*. 3 vols. Oxford: Clarendon.
- Sabin, P., H. van Wees, and M. Whitby, eds. 2007. *The Cambridge ancient history of Greek and Roman warfare*. Cambridge: Cambridge University Press.
- Saller, R. 2001. “Framing the debate over growth in the ancient economy.” In Scheidel and von Reden (2001), 251–269.
- Scheidel, W. 2004. “Demographic and economic development in the ancient Mediterranean world.” *Journal of Institutional and Theoretical Economics* 160, 743–757.
- Scheidel, W., I. Morris, and R. P. Saller, eds. 2007. *The Cambridge economic history of the Greco-Roman world*, 592–618. Cambridge: Cambridge University Press.
- Scheidel, W. and S. von Reden, eds. 2001. *The ancient economy*. Edinburgh: Edinburgh University Press.
- Schneider, H. 1996. “Krieg und Technik im Zeitalter des Hellenismus.” *Berichte zur Wissenschaftsgeschichte* 19, 76–80.
- . 2007 “Technology.” In Scheidel, Morris, and Saller (2007), 144–171.
- Scott, J. C. 1998. *Seeing like a state*. New Haven, CT: Yale University Press.
- Sekunda, N. 2007. “Military forces.” In Sabin, van Wees, and Whitby (2007), 325–356.
- Sidebotham, S. E. 2011. *Berenike and the ancient maritime spice route*. Berkeley, CA: University of California Press.

- Stefanou, M. 2013. "Waterborne recruits: The military settlers of Ptolemaic Egypt." In K. Buraselis, M. Stefanou, and D. J. Thompson (eds.), *The Ptolemies, the sea, and the Nile: Studies in waterborne power*, 108–131. Cambridge: Cambridge University Press.
- Strootman, R. 2019. "The Ptolemaic sea empire." In R. Strootman, F. van den Eijnde, and R. van Wijk (eds.), *Empires of the sea: Maritime power networks in world history*, 114–152. Leiden: Brill.
- . 2021. "To be magnanimous and grateful!: The entanglement of cities and empires in the Hellenistic Aegean." In M. Domingo Gygax, and A. Zuiderhoek (eds.), *Benefactors and the Polis: Origins and development of the public gift in the Greek cities. From the Homeric world to Late Antiquity*, 164–215. Cambridge: Cambridge University Press.
- Tcherikover, V. A. 1964. "Was Jerusalem a 'polis'?" *Israel Exploration Journal* 14, 61–78.
- Terpstra, T. 2019. *Trade in the ancient Mediterranean: Private order and public institutions*. Princeton, NJ: Princeton University Press.
- Thompson, D. J. 1999a. "Irrigation and drainage in the early Ptolemaic Fayyum." In A. Bowman and E. Rogan (eds.), *Agriculture in Egypt from pharaonic to modern times*, 107–122. Oxford: Oxford University Press.
- . 1999b. "New and old in the Ptolemaic Fayyum." In A. Bowman and E. Rogan (eds.), *Agriculture in Egypt from pharaonic to modern times*, 123–138. Oxford: Oxford University Press.
- . 2001. "Ethnê, taxes and administrative geography in early Ptolemaic Egypt." In I. Andorlini (ed.), *Atti del XXII congresso internazionale di papirologia, Firenze 23–29 agosto 1998*. Vol. 2, 1255–1263. Florence: Istituto Papirologico "G.Vitelli".
- Thonemann, P. 2015. *The Hellenistic world: Using coins as sources*. Cambridge: Cambridge University Press.
- van Alfen, P. G. 2005. "Problems in ancient imitative and counterfeit coinage." In Z. A. Archibald, J. K. Davies, and V. Gabrielsen (eds.) *Making, moving and managing. The new world of ancient economies, 323–31 BC*, 322–354. Oxford: Oxbow Books.
- van der Spek, R. J. 1987. "The Babylonian city." In A. Kuhrt and S. Sherwin-White (eds), *Hellenism in the east: The interaction of Greek and non-Greek civilizations from Syria to Central Asia after Alexander*, 57–74. London: Duckworth.
- . 1995. "Ownership in Babylonian cuneiform archives." In M. J. Geller and H. Maeler (eds.), *Legal documents of the Hellenistic world*, 173–245. London: Warburg.
- . 2000. "The Seleucid state and economy" in E. Lo Cascio and D. W. Rathbone (eds.), *Production and public powers in classical antiquity*, 27–36. Cambridge: Cambridge University Press.
- . 2007. "The Hellenistic Near East." In Scheidel, Morris, and Saller (2007), 409–433.
- . 2014. "Factor markets in Hellenistic and Parthian Babylonia (331 BCE–224 CE)." *Journal of the Economic and Social History of the Orient* 57, 203–230.
- Vandorpe, K. 2000. "The Ptolemaic epigraphic or harvest tax (shemu)." *Archiv für Papyrusforschung* 46, 169–232.
- von Reden, S. 2007. *Money in Ptolemaic Egypt: From the Macedonian conquest to the end of the third century BC*. Cambridge: Cambridge University Press.
- . 2010. "Kulturbegegnung und wirtschaftliche Transformation in den ersten Generationen ptolemäischer Herrschaft." In G. Weber (ed.), *Alexandria und das ptolemäische Ägypten: Kulturbegegnungen in hellenistischer Zeit*, 30–54. Berlin: Verlag Antike.
- . 2019. "Trade and credit." In G. Martin (ed.) *The Oxford handbook of Demosthenes*, 209–220. Oxford: Oxford University Press.
- . 2021. "The politics of endowments." In M. Domingo Gygax and A. Zuiderhoek (eds.), *Benefactors and the polis: Origins and development of the public gift in the Greek cities from the Homeric world to Late Antiquity*, 115–136. Cambridge: Cambridge University Press.
- von Reden, S., ed. Forthcoming. *The Cambridge companion to the Greek economy*. Cambridge: Cambridge University Press.
- Walser, V. Forthcoming. "Asia Minor." In von Reden (forthcoming).
- Wilson, A. 2008. "Hydraulic engineering and water supply." In Oleson (2008), 285–318.

Lara Fabian

12.B Economic Dynamics in the Arsakid Empire

I Introduction

I.1 Arsakids and the Hellenistic and Post-Achaemenid Worlds

This brief consideration of the economic processes in the Arsakid Empire picks up where the previous chapter on hypotheses concerning processes and patterns in the Hellenistic world ends. It considers the Arsakid Empire, looking at both the core territory stretching across Mesopotamia and Iran, and the halo of polities that has increasingly come to be understood as the “Parthian Commonwealth,” including both smaller and larger vassal kingdoms along the flanks of the Arsakid heartland.¹ A synthetic elucidation of the dynamic processes by which the Arsakid Empire came to incorporate these diverse local spaces on an economic level – or how the local spaces reacted to the new forms of Arsakid control – lies out of reach of current scholarship. The available documentary, archaeological, and historical evidence is pointillistic and often internally inconsistent, problems that were discussed at more length in other chapters here as well as in our previous volume.²

The attempt in what follows is rather to consider how the general framework laid out by von Reden with respect to the Hellenistic world can be applied in the context of the Arsakid Empire, looking for moments of continuity, rupture, or gradual divergence. A fundamental question here is whether and in what ways the economy of the Arsakid Empire came to function as an “overarching fiscal-military” regime of the type described by von Reden for the Hellenistic world.³ The explicit comparison of the Hellenistic and Arsakid Empires is not intended to suggest that the Arsakid world should be understood fundamentally, or even primarily, as a product of the Hellenistic world. However much the rise of the Arsakid dynasty in the third century BCE was predicated on preconditions in the Hellenistic Near East, and however much once-Seleukid territory the Arsakids came to control over the course of second and first centuries BCE, the logic of their empire developed atop a wide range of cultural substrata – drawing most obviously on pre-Seleukid Achaemenid models of the Iranian Plateau (which were also a part of the Hellenistic legacy), but also on patterns among the Parni, from whom the dynasty emerged.⁴ At the

¹ On the concept of the Parthian Commonwealth, see de Jong 2013. For alternative nomenclature, including that of a “network empire,” Gregoratti 2019, 53.

² See Taasob, ch. 3.B and 8.B, this volume; Fabian, vol. 1, ch. 7, Wiesehöfer vol. 1, ch. 11.

³ Von Reden, ch. 12.A, this volume.

⁴ The question of the impact of these Parni, or more broadly speaking of mobile pastoralist influences on later Parthian elite culture have been long debated, see, e.g., Wolski 1993; Olbrycht 2003,

same time, the role of Graeco-Macedonian elite individuals and the behavioral norms inherited from this community, diminished over time.⁵ The Arsakid Empire, furthermore, was not static, but continued to evolve along its own path over the roughly four centuries of Arsakid control, incorporating new approaches as it grew.⁶

It is precisely because of this complexity that considering Arsakid developments in light of those in the Hellenistic world is helpful. The contrastive approach allows us to identify particular institutional, social, and spatial factors within the Arsakid world that shaped regional development in this central space. Such an approach furthermore focuses attention on challenging phenomena such as growth and intensification that are seldom discussed in the Arsakid context due to the uneven evidentiary basis, but which nevertheless remind us to think of Iran and southwestern Asia as dynamic spaces, and the economic life of the Arsakid world as a matter in flux.

1.2 Models and Implicit Narratives

Explicit work on the economic history of the Arsakid world remains relatively rare, in spite of the centrality of the discipline of numismatics in studies of this space.⁷ Filling the void left by the absence of such work is an underlying, tenacious perception of the Arsakid world's centrality in global trade systems, in which they have been seen as alternatively a force blocking the establishment of transregional networks, or conversely as the facilitators of such networks. However important trade may have been in the larger Arsakid systems, such approaches run the risk of decentering the object of inquiry itself – the Arsakids. Instead, they place the conceptual weight on Arsakid interaction with external forces of market-based international supply and demand pulling products from Rome to China, mechanisms which themselves are not in keeping with our understanding of economic forces in our period of inquiry.

Rather than starting with questions of connectivity, the present discussion begins with an examination of the structuring factors of the Arsakid Empire that contributed to patterns of production, consumption, and distribution within Arsakid

2013; Hauser 2005, 2006. The Parni themselves were likely related to a larger mobile pastoralist confederation active around the Caspian coast, Olbrycht 2003, 71–72; 2015, 257–258; 2019.

⁵ Which is not to argue that they disappeared, as the repeated invocations of philhellenism among Arsakid dynasts itself attests. Beyond such declarations, there is also compelling evidence for long-standing court contacts between Arsakid dynasts and their Hellenistic neighbors, and for the explicit role of Greek learning at the Arsakid court, e.g., material discussed in Wiesehöfer 2015; as well as Dąbrowa 1998; 2013; and, e.g., Schlude and Overman 2017.

⁶ On changing strategies of rule from a representational perspective, Shayegan 2011.

⁷ Exceptions include Lukonin 1983 as well as more recent works mostly focusing on Babylonia, including van der Spek 2014, 1998; van der Spek and Leeuwen 2014; Pirngruber 2017.

space, with particular attention to factors that von Reden has identified as central to the question of growth in the Hellenistic world, namely expanding urban systems, growing militaries, and the related phenomenon of agricultural intensification necessary to sustain these activities. I then move on to consider evidence for points of transformation within the Arsakid system. For, despite the many institutional continuities noted by von Reden above and discussed by Taasob in ch. 3.A, developments within the sociopolitical and economic sphere under the Arsakids eventually led to the establishment of a radically new imperial geography. The final section, by way of conclusion, picks up on the question of imperial geography and on the distinctive patterns of connectivity and network opportunities that grew across this central expanse.

II Structuring Factors

To begin with, I lay out a series of underlying factors within the Arsakid economy that underpinned the course of internal development and change. These are (1) its fundamental agricultural base; (2) the nature of cities and urbanization; and (3) its military structure, and the related issue of elite communities.

In contrast to the Hellenistic world, neither the massive intensification of urbanism nor the overwhelming growth of the army can be conclusively, compellingly demonstrated in the case of the Arsakid world as a whole, such that proving the interlocking intensification and integration seen in Graeco-Macedonian contexts remains elusive. We start, nevertheless, with the question of agriculture, and work from there toward a discussion of possible intensification and growth. The further purpose of this agricultural starting point is to highlight the reality that, despite the considerable interest in the involvement of the Arsakid Empire with long-distance trade and the revenue that was doubtless raised by taxing this trade,⁸ the wealth of the Arsakid Empire was, along with the Seleukid Empire, based fundamentally on an agrarian economy.⁹

The amount of revenue that the Arsakid kings could extract from agrarian spaces depended on the amount of land they controlled, the productivity of that land, and the tax or tribute regimes which they employed.¹⁰ While we are able to speak

⁸ As pointed out in Taasob, ch. 8.B, this vol., beyond the thin evidence for this taxation, it is also unclear whether it was, in fact, being collected and put to use on an imperial rather than local level; see particularly the recent argument in Hartmann 2018.

⁹ There is little synthetic work on agricultural regimes in the Arsakid Empire, outside of archaeological treatments of Babylonia and Susiana, on which see respectively Adams 1962; 1965; 2006; and Wenke 1976.

¹⁰ On estimates of productivity in the case of Mesopotamia, Jursa 2010. For an overview of tax regimes, see Taasob, ch. 8.B, II, this volume.

about the first factor with some precision, our ability to generalize about the second two is far more limited because of the evidentiary issues raised in the introduction. It is nevertheless possible to make a few broad statements about the economic role that agriculture, pastoralism, and changes in patterns of cultivation (both through conquest and intensification) played in the Arsakid world. Firstly, the expansion of the Arsakid Empire into Mesopotamia and Babylonia in the mid-second century BCE brought vast productive territories into Arsakid hands. The earlier first millennium BCE cultivation regimes of some of these lands, and the potentially high yields, are fairly well documented, giving us a good sense of the raw economic value of this land.¹¹ Furthermore, and pointing toward explicit interest in expanding agricultural potential, evidence for the expansion of irrigation systems and the resultant growth in settlement density in southern Mesopotamia suggest that the trajectory of increasing investment in agricultural systems, visible also under the Seleukids, continued under the Arsakids.¹² Finally, among the relatively scant documentary evidence explicitly related to economic activity, it is interesting to note the prominence of viticulture, which is central to the transactions recorded in both the Avroman documents and particularly the Nisa ostraca, which attest to the production and storage of vast amounts of wine within an explicitly administrative context.¹³ The tax records preserved on the Nisa ostraca furthermore reveal the involved nature of land taxation in conjunction with this royal precinct.¹⁴ The vocabulary of the ostraca point to a significant continuation of Achaemenid land classification terms, such that the underlying logic of the taxation regimes at this new Arsakid capital rests on older (and non-Graeco-Macedonian) patterns.

Beyond the cultivation of cereal crops like barley, wheat, and even rice,¹⁵ as well as viticulture, pastoralism was also widely practiced at multiple scales and in various configurations across the Arsakid Empire.¹⁶ Of particular interest from the point of view of economic connectivity is doubtless the specialized horse breeding that is associated with the Iranian world broadly speaking, and with the Parthian homeland in northwestern Iran particularly.¹⁷ Moreover, according to Chinese sources, the Anxi were well known for their *export* of horses, likely the so-called Nisaeen breed, famous for its enormous size and strength.¹⁸ Although the economic role of the horse is difficult to fully explicate, beyond the horses themselves, there also

11 Particularly in Babylonia, on which, Jursa 2010.

12 Neely and Wright 1994; Adams 1965; Taasob, ch. 8.B, IV, this volume.

13 E.g., as described by Lippolis and Manassero 2015, esp. 130–131.

14 E.g., the sample published by Weber in Hackl, Jacobs and Weber 2010, 2:502–556. Main publication in Diakonoff and Livshits 1976–2001

15 On rice in Elam, Potts 1991.

16 On the basis, at least, of ethnographic models for the various types of pastoralism supported in these landscapes: Abdi 2003; Gilbert 1983; Potts 2014.

17 Shahbazi 1987.

18 *Shiji* 123.3161.

appear to have been specialized industries that produced the rich alfalfa fodder known to be used by horse-breeders, the seeds of which spread through Central Asia to China.¹⁹ The broader industry of horse production, involving both agriculturalists and pastoralists, was therefore important to both internal security – in that horses formed a central part of Arsakid armies – and likely international trade.

Although the immensely fertile territories of Mesopotamia were critical to Arsakid imperial geography, the dynasts also expanded their power into a halo of regions incorporated as vassal states and ruled indirectly, from the South Caucasus to Arabia, which also of course expanded their tributary base. The general Arsakid policy of ruling much of this territory through vassal intermediaries would have removed much of the need for a centralized bureaucratic class serving as tax agents across the sprawling, rugged territories. But it also limited the Arsakid ability, and likely their interest, in interfering with local production systems, which may account for the uneven indications of processes like agricultural intensification across the space.

The second structuring factor, intrinsically entwined with agricultural production, is urbanism. Here, the nature of Arsakid urban structure raises interesting questions with respect to the growth trajectory laid out by von Reden. On the one hand, the Arsakid Empire included a great number of cities. In the Chinese tradition, the Arsakid Empire (Anxi) was strongly associated with an urbanized landscape, said to contain “hundreds” of cities.²⁰ The building activities of Arsakid dynasts themselves display an interest in the vocabulary of urbanism, seen through the construction and dedication of a string of royal capitals starting at Nisa and ending at Ktesiphon. Beyond the physical expansions of the new Arsakid city at Seleukeia-Ktesiphon,²¹ there is also evidence of impressive growth at some other older urban sites under the Arsakids, with that from Susa painting such a picture.²² On the basis of archeological research, urban populations in this region – as well as some others in the Arsakid world – reached significant heights in this period.²³ And yet, in contrast to either their Seleukid predecessors or their Sasanian successors, the number of Arsakid royal urban foundations appears to have been fairly limited, at least as far as are attested in literature.²⁴ This may be in part a product of the already-dense urban landscape that the Arsakids encountered as they moved from their original northern center to the west and eventually into Mesopotamian under Mithridates I. Here, they came to occupy territory that had very ancient urban sys-

¹⁹ See also Morris, ch. 4, VII.1.2, this volume.

²⁰ *Hou Hanshu* 96A; *Shiji* 125; trans. Watson 1993, 268.

²¹ For a summary of research, Kröger 1993.

²² Martinez-Sève 2015.

²³ See however Rezakhani 2015, esp. 96–98, with a discussion of Khuzistan and Tokharistan/Bactria in the Sasanian period with reference to earlier developments, which points out the challenges with the narratives of Late Antique decline

²⁴ Chaumont 1973; 1974.

tems, which had seen significant urbanization under the Seleukids. The question of precisely what role centrally directed planning played in the growth of these already-urbanized spaces is unclear. Detail surrounding the management of the nexus of Susa/Seleukeia-Eulaios/Phraata and its hinterland, for example, make clear the role that local officials played in creating the conditions for local agricultural prosperity – but one cannot dismiss the interlocking local and imperial engagements at Susa.²⁵

Arsakid urban spaces were also, of course, market hubs. Although evidence for marketing activity is scarce, Babylonian sources detail with considerable exactitude the presence of a commodities market for agricultural products, as well as the significant fluctuation of prices on this market in the Arsakid period.²⁶ It is worth noting that one of the largest institutional actors of the Arsakid period – temples, who themselves were fundamental landholders – also purchased foodstuffs on this market.²⁷ Thus, we catch a small glimpse of the presence of robust market structures, even if we should assume that they were both local and variable in scale across Arsakid space. A final factor worth mentioning in conjunction with urbanism is that of craft production in urban contexts. As research on the material from the capital of Nisa has demonstrated, the city was the home to a vibrant artistic tradition that produced works in a distinctive style that, while recognizable as part of the broader ‘Hellenistic’ tradition, owes much to local ingenuity.²⁸ Craft production (likely urban), both of elite goods like metalwork and more quotidian products like glass, was a feature of centers across the later Sasanian Empire.²⁹ Although the archaeological evidence for such vibrant production systems is largely absent for the Arsakid period, we should expect that Arsakid cities were also themselves productive hubs, if not at the same scale.

The final structuring factor in this discussion is the Arsakid army. Contentious details surrounding the nature of the Arsakid army notwithstanding – the existence and size of the standing army, the degree of centralized control over the forces, the role of mobile pastoralists, and so on³⁰ – the broad picture that emerges is of a largely nonprofessional army raised directly by the kings and levied from the noble families or *wuzurgān*, supplemented by mercenaries hired particularly from the pastoralist communities on the north and northwestern fringes of the empire, and supported by a smaller contingent of garrisoned soldiers.³¹ On the surface, it is difficult to argue that the Arsakid army was as central an economic factor as those of the

²⁵ See discussion in Taasob, ch. 8.B, V.I, this volume.

²⁶ Data from the *Astronomical Diaries*, see analysis in van der Spek 2014.

²⁷ As evidenced in the Raḥīm-Esu archive, van der Spek 1998.

²⁸ Jacobs in Hackl, Jacobs, and Weber 2010, 1:129–135; Invernizzi and Lippolis 2008.

²⁹ See, e.g., Simpson 2015 on regional glass production at the northwestern fringes of Sasanian space.

³⁰ Hauser 2006. See also Fabian, vol. 1, ch. 6, III.2.

³¹ Olbrycht 2016 for one discussion of the composition of the army in more detail.

Hellenistic kingdoms described by von Reden – for one thing, the overall scale of the army was simply smaller, as were outlays on military infrastructure.³² And yet, as discussed below, it is a mistake to overlook the comparison too quickly.

First, the direct costs of maintaining the army and paying mercenaries may indeed have had an impact on coin production, and by extension monetization, across the Arsakid space in at least some moments.³³ But the evidence for the scale of this impact is limited, such that coinage production cannot be explained by this mechanism alone.³⁴ More interestingly, the structure of the armed forces and the heavy reliance on the levying of troops from among elite Parthians and local rulers – who controlled their fighters and could put them to use not only in the service of the King of Kings, but also for their own purposes³⁵ – is a key structural characteristic of the political organization of the Arsakid Empire. Over time, this organizational structure created a distinct set of pressures on Arsakid kings that, as discussed below (sec. III), shaped patterns of connectivity with economic consequences.

The three broad structuring factors serve as the framework and background for the rest of this discussion, which concerns itself with identifying particular characteristics of Arsakid sociopolitical structures that, on the one hand, help us to understand patterns of development in the space, and on the other, lead to the creation of an expansive network that was nevertheless unique in comparison to those that had or were developing in neighboring empires.

III Threads of Transformation

It is by now itself a truism to note that Arsakid history should not be understood as a history of decline in the context of a weak imperial framework. Phenomena that were once interpreted as incomplete or failed realizations of Seleukid patterns are being reevaluated in terms of their potential functions within the new Arsakid order, as well as in light of their durability and the flexibility they allowed the Arsakid dynasts. In some cases, the transformations discussed here are fundamental differences that set the Arsakids apart from their predecessors: new sociopolitical or socioeconomic models that they carried with them from their early days through their rise into a major world power. In other cases, they are transformations that unfolded over the course of Arsakid history, reflecting reactions to changing circumstances.

³² See scale estimates in Overtoom 2020, *passim*.

³³ E.g., de Callataÿ 1994 on seasonal patterns of minting under Phraates IV that suggest military rhythms. But, see in general the complications surrounding Parthian coinage, debasement, and its connection to military payments introduced by Sinisi 2018, 487–490, cf. Keall 1975.

³⁴ Sinisi 2018, 487–490.

³⁵ Dąbrowa 2013, 56.

First, we begin where we left off in the last section with the question of the military, and the transformations that Arsakid-style armies brought with them. As the Parni conquered their way west, they brought with them a new military order, based largely on mounted warriors, in which a relatively small number of noble houses and important vassals served as key intermediaries. This system, and particularly the dependence on calvary, was not simply a holdover from the Parni's own putatively pastoralist lifeways, but was instead honed over the course of Arsakid history, as the empire faced nearly continuous pressure from similarly organized and armed opponents on their eastern front.³⁶ The effective system required less investment in the heavy machinery of siege warfare or in the naval military infrastructure than strategies that were pursued by western neighbors,³⁷ although spending on mercenaries could nevertheless be a considerable burden at times.

The reliance on forces levied from the noble families was a result of the decentralized nature of Arsakid power. But it also reinforced it by empowering these families, and thus ensuring that they retained considerable independence.³⁸ Speaking of stability, it is worth noting the longevity of these intermediaries, with some Parthian families attested as key political actors under both the Arsakid and subsequent Sasanian dynasties.³⁹ This structure is in keeping with the larger trope inside of the Arsakid world of uneven integration despite considerable interaction. Thinking about the institutional characteristics of the military, the decentralized structure and reliance on levied troops reduced function of the military as a vehicle for cross-fertilization in the form of long-distance networking and standardization on either a private or public level. It also vastly diminished the role of veterans in comparison to the Hellenistic kingdoms (or the Roman Empire), where they formed a potent force shaping both demographic patterns and land tenure regimes.⁴⁰ At the same time, the reliance on a dependable and widespread access to horses was a key ingredient in the maintenance of Arsakid political power, which may well have stimulated the expansion of the important horse-breeding tradition discussed above.⁴¹

A different sphere in which notable transformation and innovation between Seleukid and Arsakid models can be seen is in the domain of coinage. As recently

³⁶ Overtoom 2020, 27–64.

³⁷ Which is not to say that there were not technological innovations in calvary-based warfare, but only that they did not have the broad-reaching infrastructural and technological consequences of practices in the Seleukid world.

³⁸ For this in the classical tradition, Plutarch *Crassus* 21. 6, on the Parthian noble Süren, about whom it was said “in wealth, birth, and consideration, he stood next the king.”

³⁹ Pourshariati 2008, 49–51 on key Parthian houses that lived on in the Sasanian period; e.g., 55–66 on the Süren family.

⁴⁰ Compare to Fabian and Weaverdyck, ch. 3.A, IV.3, this volume.

⁴¹ For a recent overview of the role of horses in Arsakid military contexts and bibliography on the debates surrounding the role of horse-culture in the Arsakid Empire, see Overtoom 2020, 30–31, 38–40.

discussed synthetically by Sinisi, the Arsakid system developed and diverged significantly from the Seleukid patterns that undergirded the currency and its production in terms of both its denomination system and the mint networks that produced it.⁴² The denomination system of Arsakid coinage came to be based on the *drachm*, despite the continued, if restricted, minting of heavier-weight *tetradrachms*, with bronze circulating in some cases on a regional level. Furthermore, the networks of mints that produced this coinage both extended far to the east of earlier Seleukid mints, and over time developed specific internal nodes for the production of particular denominations, particularly Seleukia for *tetradrachms* and Ekbatana (among several others) for *drachms*.⁴³ The concentration of many of the mints to the east of Mesopotamia, along a major northern east-west axis (the so-called Great Khoresan road), is one indication of the dramatic shifts in imperial geography and in the center of balance between the Seleukid and Arsakid worlds.⁴⁴

In fleshing out the evidence for the use of silver more broadly in the economy of the Arsakid world, Canepa has recently discussed some evidence that places silver vessels as an entwined and entangled component of the Arsakid monetary system.⁴⁵ As in the Mediterranean, silver plate in southwest Asia and Iran functioned both as a prestige gift and as a way of transferring large amounts of value between individuals, for example in the context of diplomatic relationships. One characteristic that may set the Arsakid silver vessels apart, in the model proposed by Canepa and based on an analysis of vessel weights and inscriptions, is that the weights of the vessels appear not to have been recorded according to normalized weights, but rather calculated on the basis of actual, contemporary circulating coinage, meaning that there were direct equivalencies between elite silver plate and coinage.⁴⁶ This hints at a regime of value within the Arsakid space that united coinage and prestige objects within a single conceptual system, which should be understood as distinct from the operating norms within Hellenistic or Roman spaces. Furthermore, the formulae used in bureaucratic inscriptions recording the transfer of one such vessel from a private individual to what seems to be an imperial treasury echoes the language of transfer of agricultural products known from the Nisa ostraca.⁴⁷ This connects this elite vessel with a wider – and possibly geographically extensive⁴⁸ – system of administrative records of payments to the state, formulated in standard language across a range of classes of material objects.

Beyond monetary systems and beyond the issues raised in chapters 3.B and 8.B, there is some additional evidence for concrete institutional change in some territo-

⁴² Sinisi 2018.

⁴³ Sinisi 2018; also Taasob, ch. 8.B, III, this volume.

⁴⁴ On this route in Arsakid contexts, Daryaee 2020.

⁴⁵ Canepa 2021; Vickers 1995.

⁴⁶ Canepa 2021, 19–21.

⁴⁷ Canepa 2021, 14.

⁴⁸ The findspot of the rhyton is unknown.

ries brought under Arsakid control in the period – particularly spaces that had been only precariously incorporated into the Hellenistic world. There is, for example, both textual and archaeological material from the South Caucasus that points to the adoption of Arsakid administrative logics.⁴⁹ The most explicit material evidence that points to the wider adoption of new administrative frameworks in this region comes from several caches of bullae that have been found both in the territory of Armenia and Caucasian Albania.⁵⁰ Although the practice of using bullae in accounting is far older than the Arsakid Empire, evidence of such practices is thin in the South Caucasus before the first century BCE – when the territory came into the Arsakid orbit. Subsequently, we find strong parallels between seals and sealing practices in both public and private contexts in the South Caucasus and those known from Nisa, as well as several other sites under Arsakid control, and from the broader Mesopotamian world.⁵¹

But the adoption of these practices was neither even nor consistent – or put differently, there does not appear to have been a set ‘package’ of Arsakid institutional norms that moved with the expansion of the empire. Even something as basic as urban networks do not seem to have spread evenly in all parts of the Arsakid world: evidence of urban intensification in the crucial territory of Armenia is, for example, difficult to pinpoint. It is possible that this and related absences may have to do with the variable scale and priority of archaeological work across spaces held by the Arsakids. But it is also possible that, unlike their Sasanian successors who were extremely active in city foundations and refoundations, this type of self-conscious, widespread urbanism was not as central to the priorities of Parthian dynasts, and therefore was only carried out within local contexts where it dovetailed with other long-standing developmental trends, as the evidence from Mesopotamia suggests.

Considering centrally directed fiscal management more specifically, it is difficult to find widespread evidence for fundamental institutional change under the Arsakids of the type noted by von Reden in the Hellenistic period. The evidence from urban and temple contexts discussed by Taasob in chapter 3.B suggests on the whole a minimally invasive Arsakid administrative approach, wherein preexisting structures were largely accommodated. However, and in contrast to the Hellenistic world where we can track the differential treatment of constituent components in royal systems, we do not know enough about the terms on which independence

⁴⁹ The textual evidence is indirect, and stems from later remembrances of the pre-Christian period in the local historical tradition, on which in general see particularly Rapp 2009; 2014, esp. 205–227. See also e.g., the presence of religious structures in the South Caucasus with likely Iranian connections, K’imšiašvili and Narimanišvili 1995.

⁵⁰ Armenia: Khachatrian 1996; Manoukian 1996; Caucasian Albania: Khalilov and Babaev 1974.

⁵¹ On seals and sealing practices at Nisa, Masson and Pugacenkova 1954; Lippolis and Manassero 2015. For evidence from the sites of Qumis and Göbekly-Depe, see respectively Gibson 1994 and Koshelenko 1996.

was negotiated in the Arsakid space to enable us to fully understand the system.⁵² In looking at the limited evidence we have, chiefly from Dura-Europos, we find moments that suggest more direct intervention aimed at capturing (diverse) local communities within the fiscal network of the Arsakids, but within constructs that would have been locally legible as well.⁵³ The tendency toward the concentration of official roles within a small number of families that has been witnessed by the first century CE at Dura,⁵⁴ furthermore, suggests a trend toward the consolidation of power in the Arsakid space that is reminiscent of the consolidation of military power in the hands of the *wuzurgān*.

The installation of Parthian elites on the thrones of vassal states represents a particularly high-level version of this strategy of consolidation that, although often directly connected to political or military concerns, also had meaningful consequences for the ability of the Arsakids to capture revenue from these spaces. The particular activity and interference of the Arsakids in the affairs of their southern vassals in Charakene are particularly suggestive in this context, given the critical role of this space in the intersection of land-based and maritime trade routes.⁵⁵ An analysis of the development of the political status of Charakene over time demonstrates perfectly the movement from an independent vassal kingdom with wide-reaching rights including coining its own money in the late second century BCE,⁵⁶ to a territory ruled directly a member of the Arsakid royal family by the beginning of the second century CE, following the ready submission of the local dynast Attambelos VII to the Roman emperor Trajan.⁵⁷

The three threads of transformation discussed above clarify particular spheres in which Arsakid sociopolitical practices developed and came to reshape a large part of southwestern Asia into a particularly flexible imperial system under their control. It is true, of course, that there were deep continuities of institutional behavior from the Seleukid period in many realms, but the sum total of the imperial system was something entirely new.

IV Conclusion: Networking Forces

In thinking about the components of this system, we find core territories with their mixture of Parthian elite families and non-Parthian (often, but not always, Greek)

⁵² Consider for example the complex relationships between ‘Greek’ urbanites and Arsakid kings that underpin relationships in Mesopotamian cities, Wiesehöfer 2015.

⁵³ See for example Manesos the *arabarchos* named in *P. Dura* 20, possibly with oversight over non-sedentary communities. Sommer 2004, 163; and Taasob, ch. 3.B, II, this volume.

⁵⁴ Gregoratti 2016, 27.

⁵⁵ Hauser forthcoming on Spasinou Charax; Gregoratti 2019 on Parthian interests in Indian Ocean trade.

⁵⁶ Sellwood 1983, 310–314.

⁵⁷ Cassius Dio 68. 28. 4. Schuol 2000, 344–348; Gregoratti 2017 for an arc of development.

elites, particularly in the cities of Mesopotamia. Then we have the vassal polities, which became entwined and remained entangled with the Arsakid dynasts through a combination of marriage politics, institutional arrangements, and armed conflict.⁵⁸ And beyond them, we must also add the many local communities that integrated themselves at least in part within Arsakid administrative structures. We see such integration in the accounts in Palmyrene caravan inscriptions, where Palmyrene individuals held official roles in Arsakid cities important to Palmyrene trade.⁵⁹ We should assume that the Palmyrenes were not an exception, but rather suggestive of types of networks that would have made the edges of Arsakid control porous.

Understanding the changes that came to economic life under the Arsakids requires an appreciation of how these new networks replaced Seleukid patterns. First, despite the importance of Mesopotamia and its agricultural riches, the Arsakid dynasts were at home in the vast uplands of Iran in a way that the Graeco-Macedonian rulers had never been, with even their mint networks reflecting this orientation. Second, they expanded their sphere of influence more solidly than the Successors had managed into spaces like the South Caucasus, gaining a foothold in Armenia, vexing the Roman Empire for centuries, but also maintaining much closer ties with a range of pastoralist neighbors to the north and east of their territory. Third, they pursued a diverse range of strategies for their involvement in the southern reaches of their territory, where they interfaced with Indian Ocean trading routes, particularly as tensions with Rome flared in the second century CE.

But at the same time, and despite this obvious change in imperial geography, the transmission of a clear-cut package of cultural or economic behaviors is not apparent. To consider just one small point: whereas the settlement of veterans from Hellenistic armies created wide webs of either ethnic or cultural Greekness in the Hellenistic world, the Arsakid world saw the emergence of a much smaller network of military-aristocratic leaders who were linked across great spaces by very close and intense ties. Furthermore, when speaking of the logic of control in Arsakid space, Kaizer has recently pointed out that “indirect control – through ‘minor’ kings as at Hatra, through communities such as those of the Jews, and through cities like Susa (Seleucia-ad-Eulaeum) – was the norm, not the neat provincial structure as we know it from Rome. And being part of the Arsakid realm did not mean continuously belonging to it in equal measure.”⁶⁰

The result of all of this is an empire that is something of a chameleon: its own official apparatus as evinced through things like monetary policy or administrative infrastructure, although present to some degree, blends in with the background norms of each different space in the larger, composite whole. The scope of standardization in the sense of Grewal appears in many ways more limited than in other

⁵⁸ On family links, Dąbrowa 2018.

⁵⁹ See also the discussion in von Reden, ch. 2, this volume.

⁶⁰ Kaizer 2017, 68.

empires discussed in this volume, with critical axes of institutional, social, and economic norms varying tremendously across the space. And yet, precisely that variability may have provided some specific advantages in that it allowed for the maintenance and expansion of locally suitable regional economic systems, linked together and made legible through the intense interpersonal aristocratic and elite networks that swirled around Arsakid dynasts.

References

- Abdi, K. 2003. "The early development of pastoralism in the Central Zagros mountains." *Journal of World Prehistory* 17.4, 395–448.
- Adams, R. M. 1962. "Agriculture and urban life in early southwestern Iran." *Science* 136.3511, 109–122.
- . 1965. *Land behind Baghdad: A history of settlement on the Diyala plains*. Chicago, IL: University of Chicago Press.
- . 2006. "Intensified large-scale irrigation as an aspect of imperial policy. Strategies of statecraft on the late Sasanian Mesopotamian plain." In J. Marcus and D. Stanish (eds.), *Agricultural strategies*, 17–37. Los Angeles, CA: Cotsen Institute of Archaeology.
- Canepa, M. P. 2021. "The Getty stag rhyton and Parthian aristocratic culture: New epigraphic and technical discoveries." *Getty Research Journal* 13.1, 1–30.
- Chaumont, M.-L. 1973. "Études d'histoire parthe. II: Capitales et résidences des premiers Arsacides (IIe–Ier s. av. J.-C.)." *Syria* 50, 197–222.
- . 1974. "Études d'histoire Parthe. III: Les villes fondées par les Vologèse." *Syria* 51, 75–89.
- Dąbrowa, E. 1998. "Philhellên: Mithridate Ier et les Grecs." In E. Dąbrowa (ed.), *Ancient Iran and the Mediterranean world: Proceedings of an international conference in honour of Professor Józef Wolski held at the Jagiellonian University, Cracow, in September 1996*, 9–17. Krakow: Jagiellonian University Press.
- . 2013. "The Parthian aristocracy: Its social position and political activity." *Parthica* 15, 53–62.
- . 2018. "Arsacid dynastic marriages." *Electrum. Studia z historii starożytnej* 25, 73–83.
- Daryaei, T. 2020. "Arsacid economic activity on the Silk Road." In J. D. Lerner and Y. Shi (eds.), *Silk Roads: From local realities to global narratives*, 215–221. Oxford: Oxbow Books.
- de Callatay, F. 1994. *Les tétradrachmes d'Orodès II et de Phraate IV. Etude du rythme de leur production à la lumière d'une grosse trouvaille*. Paris: Association pour l'avancement des études iraniennes.
- de Jong, A. 2013. "Hatra and the Parthian Commonwealth." In L. Dirven (ed.), *Hatra: Politics culture and religion between Parthia and Rome*, 143–160. Stuttgart: Franz Steiner.
- Diakonoff, I. M. and V. A. Livshits. 1976–2001. *Parthian economic documents from Nisa*. D. N. MacKenzie, A. N. Bader, and N. Sims-Williams (eds.). 6 vols. London: School of Oriental and Asian Studies.
- Gibson, M. 1994. "Parthian seal style: A contribution from Nippur." *Mesopotamia* 29, 89–105.
- Gilbert, A. S. 1983. "On the origins of specialized nomadic pastoralism in western Iran." *World Archaeology* 15.1, 105–119.
- Gregoratti, L. 2016. "Dura-Europos: A Greek town of the Parthian Empire." In T. Kaizer (ed.), *Religion, society and culture at Dura-Europos*, 16–30. Cambridge: Cambridge University Press.
- . 2017. "Sinews of the other empire: The Parthian Great King's rule over vassal kingdoms." In H. Teigou and E. Seland (eds.), *Sinews of empire*, 95–104. Oxford: Oxbow.
- . 2019. "Indian Ocean trade: The role of Parthia." In M. A. Cobb (ed.), *The Indian Ocean trade in antiquity: Political, cultural and economic impacts*, 52–72. London: Routledge.

- Hackl, U., B. Jacobs, and D. Weber (2010), *Quellen zur Geschichte des Partherreichs – Textsammlung mit Übersetzungen und Kommentaren*, 3 Vols. Göttingen: Vandenhoeck & Ruprecht.
- Hartmann, U. 2018. “Wege durch Parthien – Straßen, Handelsrouten und Kommunikation im Arsakidenreich.” In B. Woytek (ed.), *Infrastructure and distribution in ancient economies*, 28–31. Vienna: Verlag der Österreichischen Akademie der Wissenschaften.
- Hauser, S. R. 2005. “Die ewigen Nomaden? Bemerkungen zu Herkunft, Militär, Staatsaufbau und nomadischen Traditionen.” In B. Meißner, O. Schmitt, and M. Sommer (eds.), *Krieg – Gesellschaft – Institutionen: Beiträge zu einer vergleichenden Kriegsgeschichte*, 163–208. Berlin: Akademie-Verlag.
- . 2006. “Was there no paid standing army?: A fresh look on military and political institutions in the Arsacid Empire.” In M. Mode and J. Tubach (eds.), *Arms and armour as indicators of cultural transfer: The steppes and the ancient world from Hellenistic times to the early Middle Ages*, 295–319. Wiesbaden: Reichert.
- . Forthcoming. “The Arsacid centre of trade: Charax Spasinou, capital of Mesene.” In M. Dwivedi, L. Fabian, K. Leese-Messing, L. Morris, and E. J. S. Weaverdyck (eds.), *Economies of the edge. Frontier zone processes at regional, imperial, and global scales (300 BCE–300 CE)*.
- Invernizzi, A. and C. Lippolis, eds. 2008. *Nisa Partica. Ricerche nel complesso monumentale arsacide 1990–2006*. Florence: Le lettere.
- Jursa, M. 2010. *Aspects of the economic history of Babylonia in the first millennium BC: Economic geography, economic mentalities, agriculture, the use of money and the problem of economic growth*. Munich: Ugarit-Verlag.
- Kaizer, T. 2017. “Empire, community, and culture on the Middle Euphrates. Durenes, Palmyrenes, villagers, and soldiers.” *Bulletin of the Institute of Classical Studies* 60.1, 63–95.
- Keall, E. J. 1975. “Parthian Nippur and Vologases’ southern strategy: A hypothesis.” *Journal of the American Oriental Society* 95.4, 620–632.
- Khachatrian, Z. 1996. “The archives of sealings found at Artashat (Artaxata).” In M.-F. Boussac and A. Invernizzi (eds.), *Archives et sceaux du monde hellénistique / Archivi e sigilli nel mondo ellenistico*. Supplement, *Bulletin de correspondance hellénique* no. 29, 365–370.
- Khalilov, Dzh. A. and I. A. Babaev. 1974. “О городах Кавказской Албании” [On the Cities of Caucasian Albania]. *Советская археология*, no. 4: 197–209.
- K’imšiašvili, K. and G. Narimanišvili. 1995. “A group of Iberian fire-temples (4th cent BC–2nd cent AD).” *Archäologische Mitteilungen aus Iran und Turan* 28, 309–318.
- Koshelenko, G. A. 1996. “Bullae from Göbekly-Depe: General problems and main subjects.” In M. F. Boussac and A. Invernizzi (eds.), *Archives et sceaux du monde hellénistique/Archivi e sigilli nel mondo ellenistico*. Supplement, *Bulletin de correspondance hellénique* no. 29, 376–383.
- Kröger, J. 1993. “Ctesiphon.” In *Encyclopaedia Iranica*. Vol. 6.4, 446–448. Available online at <http://www.iranicaonline.org/articles/ctesiphon>.
- Lippolis, C. and N. Manassero. 2015. “Storehouses and storage practices in Old Nisa (Turkmenistan).” *Electrum. Studia z historii starożytnej* 22, 115–142.
- Lukonin, V. G. 1983. “Political, social and administrative institutions: Taxes and trade.” In E. Yarshater (ed.), *The Cambridge history of Iran*. Vol. 3.2, 681–746. Cambridge: Cambridge University Press.
- Manoukian, H. 1996. “Les empreintes d’Artachate (Antique Artaxata).” In M.-F. Boussac and A. Invernizzi (eds.), *Archives et sceaux du monde hellénistique/Archivi e sigilli nel mondo ellenistico*. Supplement, *Bulletin de correspondance hellénique* no. 29, 371–373.
- Martinez-Sève, L. 2015. “Susa iv. The Hellenistic and Parthian periods.” In *Encyclopaedia Iranica*, online edition. <http://www.iranicaonline.org/articles/susa-iv-hellenistic-parthian-periods>.
- Masson, M. E. and G. A. Pugacenkova. 1954. “Оттиски парфянских печатей из Нисы” [Impressions of Parthian Seals from Nisa]. *Вестник древней истории*, no. 4, 159–169.

- Neely, J. A. and H. T. Wright. 1994. *Early settlement and irrigation on the Deh Luran Plain: Village and early state societies in southwestern Iran*. Ann Arbor, MI: University of Michigan Museum of Anthropology.
- Olbrycht, M. J. 2003. "Parthia and nomads of Central Asia. Elements of steppe origin in the social and military developments of Arsacid Iran." I. Schneider (ed.) *Mitteilungen des SFB "Differenz und Integration"*. Vol. 5, 69–109.
- . 2013. "The titulature of Arsaces I, King of Parthia." *Parthica* 15, 63–74.
- . 2015. "Arsacid Iran and the nomads of Central Asia – ways of cultural transfer." In J. Bemmann and M. Schmauder (eds.), *Complexity of interaction along the Eurasian steppe zone in the first millennium*, 333–390. Bonn: Vor- und Frühgeschichtliche Archäologie, Rheinische Friedrich-Wilhelms-Universität Bonn.
- . 2016. "Manpower resources and army organisation in the Arsakid empire." *Ancient Society* 46, 291–338.
- . 2019. "The Aparnoi in the Arsacid history." In В. А. Алёшкин, Л. Б. Кирчо (eds.) *Древности Восточной Европы, Центральной Азии и Южной Сибири в контексте связей и взаимодействий в евразийском культурном пространстве (новые данные и концепции)*. Vol. 1, 161–165. Санкт-Петербург: Институт истории материальной культуры РАН; Невская Типография.
- Overtoom, N. L. 2020. *Reign of arrows: The rise of the Parthian Empire in the Hellenistic Middle East*. New York, NY: Oxford University Press.
- Pirngruber, R. 2017. *The economy of Late Achaemenid and Seleucid Babylonia*. Cambridge: Cambridge University Press.
- Potts, D. T. 1991. "A note on rice cultivation." *Nouvelles Assyriologiques Brèves et Utilitaires* 1991, 2.
- . 2014. *Nomadism in Iran: From antiquity to the modern era*. Oxford: Oxford University Press.
- Pourshariati, P. 2008. *Decline and fall of the Sasanian Empire. The Sasanian-Parthian confederacy and the Arab conquest of Iran*. London: I. B. Tauris.
- Rapp, S. H. 2009. "The Iranian heritage of Georgia: Breathing new life into the pre-Bagratid historiographical tradition." *Iranica Antiqua* 44, 645–692.
- . 2014. *The Sasanian world through Georgian eyes: Caucasia and the Iranian Commonwealth in Late Antique Georgian literature*. Farnham: Ashgate.
- Rezakhani, K. 2015. "Continuity and change in Late Antique Irān: An economic view of the Sasanians." *International Journal of the Society of Iranian Archaeologists* 1.2, 93–118.
- Schlude, J. M. and A. J. Overman. 2017. "Herod the Great: A Near Eastern case study in Roman-Parthian politics." In J. M. Schlude and B. Reubin (eds.), *Arsacids, Romans and local elites: Cross-cultural interactions of the Parthian Empire*, 93–110. Oxford: Oxbow Books.
- Sellwood, D. 1983. "Minor states in southern Iran." In E. Yarshater (ed.), *The Cambridge history of Iran*. Vol. 3.1, 299–321. Cambridge: Cambridge University Press.
- Shahbazi, A. Sh. 1987. "ASB i. In Pre-Islamic Iran." In *Encyclopaedia Iranica*. Vol. 2.7, 724–730. Available online at <http://www.iranicaonline.org/articles/asb-pre-islamic-iran>.
- Shayegan, M. R. 2011. *Arsacids and Sasanians: Political ideology in post-Hellenistic and Late Antique Persia*. Cambridge: Cambridge University Press.
- Simpson, S. J. 2015. "Sasanian glassware from Mesopotamia, Gilan, and the Caucasus." *Journal of Glass Studies*, 77–96.
- Sinisi, F. 2018. "Some remarks on Parthian coin production." In B. E. Woytek (ed.), *Infrastructure and distribution in ancient economies*, 473–496. Vienna: Österreichische Akademie der Wissenschaften.
- Sommer, M. 2004. "A map of meaning: Approaching cultural identities at the Middle Euphrates (1st to 3rd centuries AD)." *Egitto e Vicino Oriente* 27, 153–183.
- van der Spek, R. J. 1998. "Cuneiform documents on Parthian history: The Raḫimesu archive: Materials or the study of the standard of living." In J. Wiesehöfer (ed.), *Das Partherreich und*

- seine Zeugnisse / The Arsacid Empire: Sources and documentation*, 205–258. Stuttgart: Franz Steiner.
- . 2014. “The volatility of prices of barley and dates in Babylon in the third and second centuries BC.” In H. D. Baker and M. Jursa (eds.), *Documentary sources in ancient Near Eastern and Greco-Roman economic history*, 234–259. Oxford: Oxbow.
- van der Spek, R. J. and B. Leeuwen. 2014. “Quantifying the integration of the Babylonian economy in the Mediterranean world using a new corpus of price data, 400–50 BCE.” In F. de Callataÿ (ed.), *Quantifying the Greco-Roman economy and beyond*, 79–101. Bari: Edipuglia.
- Vickers, M. 1995. “Metrological reflections: Attic, Hellenistic, Parthian and Sasanian gold and silver plate.” *Studia Iranica* 24.2, 163–185.
- Watson, B. 1993. *Records of the Grand Historian: Han dynasty II*. Revised ed. New York, NY: Columbia University Press.
- Wenke, R. J. 1976. “Imperial investments and agricultural developments in Parthian and Sasanian Khuzistan, 150 BC–AD 640.” *Mesopotamia* 10/11, 31–221.
- Wiesehöfer, J. 2015. “Greek poleis in the Near East and their Parthian overlords.” In A. M. Kemezis (ed.), *Urban dreams and realities in antiquity: Remains and representations of the ancient city*, 328–346. Leiden: Brill.
- Wolski, J. 1993. *L'empire des Arsacides*. Leuven: Peeters.

Eli J. S. Weaverdyck

12.C Institutions and Economic Relations in the Roman Empire: Consumption, Supply, and Coordination

I Introduction

The global history of inter-imperial trade and transcontinental connectivity is the story of networks and relationships, their varying geographical extent and interlinkages, the institutional structures that allowed for different types of transactions to be carried out across them, and the way these changed over time. This chapter sketches the Roman part of that history. I approach the Roman economy as a set of coordinated behaviors that resulted in the production, distribution, and consumption of goods and services. In premodern economies, the cost of transporting goods over long distances and the difficulty of obtaining reliable information about potential partners represented significant constraints on the quantity and complexity of economic transactions that could take place, and therefore on the economy as a whole. Peter Bang characterizes the ancient economy as a peasant economy of hard-sided cells that needed to be punctured in order to generate long-distance flows of goods.¹ Nevertheless, a variety of archaeological proxies seem to suggest that, in the period under consideration here (300 BCE–300 CE), more goods were traveling across longer distances than before and that the Mediterranean world saw some economic growth (though there remains some debate as to how intensive versus extensive that growth was and how integrated the economy truly was).² Rather than focusing on the abstract questions of economic growth or integration, I focus on the structures that allowed for more extensive economic coordination. By economic coordination I mean action taken in the expectation that others would take complementary action, be that production and consumption or cooperation in production and distribution. Coordination requires social relationships (weak and strong), so in line with the approaches of this volume I examine the economy as a series of interactions embedded within social networks and shaped by institutions. Although technological development and the construction of infrastructure played important roles in the Roman economy (for which, see ch. 8.A, sections VII and IV respectively), I set these aside for the present to focus on the social structures and networks that knit people together across the Roman world and allowed people, goods, and

¹ Bang 2007, 29.

² For an introduction to the archaeological evidence, see Weaverdyck, vol. 1, ch. 8.A. For the historiography of the ancient Mediterranean economy, see von Reden and Speidel, vol. 1, ch. 17.

services to move beyond the tight-knit local communities that were characteristic of all premodern agrarian economies.

I begin by asking what type of consumption provided the most fuel for economic activity before examining the supply mechanisms that brought goods to the point of consumption and the strategies of coordination that produced those goods. I then examine how various institutions facilitated economic coordination before concluding with a brief look at economic activity beyond the Roman Empire. Drawing on both New Institutional Economics and ideas from economic sociology and anthropology, I argue that the Roman economy was firmly embedded within social networks, but that a variety of institutions stretched many of those networks across great distances and, by reducing transaction costs, allowed weaker links in those networks to carry more complex economic transactions.

II Consumption

To understand how consumption drove the Roman economy in particular, it is useful to distinguish different groups who had the capacity to consume the surplus of others. Some models of the Roman economy focus on the role of state consumption and portray Roman economic development as a knock-on effect of tax or tribute extraction.³ These models also give a major role to elite consumption, whereas in other models of economic growth, the nonsubsistence consumption of urban ‘middling groups’ is key.⁴ Here, I consider the consumptive capacity and consumption patterns of the state, elites, and urban populations, with particular emphasis on the sub-elite.

These are not crisply defined, mutually exclusive groups. In the third century CE, a man from North Africa recorded proudly in his epitaph how he rose by stages from being a harvester to joining his city’s ruling elite and sitting on the town council.⁵ The state, at both the imperial and municipal levels, relied heavily on private individuals serving limited terms in magistracies, and these people’s public and private roles were so thoroughly interlinked as to make the public/private dichotomy problematic.⁶ Nevertheless, it is heuristically useful to distinguish the consumption of cities, elites, and the state because differences in the nature of consumption and in the means of acquiring goods available to these consumers would have shaped the larger economic consequences of their consumption. The impact of state consumption on economic

³ Hopkins 1980; (1995–1996) 2002; Bang 2008, 61–127.

⁴ Erdkamp 2016b. See also Jongman 2007. Mayer (2012) argues for the existence of an analytically meaningful ‘middle class’ in the Roman Empire, but this has not been universally accepted (Noreña 2013; Wallace-Hadrill 2013). I use the term ‘middling groups’ to avoid potentially anachronistic implications of the term ‘middle class.’ In this section, the term refers to people who could consume above the level of subsistence but not at the levels of the elites.

⁵ Shaw 2013, 281–298.

⁶ Hoyer 2018, 80–84.

activity should be proportional to state demands, and the ways in which the state acquires and disposes of the goods it needs influences economic development. With elite consumption, demand is limited to a relatively small portion of society and to luxury goods, and the ability of elites to acquire wealth through rent extraction limits the knock-on effects of their consumption. Where urban sub-elite consumption plays a major role, though, both the overall consumer base and the range of products demanded are much wider, leading to a wider range of economic niches for producers to fill and a more stable level of demand. In addition, the less social power that consumers have, the more likely they are to have to pay for the goods they consume, meaning more economic exchange through commercial channels. Precise quantification of each type of demand is, of course, impossible, but by examining what we know of each type of consumer, we can begin to understand their relative importance in the Roman economy.

II.1 The State

We begin with the state. Although I resist seeing the state as a monolith, there were certain forms of consumption that were inextricably bound to the institutions of imperial governance, and these forms have been given a prominent role in scholarship on the Roman economy, so it is worth discussing them under a single heading. State consumption included not only the taxes and rents extracted by the imperial government and emperor but also things like the labor of soldiers and builders and the materials required for the goods that these people produced: an overwhelming advantage in military force and hence a reduction in large-scale violence, and monumental architecture and infrastructure. Just like a peasant harvested grain in order to consume the bread they needed to live, the state extracted taxes and rents in order to consume things like loyal soldiers and the acquiescence of the urban populace, goods it needed to maintain political viability. Taxes and rents had to be transported and transformed before they could actually be consumed, and every stage in this process had some form of economic impact.

Extraction impoverished the taxpayer and thus spurred increased production, and taxes collected in money, such as the capitation tax levied on the Jews and others, forced the taxpayer to engage in commerce, to sell either their labor or goods. In Egypt, it has been argued, a shift from assessing taxes as a portion of the harvest to a rate fixed in relation to the land encouraged taxpayers to invest in improving their land and exacerbated economic inequality.⁷ To extract these taxes, the imperial government relied on municipal governments and private tax collectors working under contract. Extraction usually enriched the collector, although they too might be impoverished if they failed to collect what they owed. Organizations of tax collectors (*societates publicanorum*) could span vast distances, the length of

⁷ Monson 2012; see further Weaverdyck and Fabian, ch. 8.A, this volume.

the Danube or all of western Anatolia, and control massive amounts of money. Exceptional legal privileges made these organizations longer lived than any other economic organization.⁸ They not only collected taxes, but also transported (often via account transfers) and transformed them as well. Crucially, for many of the individuals involved, tax collection was only one part of their economic activities.⁹ The *paralemtai* who collected customs duties on imports from the Red Sea, for example, helped finance the very trade that they taxed.¹⁰ State consumption, therefore, subsidized large-scale investments and economic development.

The transportation stage of state consumption has long been seen as an important driver of interregional trade in the Roman Empire.¹¹ In theory, the removal of money from one region by the imperial state induced interregional trade by which taxpayers earned back the money they needed to continue paying taxes.¹² This dynamic would not pertain, however, if the state moved goods, rather than money, out of a region, as it did with Egyptian grain. Furthermore, when taxes were collected by local authorities rather than Rome-based tax farmers, the collectors' share of the taxes never left the region at all. Tax revenue from extra-imperial imports did not stimulate any additional trade either. The portion of state consumption that would have generated interregional trade within the empire, then, could have been significantly lower than sometimes assumed.

We must also address another form of wealth transportation: booty. During the wars of conquest, especially in the Republican period, vast amounts of wealth and hundreds of thousands of people were stripped from conquered territories and transported back to Rome. In 194 BCE, one general brought back from one province 25,000 pounds of silver, 123,000 silver denarii, 540,000 pieces of Oscan silver, and 1,400 pounds of gold.¹³ The first two figures alone amount to around 8.6 tonnes of silver.¹⁴ In 167 BCE, the Romans enslaved 150,000 people from Epiros alone.¹⁵ Most of

8 According to Roman law, a partnership dissolved with the death of one of the partners. This is usually seen as a major impediment to the formation of economic corporations (Fleckner 2020).

9 See von Reden, ch. 2, this volume with Bang 2007; 2008 for portfolio capitalism.

10 Evers 2017, 109–113; De Romanis 2020, 298–312.

11 Hopkins 1980; (1995–1996) 2002.

12 Hopkins 1980; (1995–1996) 2002. Hopkins's revision of the model to include in-kind taxation requires that taxes in kind be converted to money in the region in which they were raised. However, imperially owned grain from Egypt was sold to cities in the Eastern Mediterranean in times of shortage (Erdkamp 2005, 232–234) and both state-owned grain and olive oil were very likely sold in the city of Rome (Bransbourg 2017; Erdkamp 2005, 248–255 for grain; Machado 2018 with further literature for oil).

13 Livy 34. 46. 2; Kay 2014, 30. As with all figures reported in literary sources, the precise numbers should be treated with extreme caution (Weaverdyck, vol. 1, ch. 8.B, 350).

14 We do not know the weight of Oscan silver. Harl (1996) puts the weight of the *bigatus denarius* at 4.5 g and one Roman pound at 322.5 g, but see Weaverdyck and Fabian, ch. 8.A, VI.1, this volume, for the approximate nature of ancient weight standards.

15 Livy 45. 34. 5. Scheidel (2011, 294–297) tabulates literary references to mass enslavements to estimate that some 700,000 captives were enslaved by the Romans during the third and early second century BCE.

this seized wealth did not end up in the state treasury but in the hands of generals, officers, and soldiers, who used the money to buy land and the captured slaves to work it.¹⁶ In already conquered territories, governors and other state officials similarly used their positions to enrich themselves.¹⁷ While not state consumption per se, the extraction and private consumption of this wealth was made possible by state-based war making and governance. It turned Italy into one of the most economically developed parts of the Mediterranean and reshaped trade routes. While conquest brought the Mediterranean hinterlands under a single political authority, the concentration of wealth in Rome made it a trade hub that connected the economies of the Eastern and Western Mediterranean, northern Europe and Africa, Egypt and Britain.

Even after conquest, state consumption reinforced and fostered these trade links through the transportation of grain and other staples to the city of Rome (the *annona*).¹⁸ From the Late Republican period, the imperial government distributed free grain to a limited number of Roman citizens and took pains to ensure that the markets at Rome enjoyed a regular supply of grain and other staples. Fiscally owned grain was carried to Rome by private shippers who enjoyed privileges and tax advantages (see below). In response, shippers brought many other goods (the most visible being pottery) to Rome alongside grain, and these goods were then redistributed throughout the Mediterranean. Government subsidies for grain had the indirect effect of stabilizing the prices of other foodstuffs.¹⁹ In a world where information travels slowly and the prices of goods can fluctuate rapidly, this stability would have further enhanced the attractiveness of the Roman market for merchants.²⁰ The centrality of Rome, in turn, would have made goods from and (crucially) information about many other places easy to acquire, further fostering commercial connectivity between other parts of the Empire. Thus, both the transportation of goods to Rome and state consumption in Rome fundamentally altered trade networks and encouraged economic integration.

Similarly, state consumption of military labor and supplies in frontier provinces also reshaped trade networks. Amphorae from Spain and western North Africa are common in Britain and along the Rhine frontier. During the Principate, the army also contributed to the monetization of northwestern Europe (although the actual impact of soldiers' salaries on monetization has been questioned).²¹ For the Eastern Mediterranean, the economic development and integration of northwestern Europe constituted an expansion of the market for certain goods, most notably aromatics and spices.

¹⁶ Weaverdyck, vol. 1, ch. 7, 245.

¹⁷ Weaverdyck, vol. 1, ch. 7, 263–265; Fabian and Weaverdyck, ch. 3.A, III.3, this volume.

¹⁸ Erdkamp 2016a; Geraci 2018; Machado 2018; Holleran 2019.

¹⁹ Tchernia 2016, 103.

²⁰ Pace Erdkamp 2005, 249.

²¹ Katsari 2008; Hoyer 2018, 63–64.

The complex processes of consumption by the Roman imperial state, then, had a variety of impacts. Perhaps the most important was the way that it reshaped patterns of trade in the Mediterranean. It is notable, though, that these economic impacts relied ultimately on the consumption of others. For soldiers' salaries to be valuable, others must have sold goods to the soldiers and used the money to purchase other things in addition to paying taxes with it. For the *annona* to reshape trade networks, others must have consumed the pottery and other goods that flowed through Rome. If the transfer of money between regions spurred interregional trade, there must have been customers consuming the traded goods, and the state could not have converted taxes and rents in kind to money unless someone bought the products it sold. Thus, while state consumption played several major roles in structuring the Roman economy, it would be misleading to say it was the primary driver of economic activity.

II.2 Elites

Elites were private individuals with the greatest capacity to consume, but within this loosely defined group, there was significant diversity. Although we have disaggregated this group in chapter 3.A above, here we consider elites to include everyone from local elites with fortunes that would allow them to serve in the *boule* ('town council') to the emperor's household. The first important development in elite consumption has already been referred to. During the wars of conquest, elite Romans became fabulously wealthy. As Wallace-Hadrill has argued, this influx of wealth set off a 'consumer revolution.'²² Luxurious consumption signaled social standing and belonging. A system of knowledge about products and their 'proper' consumption served as a standard by which people could assert their membership in the network of imperial elites.²³ A cycle of emulation and differentiation, made possible by the potential for social mobility, made novelty desirable, drove differentiation and gradation in consumer goods, and expanded the social range of people who consumed manufactured goods. The social networks of elite Romans extended throughout Italy and later into the provinces,²⁴ so the consumption habits of the wealthiest Romans were intertwined with those of local elites in the provinces. While the elites in the Roman Empire were highly stratified, we can nevertheless see them all as participating in a single, dynamic *koine* of consumption practices.

Elite consumption had important economic implications. Because many of the items coded as luxurious came from or through the Eastern Mediterranean, elite consumption reinforced trade links between Italy and the East. Italian *negotiatores*

²² Wallace-Hadrill 2008.

²³ For the concept of network standards and their power, see Grewal 2008.

²⁴ Weaverdyck, vol. 1, ch. 7.

played an important role in mediating between Italian demand and Eastern Mediterranean production, not just as merchants but often as producers themselves.²⁵ The emperor Tiberius saw the trade in luxury objects from Alexandria as supporting the import of grain to the capital, apparently believing that state consumption alone would not suffice to maintain these trade links.²⁶ While many luxury products would eventually be produced closer to their place of consumption, many could not.²⁷ Most of the goods imported from the Indian Ocean and southern Arabia fall into this category. Evers's analysis of ivory and citrus-wood tables shows how the distinction between imports and local products could blur.²⁸ Imports of furniture became imports of material to make the tables. Eventually, imported citrus-wood was replaced by local wood, but the import of ivory persisted. In this case, the diffusion of demand for luxurious tables could only spur partial import replacement. Elite consumption, thus, fueled trade.

Elite consumption also opened up new opportunities for producers. Because minute gradations in the type and quality of goods consumed played an important role in their ability to convey status, the range of consumer goods increased significantly, opening up opportunities for specialized production. The consumption of rarefied seafood may have had particularly far-reaching effects. From the early first century BCE, Italian elites invested heavily in seaside fish ponds to produce a range of delicacies. These fish ponds were made of concrete and consisted of multiple interconnected basins designed both to control water flow and sedimentation and to be aesthetically pleasing. The hydraulic concrete and the technical knowledge of hydrologic engineering would go on to be applied in the construction of harbors all over the Mediterranean.²⁹

While fish ponds and their products were the purview of elites alone, elite consumption also provided opportunities for people of humbler status to make a living by producing and providing the goods they consumed. Mayer draws attention to a Pompeiian gem cutter living in a "small but elegant" house. The fact that he had no store front means he must have made house calls, suggesting a wealthy clientele.³⁰ Whether we consider the gem cutter to be a member of the "middle class," as Mayer argues, or "the lower tier(s) of the highly stratified upper-class of Roman imperial society,"³¹ elite consumption of gems provided a way for this person to support himself without (apparently) owning land. Similarly, the consumption of ivory and citrus wood tables supported manufacturers and traders who formed an unusually

25 Wallace-Hadrill 2008, 436–437 for mediation; Eberle and Le Quéré 2017 for production.

26 Tacitus, *Annals* 54; Wallace-Hadrill 2008, 331–332.

27 Wallace-Hadrill 2008, 356–440.

28 Evers 2017, 13–47.

29 Hohlfelder and Oleson 2014; Weaverdyck and Fabian, ch. 8.A, VII.2, this volume.

30 Mayer 2012, 54–55.

31 Noreña 2013, 1577.

exclusive voluntary association.³² The consumption of purple textiles was significant enough to support dye production on a large scale in many different coastal cities around the Mediterranean.³³ The examples could be multiplied. Catering to the *koine* of Mediterranean elite consumption drove a great deal of economic activity, but the potential impact of elite consumption is limited by the size of the elite. No matter how rich, a person can only eat so many fish. In the Roman Empire, it was not only elites who consumed the surplus and specialized production of others, but ‘middling groups’ and people who lived in cities as well.

II.3 Urban and Middling Groups

The Roman Empire, as the saying goes, was a world of cities. The existence of cities is often taken as evidence for the existence of people who did not produce their own food and therefore relied on the surplus production of others.³⁴ While the assumption is not unproblematic, recent work documenting the ubiquity of food and drink retailing in cities across the Roman world supports the idea that urbanites largely subsisted on the surplus of others.³⁵ The capacity of the urban poor to consume might not have exceeded subsistence levels while still stimulating surplus production and the transfer of goods away from producers. But Roman cities also provided the setting and, more importantly, the opportunity for large numbers of people to consume beyond the subsistence level.

Patterns of imperial governance favored municipal government by a group of aristocrats and tended to exacerbate inequality, thus increasing the consumptive capacity of local elites.³⁶ On the other hand, this group was never closed, and people of humbler origins, like the harvester mentioned above, could enter by acquiring sufficient wealth and consuming it in socially appropriate ways.³⁷ Elite aspirations, then, would have stimulated economic activity on the part of both the ones aspiring and the ones catering to their consumption.

It would be a mistake, however, to see elite aspiration as the sole motivating factor. Rather, we should examine consumption patterns using the theoretical frame-

³² Evers 2017, 15–22.

³³ Marzano 2013, 143–160.

³⁴ Morley 2013 problematizes this assumption.

³⁵ Ellis 2018. It is almost never possible to quantify the percentage of an urban population engaged in agriculture, but papyrological evidence from Egypt allows us to come close. A land register from the mid-fourth century CE and a tax register from the mid-third century suggest that, in a town of approximately 45,000 people, only 1,000 (2 percent) owned land. Even under the demonstrably untrue assumption that only one individual in each household was a landowner, this would still represent only 12 percent of urban households (Tacoma 2006, 93–94).

³⁶ For the example of Roman Palestine, see Keddie 2019.

³⁷ Tacoma 2006 for a social history of urban aristocracy in third-century Egypt.

work of globalization.³⁸ Elite consumption set many of the terms of the cultural *koine*, but consumers used and rejected parts of this *koine* selectively for a variety of reasons. In the late Hellenistic and early Roman period, Jewish elites consumed in increasingly Mediterranean styles, but sub-elites consciously rejected that pattern, preferring to consume simple pottery made of local clay and stone vessels.³⁹ This is an exceptional case, however, and in most places the consumption of modest luxuries shows more similarities with the broader *koine* than differences. In any case, the proliferation of urban consumers provided opportunities for a variety of artisans, service providers, merchants, and retailers. Some of these catered to elite consumption, but many catered to the needs of people of similar or lower socio-economic standing. This set up an important feedback mechanism in urban economies: as ‘middling’ consumption grew it opened up more economic niches for producers, who could themselves consume more, further expanding the market.

Examining some of the ‘bulk luxuries’ consumed clarifies the dynamics of this cycle. *Terra sigillata* is the most abundant example. These red, glossy, hard-fired ceramics produced in a variety of standardized shapes and used for serving food and drink are abundant in archaeological sites from the Late Hellenistic through the Late Roman periods. Their use did not advertise extraordinary wealth – metal and ornate glass dishes were used for that. Nevertheless, such pottery was produced and distributed at a variety of scales, including a few wares that gained super-regional prominence.⁴⁰ The scale of *sigillata* production and the range of sites at which it is found indicate that its consumer base extended well beyond the elite. Importantly, not all consumers used *terra sigillata* in the same way.⁴¹ The desirability of *terra sigillata* should not be seen, then, as a consequence of a particular cultural practice (such as the Greek symposium) or a desire to perform a ‘Roman’ identity. Rather, it functioned more flexibly as a standard signifying participation in an ill-defined network (or multiple networks) of respectability. Dio Chrysostom’s imaginary hunters, paragons of noble poverty, are distinguished from normal city-dwellers by their lack of ceramic tableware.⁴² From the producers’ perspective, the flexibility of *terra sigillata* use was a major advantage since it meant more people were consuming their products.

Glass is another product consumed in quantities and forms that exceeded elite demand. Glass production was complex and segmented, with many steps and many craft workers involved in the transformation of raw materials (themselves often geographically separated) into a final product. Nevertheless, glass vessels were

³⁸ Hodos 2017; Pitts and Versluys 2015.

³⁹ Keddie 2019, 197–248.

⁴⁰ Bes 2015; Weaverdyck and Fabian, ch. 8.A, VI.3, this volume.

⁴¹ See, e.g., Luley 2018, for Gaul. See also Pitts 2014 for a theoretical approach to *terra sigillata* consumption based on globalization.

⁴² Dio Chrysostom *Orationes* 7, 47; 75–76.

ubiquitous in the Roman period and could be traded over long distances.⁴³ Mass production of glass tableware began in the Levant in the late second and first centuries BCE,⁴⁴ and the development of glass blowing in the mid-first century BCE made it cheaper, easier, and faster to produce the closed vessels used to serve liquids and store aromatics.⁴⁵ The rapid diffusion of glassblowing from the Near East to Roman Europe testifies not only to the interconnectedness of the Mediterranean in the early Principate but also to the geographic diffusion of demand for glass and the products for which it served as packaging. European demand, in turn, fueled the production and export of raw glass from the Near East.

Shoes provide evidence for a pattern of consumption that could be considered ‘consumerism.’⁴⁶ A variety of different types of shoes and sandals were available, and people from a variety of socioeconomic backgrounds consumed them, often owning more than one pair. It was also common for women and children to wear shoes. In addition to utilitarian considerations, differentiation in footwear served to display individual taste and style. Across time, styles emerged and peaked in popularity over the course of a few decades, only to be replaced by radically different styles. This suggests that consumers distinguished between current and “old-fashioned” styles, and that novelty was desirable.⁴⁷ These styles had a very wide geographic range. Not only do the same types of shoes appear in Egypt, Britain, and the Near East, but the dynamics of fashion development seem to move in parallel as well.⁴⁸

The widespread consumption of pepper, not only in Italy but in the western provinces as well, is particularly noteworthy since it could only be produced in India.⁴⁹ In the early second-century fort of Vindolanda in Britain, someone spent the same amount of money on pepper as on a towel.⁵⁰ De Romanis has recently argued that the price of pepper in the first and second centuries CE was much lower than in Late Antiquity due to the direct voyages of massive pepper carriers between Egypt and Kottanarika in India.⁵¹ Mayer argues that these voyages were only possible because the demand for pepper made large ships that could withstand the violence of the monsoons profitable.⁵² The actual scale of Roman pepper imports is

⁴³ Weaverdyck and Fabian, ch. 8A, VI.3, this volume. For distribution, Foy 2018; for production, Larson 2019.

⁴⁴ Henderson 2013, 210–212, 223.

⁴⁵ Larson 2019.

⁴⁶ Driel-Murray 2016. Most of the evidence behind these conclusions comes from the northwestern provinces, but there is little reason to think they do not also apply more broadly.

⁴⁷ Driel-Murray 2001.

⁴⁸ Driel-Murray 2016, 134–136.

⁴⁹ Evers 2017, 68–74; Cobb 2018a; Mayer 2018 for widespread pepper consumption.

⁵⁰ See Weaverdyck and Fabian, ch. 8.A, VI.3, this volume.

⁵¹ De Romanis 2020, 101–106.

⁵² Mayer 2018.

difficult to determine, and we must bear in mind the difficulty of crossing the Eastern Desert when estimating cargo size. It is, perhaps, telling that De Romanis's maximalist model of pepper imports requires the application of imperial political power to mobilize camels in sufficient numbers.⁵³ Regardless of the actual quantities involved, there is little doubt that pepper consumption extended well beyond the elite and across the entire empire.

Pepper, shoes, glass, and *sigillata* are just four of the 'everyday luxuries' that distinguished the civilized urbanite from the uncouth rustic. Not only was there a large group of people who had the capacity to consume above the level of subsistence, such consumption was expected. Indeed, Roman patterns of consumption approached, in some ways, modern consumerism. A taste for novelty and variety meant that shoemakers, potters, glass producers, and many other manufacturers could sell more products. The fact that their consumers had little political power meant that the products were indeed sold rather than simply transferred. The geographic spread of certain standards of consumption, even if it did not entail perfect homogeneity, meant that demand was more predictable. If food shortage struck one region, a potter might find customers elsewhere. The demand for imported and complex products opened up opportunities for specialization and helped maintain long-distance connections. The concentration of demand in cities lowered transaction costs to the point where people of limited means could ply their trade profitably. The social diffusion of consumption also increased the size of the market. Unlike elite consumption, middling consumption was self-reinforcing. As consumption expanded, the number of economic niches increased, to be filled by people who were themselves middling consumers contributing to the expansion of demand.

The Roman economy was driven by several different types of demand. State demand played an important role in establishing the structures in which economic activity took place, but it was not the primary fuel of that activity. Elite demand similarly shaped economic structures by influencing trade routes and partially establishing empire-wide standards of consumption. It certainly provided some fuel to the economy, but the quantitative contribution was limited by the number of consumers. Rather, it was urban consumption and the consumption of middling groups – with large numbers of consumers concentrated in cities that were geographically diffused engaging in a self-reinforcing cycle of production and consumption – that provided most of the fuel on which the Roman economy ran.

III Supply Mechanisms

In the Roman world, goods reached consumers through a variety of mechanisms. Traditionally, scholarship on the Roman economy has focused on weighing the rela-

⁵³ De Romanis 2020, 198–203.

time importance of state redistribution and private, ‘free’ market forces in the context of the primitivist/modernist debate and Polanyi’s tripartite characterization of economic exchange as based on reciprocity, redistribution, and the market.⁵⁴ However, recent work has begun to question these categories. On the one hand, the state and its agents were heavily involved in activities that seem to fit more comfortably under the ‘market’ label,⁵⁵ and on the other, private individuals’ economic activities do not seem to comport well with what modern scholars expect from a ‘free’ market situation.⁵⁶ Rather than attempting to categorize supply mechanisms, I prefer to deconstruct them to better understand the forces at work in each step of the chain of activities that made goods available for consumption.

Supply mechanisms can be conceptualized as the coordinated behavior of numerous actors, including producers, transporters, and consumers as well as people who provide access to the capital required for others to perform their roles and people who provide information about demand, the availability of goods, and the likely behavior of other actors involved. For each step, I ask what incentive the actor had to coordinate their actions with others to move the goods along the supply chain. That incentive almost always stems from some form of social power, in the way Michael Mann suggests.⁵⁷ Examined in this way, we see that economic, political, and indeed ideological power operated together, with a different configuration of powers at different points in different supply chains, clarifying more precisely what sets ‘state redistribution’ apart from more general supply mechanisms.

III.1 General Supply Mechanisms

We begin with supply mechanisms in which the political power of state institutions played little role. There is little doubt that a great deal of economic activity in the Roman world was driven by economic incentives, even if the drive to increase wealth might have been moderated by a concern to minimize risk and by cultural considerations of appropriateness.⁵⁸ In order for these behaviors to concatenate into supply mechanisms, however, they must be coordinated, meaning the actors have to be able to anticipate how others will behave and adjust their own behavior in response. Here, I explore some of the social and political considerations that lie behind the institutions that allowed economic actors to coordinate their behaviors.

As in any economy, a great deal of economic activity took place in communal and household contexts. The immediate economic impact of *euergotism* – the per-

⁵⁴ Von Reden and Speidel, vol. 1, ch. 17.

⁵⁵ Lo Cascio 2007, 642–646.

⁵⁶ E.g., Terpstra 2013; 2019.

⁵⁷ Mann 1986.

⁵⁸ Even Finley accepted the profit motive in antiquity, while arguing that status concerns prevented the socioeconomic elite from investing in the most profitable enterprises (1999).

formance of services for the community by aristocrats in exchange for honor and status – is debated, but at the very least, the process helped stabilize the network of social relations and institutions that constituted ancient Mediterranean urbanism, within which so much other economic activity took place.⁵⁹ The production, transfer, and consumption of goods within households were also important. In the *familiae* of wealthy Roman elites, consisting of multiple dispersed estates and hundreds of slaves, this type of economic activity could be quite substantial. In the mid-first-century novel *Satyricon*, Petronius demonstrates the outlandish wealth of a boorish freedman by depicting a lavish dinner party in which all of the food and furnishings came from the host's own properties.⁶⁰ While clearly an exaggeration, this characterization demonstrates that the ability to consume luxuries without purchasing them was a mark of extreme wealth. Most people, especially those who lived in cities, would have had to buy a portion of what they consumed.

To buy goods requires, in most cases, the simultaneous presence of both buyer and seller. As in most premodern economies, this was accomplished in the Roman world through the marketplace, which concentrates buyers and sellers, facilitating the spread of information and allowing individuals to make multiple transactions without added transportation costs.⁶¹ In the Graeco-Roman world, these marketplaces occupied, literally, a central place in society. Greek and Roman cities almost always had a marketplace in the middle of town, a place that also hosted public events and was surrounded by political and religious buildings.⁶² In the largest cities, these marketplaces (Gr. *agora*, La. *forum*) would have facilitated permanent markets, but these functioned within a larger system of periodic markets and fairs.⁶³

The scheduling and management of these markets depended heavily on political power. Under Roman rule, establishing a new market required the permission of either a provincial governor, the Senate, or the emperor, who tried to avoid competition between markets.⁶⁴ Since markets were taxed by the host city, this was likely intended to avoid depriving cities of tax revenue, but one consequence would have been the even distribution of marketing events. Not only would this bring retailers and consumers together efficiently, but merchants could travel a regional market cycle, collecting local produce into bulk cargos for further sale. The political power to impose or not impose taxes on particular markets, a tool in the ongoing

⁵⁹ Hoyer 2018; Zuiderhoek 2019.

⁶⁰ Petronius *Satyricon* (Pet. *Sat.*) 38, 48. Interestingly, Trimalchio is said to have bought rams from Tarentum to improve the quality of his wool and bees from Attica to produce better honey, so his production is not entirely divorced from market exchange.

⁶¹ On premodern marketplaces, see Hirth 2020, 275–316.

⁶² Though see Ruffing 2006 for the distinction between the central *agora* and the peripheral *emporion*.

⁶³ De Ligt 1993 remains an excellent overview of market systems in the Roman world. See also Morley 1996 for Italy and contributions in Lo Cascio 2000.

⁶⁴ De Ligt 2000.

competition between polities for power and status, also shaped the economic incentives of the participants. The most spectacular instance of this power came in 166 BCE, when the Roman Senate made the island of Delos a free port, thereby shifting the center of Eastern Mediterranean trade away from Rhodes.⁶⁵

Premodern marketplaces are usually overseen by some authority with the power to regulate behavior. In the Roman world, these were magistrates called *agoranomoi* in Greek and *aediles* in Latin. Their duties included approving the weights and measures used, inspecting the quality of products like bread and wine, and settling minor disputes.⁶⁶ Thus, political power was used to overcome problems of information asymmetry and enforcement in small-scale quotidian exchange. The office of *agoranomos* was one of the honors held by local elites in their competition for status, so the management of the market must also be seen in its social context. *Agoranomoi* won praise for facilitating orderly markets and for ensuring the supply of cheap staples, but they could also abuse their office for material or social gain. In Rabbinic literature, *agoranomoi* are frequently depicted as seeking bribes,⁶⁷ and in Apuleius's second-century novel *Metamorphosis*, an *agoranomos* flaunts his power before a friend by berating a fishmonger for the price of his fish, a price that the buyer and seller had negotiated.⁶⁸ We should expect that real *agoranomoi* might play favorites in a similar manner. In the *Satyricon*, one character blames the collusion of the *aediles* and the bakers for the high price of bread during a time of shortage and reminisces about an old *aedile* whose rectitude ensured that bread was cheap.⁶⁹ Thus, prices in the *agora*, especially of staples, would fluctuate in response to both the forces of supply and demand and also the inclination of the magistrate wielding social and political power.

Retailing also took place in more specialized spaces. The *macellum* consisted of an enclosed space surrounded by shops and often with a central feature such as a fountain, shrine, or circular building. *Macella* are usually considered luxury food markets, although that is not always certain.⁷⁰ The central structure might have served as an auction platform for particularly valuable goods. These structures first appear in Italy and Greece around the third century BCE but do not become common until the Late Republic and early Principate. In the Levant and Asia Minor, the earliest examples mostly date to the later second century CE, the period of the generalized monumental building boom in the East.⁷¹ These *macella* were inward facing, often distinguished from the outside by means of steps, providing a sense of exclusivity. Based on epigraphic evidence, these structures were an important and pres-

65 Polybios 30. 31. 10–12.

66 Rahyab 2019; Capdetrey and Hasenohr 2012; Sperber 1977.

67 Sperber 1977.

68 Apuleius *Metamorphosis* (Apul. *Met.*) 1. 24–25.

69 Petron. *Sat.* 44.

70 Evangelidis 2019; Holleran 2012, 159–181; Richard 2014.

71 Ball 2000, 149–206; Richard 2014.

tigious addition to the urban fabric, especially for medium-sized towns.⁷² We can speculate, therefore, that these enclosed structures might have fostered a sense of community among the shopkeepers and others who did business within them, and that shopping at the *macellum* might have been a memorable experience that contributed to a visitor's experience of the city. In any case, the norms of social prestige and intercity competition resulted in buildings that facilitated the commercial exchange of high-value goods.

The shop itself, the *taberna*, was an even more ubiquitous commercial space. These simple establishments, consisting of one or two rooms, sometimes with a mezzanine, and a wide opening facing the street, could have combined production, retail, and residential functions. While some permanent shops are known from pre-Roman Greek cities, these are mostly found in purpose-built commercial buildings. *Tabernae*, on the other hand, were commonly built into urban residences as well. Ellis has suggested that wealthy landowners would rent *tabernae* to their freedmen, maintaining their social hierarchy through mundane economic activity, but we also know from graffiti in Pompeii that *tabernae* were rented to strangers.⁷³ Permanent shops allowed shopkeepers to form more personal relationships with their customers. Holleran points out that this would have facilitated the extension of store credit, allowing buyers and sellers to continue to transact even when the buyers were short of cash.⁷⁴ It also allowed retailers to establish strong social networks and identities centered on their occupation.⁷⁵ Thus, while driven by incentives arising from the economic power of consumers, the coordinated behaviors of ancient retail were deeply shaped by the political power of cities and their magistrates and by ideologically incentivized negotiations of social standing.

Retailers, when not themselves craftspeople, were supplied by merchants. Long-distance trade is a particularly difficult type of commerce in contexts of slow communication and little state enforcement.⁷⁶ Merchants needed considerable financial backing to buy expensive cargos, which they then transported overseas, either on their own ship or by chartering space on another.⁷⁷ Risk arose not only from the perils of the sea and fluctuating market conditions but from the possibility

⁷² Evangelidis 2019, 308.

⁷³ Ellis 2018, 107–121; Mayer 2012, 47–49.

⁷⁴ Holleran 2012, 52–53; Hawkins 2017a for the implications of shop credit on retailers' demand for credit; Hirth 2020, 297–298 for the cross-cultural ubiquity of shop credit.

⁷⁵ Flohr and Wilson 2016, 10–12.

⁷⁶ Terpstra 2019, 13–23 for the absence of enforcement mechanisms in Roman law courts, but cf. Verboven 2020, 404–407. Regardless of the enforcement mechanisms, practical considerations in accessing Roman law courts must be taken into account. Municipal courts could handle minor matters, but major disputes were taken to the governor, who toured his province every year dispensing justice. Jurisdiction was only available in a limited number of places and for a limited time (Kantor 2013, 158–161).

⁷⁷ For financing, see sec. V below.

of opportunistic behavior by distant partners. Essentially, the actors involved had to be incentivized not to cheat their partners and to believe that the prevailing incentives would prevent their partners from cheating them. Without strong state enforcement measures, these incentives were structured through social networks of different types, including households, voluntary associations, and more loosely defined social networks based on things like religion, ethnicity, and geographic origin.⁷⁸ In all of these social networks, the ideological power of norms provided incentives that fostered predictability of behavior, i.e., trust. This ideological power was reinforced by the pseudo-political power (the ability to define rules)⁷⁹ and economic power (the threat of excluding a transgressor from future business) of private-order enforcement networks. When other forms of power failed to incentivize coordinated action, recourse to legal action or third-party arbitration was often possible. Whether this took place in the context of Roman law courts or other venues, the judges wielded ideological power by deciding which claimant's version of reality was valid, that is, by defining meaning.⁸⁰

The primary tool that merchants had to inspire trust in potential partners was reputation. A reputation for trustworthiness and solvency was required for any transaction involving credit.⁸¹ The wooden tablets found at Vindolanda include a letter written between two business partners concerning, among other matters, the purchase of grain.⁸² The writer has put down a deposit on a large quantity of grain and asks his partner to send the rest of the money lest he lose his deposit and be embarrassed. Here we see both economic and ideological power at work. The loss of the deposit is obviously economic, but the loss of reputation would be as well, since it would damage the writer's ability to conduct future business. At the same time, we should not discount the power of norms and the possibly very real emotional force of embarrassment.

In addition to personal, informal knowledge, however, reputation and trust in the ancient Mediterranean could derive from the more or less institutionalized social

78 Bang 2008, 239–289. Terpstra 2013 focuses on geographic origin. Evers 2017 discusses associations involved in the trade of certain Indian Ocean products. Seland 2013 describes a variety of less formally defined networks at work in Indian Ocean trade. See also Liu 2017.

79 Mann limits political power to states, to “regulations and coercion centrally administered and territorially bounded” (Mann 1986, 26). However, as we shall see, the regulatory power of a *polis* could influence citizens living in organized communities abroad, and it seems perverse to argue that this is not political power. From there, it is but a short step to the regulatory power exercised by voluntary associations, a step made even shorter by the fact that the organization of these associations was modeled on that of *poleis* (Fabian and Weaverdyck, ch. 3.A, IX.1.2, this volume). Their members must have experienced the rule-making power of the association as analogous to that of the *polis* and the empire.

80 Terpstra 2019, 13–23 for this function of adjudication; Mann 1986, 22 for this form of ideological power.

81 Verboven 2002, 174–177.

82 *T. Vindol.* 2.343 well analyzed by Evers (2011, 15–18).

networks of which one was a part.⁸³ Some of these networks were very loose, defined by a certain common identity (geographic origin, ethnicity, religion, etc.) that might have only been relevant in the wider world of trade and therefore constituted a weak tie.⁸⁴ Here, the willingness of people to do business with each other would have been based on the ideological power of norms governing the way that one ought to interact with others in the same community, even in the absence of other, personal relations.⁸⁵ One's identity, therefore, conveys information about one's likely behavior. Other networks, such as the Palmyrenes operating in the Indian Ocean, were characterized by stronger ties, consisting of multiple institutions that were relevant in the merchant's home community.⁸⁶ People operating within these networks would be more likely to either know each other or have shared social connections, so one's behavior would have longer lasting implications.

Trade diasporas could form bridges between networks. The case of the Tyrians living in Puteoli is well known due to the survival of an inscription recording what appears, at first sight, to be an intra-community dispute about paying rent for the Tyrians' *statio*.⁸⁷ In actuality, as Terpstra has argued, the Tyrians erected this monument to display themselves as a corporate body participating in multiple networks. They display close ties with the city of Tyre (a network of strong ties constituted by citizenship, ethnicity, religion and personal connections in the form of named ambassadors) while also advertising their loyalty to the emperor and their participation in the public life of Puteoli (a network probably consisting of both strong and weak ties).⁸⁸ The erection of this inscription shows that the Tyrians living in Puteoli were concerned with their communal reputation, which they would have maintained by monitoring each other's behavior. In this way, outsiders could use their identity as a proxy for information about their future behavior. Furthermore, because the Puteolan Tyrians were also part of the larger, strongly tied network of Tyrians, they could act as intermediaries between others in Puteoli and non-Puteolan Tyrians, about whom they could more easily gather information.

Voluntary associations (social groups with a formally defined membership and governing structure) could also bridge networks of different types. As a body they

83 In general, Liu 2017.

84 Seland 2013, 377–381. As originally conceived by Granovetter (1973), weak ties are those that exist between acquaintances as opposed to close friends. If identity is to form the basis for a network, we must assume that individuals who share that identity are more likely to become acquaintances than those who do not. Communal worship, a common language, or simply the pleasure of meeting someone from 'home' makes this assumption likely.

85 In Mannian terms, this is "ideology as immanent *morale*, as intensifying the cohesion, the confidence, and, therefore, the power of an already established social group" (Mann 1986, 24).

86 Seland 2013, 381–384.

87 Terpstra 2013, 70–84 with further literature.

88 One might also note their relationship to the Tyrians in Rome, but this seems not to have been entirely amicable as the Puteolan Tyrians were asking Tyre to force the Roman Tyrians to pay their rent, an apparently customary practice that the Roman Tyrians had recently ended.

adopted powerful patrons and thereby gained access to their networks, and their members must have had a wealth of personal networks that they contributed to the association as well. In general, though, most see the economic importance of voluntary associations in the internal relations that they facilitated. These associations were ostensibly based on religion or occupation, but it was actually rare for membership to be strictly restricted to only people engaged in the titular occupation.⁸⁹ Nevertheless, the social activities of these occupations (feasts, sacrifices, communal burial) allowed the members to form close personal ties to each other. The possibility for mutual observation and formal censure gave these associations a form of pseudo-political power over their members (though the effectiveness of this power has been questioned).⁹⁰ The ideological power, derived from the communal performance of rituals and from the transfer of resources within the association in the form of small handouts and food on the occasions of celebrations, might have been more potent. People felt proud of their membership in these associations and displayed the fact on their tombstones. Therefore, we can assume a kind of collective good name similar to that cultivated by the Puteolan Tyrians. The effect of a good reputation would have been increased economic opportunities, both within and outside the association, but the incentives that drove people to maintain that reputation would have stemmed as much from ideological as economic considerations.

Another network that must be considered in ancient trade is based on the household. The Roman household consisted not only of a kin group, but also slaves and more or less dependent freedmen.⁹¹ Slaves and freedmen combined the capital and networks of their masters/patrons with their own skills, labor, and networks to conduct business, often over long distances. By recognizing the unique relationship of servitude and codifying the attendant responsibilities, Roman law made slaves uniquely qualified business agents.⁹² Many of these slaves were subsequently manumitted and continued to operate in partnership with their patrons. While most legal sources, and therefore modern scholarship, focus on the relations of these agents with the master/patron, we should remember that they would also have operated alongside one another. In a second-century legal decision, a case is described in which a merchant takes a loan from a slave under certain specified conditions. A second slave of the same master accompanies the merchant to oversee the cargo, which has been pledged as security.⁹³ This law serves as an illustration of how household-based networks were used to coordinate behavior in trade. The two slaves worked together because of the ideological power of the norms defining their

⁸⁹ Evers 2017, 15–22 for the *collegium* of ivory and citrus wood traders as the exception that proves the rule.

⁹⁰ Evers 2017, 66–67.

⁹¹ On Freedmen, Mouritsen 2011; Verboven 2012; Broekaert 2016.

⁹² Schumacher 2010; Weaverdyck and Fabian, ch. 8.A, V.3.3, this volume.

⁹³ *Digesta (Dig.)* 45. 1. 122. 1.

role as slaves of the same master, probably the economic incentive of growing their *peculium* (the capital they controlled, though it technically belonged to their master), and the legal rights that their owner held over them (including the right to use violence), rights guaranteed by the political power of the state.

One final example of the confluence of economic and other forms of social power will extend this account of supply mechanisms back to the point of production. In the early second century CE, the senator Pliny the Younger wrote a letter to a friend describing how he had sold the wine from one of his estates.⁹⁴ Prior to the harvest he had sold portions of the vintage to local merchants, but the harvest failed. Pliny says he was at pains to find a just solution, no doubt a piece of self-aggrandizement but not necessarily untrue. He granted each merchant one-eighth of the price they had paid, but he gave additional portions of the price to those who had paid more and to those who had put down a larger deposit. Just like the writer of the letter found in Vindolanda discussed above, Pliny juxtaposes the language of commerce and social relations. He simultaneously shows gratitude and incentivizes the merchants to do business with him in the future and pay larger deposits,⁹⁵ he calls his scheme “this calculation or rather this courtesy,”⁹⁶ and against the financial cost he balances the praise he has won and the obligations that the merchants now have toward him.

Shipwreck evidence hints at how these various social relations linked up to move goods from producer to consumer. Rice’s analysis of shipwreck cargos in the Western Mediterranean sheds light on shippers’ strategies.⁹⁷ All of these cargos were loaded together, reflecting directed shipping rather than tramping.⁹⁸ Furthermore, this cargo was sometimes owned by multiple merchants who had chartered space on the ship. Some cargos were heterogeneous, implying that they were assembled for the first time at the port. Other cargos were more homogeneous, consisting of, for example, wine from a single region. But even in this case, amphora stamps and merchants’ marks show that the wine came from different estates through the hands of different merchants. This segmentation of the supply chain means that each individual would have had to maintain relationships with a small number of partners. The shipper did not have to know all the producers, and the local merchant needed no direct connections in the destination port.

Roman supply mechanisms, then, consisted of long, interlinked chains of personal relationships. While the individuals in these networks were ultimately motivated by economic incentives, their behavior within these relationships was also

⁹⁴ Pliny *Epistulae* (Plin. *Ep.*) 8. 2. For marketing strategies of producers, with a necessary emphasis on elite producers, see Erdkamp 2005, 118–130; Morley 2000.

⁹⁵ Plin. *Ep.* 8. 2. 7.

⁹⁶ *Seu ratio haec seu facilitas* (Plin. *Ep.* 8. 2. 8).

⁹⁷ Rice 2016a, 2016b.

⁹⁸ Cf. Leidwanger (2020), who emphasizes the diversity of shipping strategies.

shaped by incentives arising from ideological and political power. This power, in turn operated within a variety of overlapping institutions that helped coordinate economic behavior. Municipal and imperial government regulated markets; the household moved goods and enforced cooperation; norms of behavior and communication that created and maintained reputations, both individual and collective, discouraged opportunistic behavior; and institutions that contributed to identity formation, ranging from permanent *tabernae* and the prestige value of *macella* to membership in voluntary associations or ethnic groups, allowed individuals to build trusting relationships through which to transact business. In the Roman Empire, ideological and political power coalesced into institutional structures that encouraged individuals to pursue their own economic strategies in ways that came together to form larger supply mechanisms.

III.2 'State' Supply Mechanisms

We now turn to supply mechanisms in which the overarching driver was not economic incentive but political power. Both municipal and imperial governments intervened in the supply of grain to cities. I take the chain of activities that brought fiscally owned grain to Rome as a case study.⁹⁹ The emperor consumed the political support of the *caput mundi* by ensuring a stable grain supply. Because it was vital to political survival, and because, unlike military supply, it was geographically concentrated and therefore more easily controlled, the supply of grain to the city of Rome serves as a limiting case for the use of political power in supply mechanisms more generally. By examining each step in the chain that transferred grain from agriculturalists in Egypt (the primary source of grain in our period) to consumers in Rome, however, we see that, on the ground, a range of other incentives, including economic incentives, were at work.

Colin Adams has recently provided detailed descriptions of how grain was transported from the fields in Egypt to Alexandria for export.¹⁰⁰ A hierarchical system of offices that collected and disseminated information and instructions and arranged transport along different legs of the journey provided top-down coordination. The means of transport, donkeys and ships, were privately owned and only temporarily pressed into state service, as were the people holding the offices. The political power of the state certainly created the overarching framework of incentives for the movement of grain in Egypt, but at each stage, other, more immediate incentives were also at work.

⁹⁹ Erdkamp (2016a) provides a good overview with further literature, but emphasizes heavily the role of the state. Geraci (2018) similarly provides a useful overview that emphasizes private enterprise more. Holleran (2019) strikes a more cautious balance. These three overviews also provide guidance on the most influential literature.

¹⁰⁰ Adams 2007, 159–195; 2018.

Most of the actors involved were otherwise private individuals performing a liturgy, compulsory service demanded of people with the resources to perform them. In general, liturgists involved in the grain supply served for a single year at a time, so although they held official positions and worked on behalf of the state, they were not ‘civil servants’ or bureaucratic specialists. These duties could be onerous, and sometimes coercion was required.¹⁰¹ In the first century CE, a tax collector wrote a draft of a petition to an unknown official complaining that another tax collector had neglected his duties and asking that the official write to the local centurion to compel his colleague to perform his office.¹⁰² The role of political power is thus clear, but we should also consider the backstory to this petition. Local tax collectors were appointed from the communities in which they served and were personally liable for the taxes they were responsible for collecting, so collectors must have used their interpersonal relationships to encourage their colleagues to uphold their responsibilities. Calling on the political power of the state would have been a last resort.

At the same time, we should also consider some advantages of liturgical service. Positions of power provided prestige and gave the officeholders opportunities to do favors and to make profits. In the late second century, the Prefect of Egypt (*praefectus Aegypti*) sent a threatening letter to certain *strategoï* (regional governors), accusing them of colluding with the donkey drivers.¹⁰³ “You bring them up to the usual number, but you do not compel them to support the usual number of three donkeys. Hence they receive the regular fee for transport, but the *fiscus* suffers.”¹⁰⁴ Economic incentives are clearly at work here, both in the legitimate operation of the supply mechanism (donkey drivers were paid a fee) and in its breach. The *naukleroï* who arranged for ships to transport grain to Alexandria might also have had an economic incentive. They were assigned a certain region and a certain amount of grain to transport, but the strategy seems to have been to clear out public granaries as quickly as possible without necessarily filling the ships to capacity. They would have had room, then, to transport other goods downriver and could probably count on a return cargo from Alexandria.¹⁰⁵ In addition to the economic incentive, service as a *naukleros* allowed one to display one’s wealth and commitment to the state, as in a second-century letter in which a *naukleros* boasts to a *strategos* that he has the capacity to transport not only his quota but all the grain in a nome to Alexandria.¹⁰⁶

On the next leg of the journey, from Alexandria to Italy, economic incentives played the leading role. The economic power of the *fiscus* (royal treasury) was primarily responsible for these incentives, but the political power of the emperor al-

101 Monson 2012, 212–217.

102 *P. Mich.* 10. 582.

103 *BGU* 1. 15 col. 2.

104 *Trans. Adams* 2007, 174.

105 *Adams* 2018, 202–204.

106 *P. Giss* 1. 11; *Adams* 2018, 181.

lowed the government to offer further incentives as well. Grain transport was carried out by *navicularii* (the Latin equivalent of *naukleroi*) operating under public contracts and, from the second century CE if not before, in associations (*corpora*) that facilitated the contracting process.¹⁰⁷ In response to a food shortage, Claudius (r. 41–54 CE) incentivized imports by promising to reimburse merchants for any losses suffered at sea and offering legal privileges to people who built ships of at least 10,000 *modii* capacity (about 70 tonnes).¹⁰⁸ At the beginning of the second century CE, Trajan might have offered immunity from civic liturgies to “those who served the *annona*” of Rome.¹⁰⁹ We must point out here an important ambiguity, though. The term *annona* refers to food supply in general. Fiscally owned grain played an important role in this, but it also included privately owned grain as well as wine, olive oil, and other foodstuffs.¹¹⁰ Whether or not those transporting privately owned goods received immunity is and was uncertain.¹¹¹ The earliest dated evidence for this immunity is a rescript of Hadrian clarifying that the “immunity of maritime ships”¹¹² was restricted to those who “served the *annona* of the city,” and a rescript from the 160s suggests that those who “traded” (*emporeumenon*) oil and grain in Rome received the same privileges as those who “served” the *annona*.¹¹³ What is clear is that the ships that carried the state’s grain to the capital were not themselves owned by the state, and the shippers’ and ship owners’ actions were motivated primarily by the economic power of the state (and the consumers in Rome) rather than its political power. At the same time, the unique ability of the imperial state to offer immunity from liturgies was an important, added incentive that might have extended beyond the carriage of fiscally owned products. At this stage, the distinction between ‘state’ and private supply mechanisms was not clear even in antiquity.

Once the grain got to Rome, it reached consumers by two avenues. The first was the free distribution of grain to some 200,000 privileged citizens, the so-called *frumentationes*, which probably ultimately supported around 400,000 people; the second was through a host of milling and baking establishments.¹¹⁴ The distribution of public grain was a highly political issue. Augustus is said to have wanted to abolish the distribution of grain but could not for fear of giving a potential rival the opportunity to win popularity by reviving it.¹¹⁵ Being entitled to grain from the dole was a mark of status that some advertised on their tomb stones. The people in

107 On the nature of these shippers, Sirks 1991 and De Salvo 1992 have been highly influential. More recently, see Arnaud 2016, 139–150; Rohde 2018.

108 Sirks 1991, 40–44; Tchernia 2016, 211–219.

109 Sirks 1991, 47–50.

110 Geraci 2018, 219

111 Sirks 1991, 53–56 argues that they did not.

112 *Dig.* 50. 6. 6. 5.

113 *Dig.* 50. 6. 6. 6.

114 Erdkamp 2016a; Geraci 2018; Holleran 2019.

115 Suetonius *Divus Augustus* 42. 3.

charge of distributing grain were a mix of members of the imperial household and citizens filling public offices, the highest of which were quite prestigious and remunerative. This avenue, on the last leg of the grain's journey from producer to consumer, is the one where political power was most operative. The political power of the urban populace drove the emperor to exert his own political and the economic power to create and maintain a system of offices and infrastructure that would transfer grain from the public granaries to consumers.

In the other avenue of grain distribution in Rome, through milling and baking establishments, the balance between political and economic incentives tilted more to the latter. The same power of the Roman populace drove the government to ensure that the people who processed grain into bread (milling and baking were generally performed in the same establishment) were supplied with the material they needed to perform their roles. But the government sold the grain to these *pistores* at a price that was only occasionally regulated, thus converting fiscal grain into more flexible money.¹¹⁶ The *pistores* themselves were private businesspeople operating to make money. One famous, monumental, Augustan-era tomb identifies the deceased, Eurysaces, as a *pistor redemptor apparet(oris)*, that is, a baker with a public contract, but there is no other evidence for contracts between *pistores* and the government.¹¹⁷ On the other hand, they were organized into *corpora* that enjoyed privileges similar to those of the *corpora naviculariorum*, and Trajan is said to have established a *collegium pistorum* for the purpose ensuring the continuity of the *annona*.¹¹⁸ What this means for the relationship between the *pistores* and the emperor is not entirely clear. In the early third century, again like the *corpora navicularum*, membership in this association became a liturgy. Nevertheless, the actions of the processors of grain were motivated primarily by economic incentives, with the additional incentive of legal privileges stemming from the political power of the government.

Thus, from the threshing floors in Egypt to the bakers in Rome, the 'state' supply mechanism actually consisted of a variety of actors who coordinated their behavior in response to a variety of (mixes of) incentives. Only at the last stage of the supply chain, and then only in one branch of that stage, was the political power of the state clearly the dominant incentive provider. Political power was also very influential in Egypt through the institution of liturgies, but on the ground there, we saw that the incentives were a mix of political suasion, economic opportunism, and social status construction. In other stages, maritime transport and processing, economic incentives were much more relevant.

116 Holleran 2019, 289–291. On governmental price fixing in the Roman world more generally, see Lo Cascio 2018.

117 *CIL* 6. 1958.

118 Aurelius Victor 13. 5 discussed at length by Sirks 1991, 313–322.

In contrast to Rome, most other cities relied primarily on the market and other local mechanisms to supply grain. But municipal governments interceded here too, using political and ideological power to supplement the economic power of the populace in creating incentives for people to transport and sell grain.¹¹⁹ In the ancient Mediterranean, where crop failures were unpredictable but frequent and information traveled slowly, market forces on their own were insufficient to ensure the steady supply of staple food to non-agricultural urban populations. This has been taken as evidence of the failure of the market in general in antiquity.¹²⁰ Before judging ancient markets too harshly, however, we should recall that grain is a very unusual commodity. Despite structural shortfalls, demand is inelastic, and the consequences of unmet demand are catastrophic. Furthermore, the locations of spikes in demand following a local shortfall are unpredictable, and the value-to-weight ratio of grain is very low. Even in times of severe shortage, there is a ceiling to the obtainable price of grain because most potential customers have limited purchasing power. Responding to grain shortages is one of the most difficult things for a ‘free’ market to accomplish. Indeed, states continue to subsidize the production of staples today, and food shortage and famine persist even in the modern, global economy. The fact that the Roman economy failed to clear this bar, therefore, tells us little about the functioning of the market as a whole.

How cities responded to the omnipresent threat of food shortage, on the other hand, tells us much about the workings of Roman society and the economy. The structural solution that most cities adopted was to establish a grain fund, a pool of money used to buy grain during periods of shortage. This was overseen by a magistrate who was likely responsible for maintaining the fund and for arranging the purchase of grain when necessary. This fund was filled primarily by income from municipal properties and indirect taxes, although elites sometimes made donations.¹²¹ Legal sources reveal that people could borrow at interest from the grain fund as well.¹²² Although the jurists are concerned that the loan be repaid quickly and urge the governor to force repayment if necessary, they also waive the normal limits on excessive interest. Thus, the grain funds could also grow through lending and might have provided an important source of credit.¹²³ In any case, the cities’ solution to the threat of food shortage was a *monetary* fund, not a store of grain.

119 Garnsey 1988 is fundamental. See most recently de Ligt 2020 with further literature.

120 E.g., Erdkamp 2005.

121 Zuiderhoek (2008) argues convincingly for the importance of municipal income over elite benefaction.

122 *Dig.* 50. 8. 2. 3; 50. 8. 2. 5.

123 The identity of the borrowers is not clear, but given the politically sensitive nature of the fund, the prudent manager would have been more risk averse than a private moneylender (cf. Gabrielsen 2005 for public funds providing credit in the Hellenistic period). It seems likely, then, that most loans went to wealthy individuals and institutions or to those with connections to the managers.

Cities relied on magistrates to seek out and buy the necessary grain rather than waiting for merchants to find them, but the incentive provided to the grain dealer was still economic. The incentive for the magistrates was political and ideological. By providing for the food security of their community, they justified their place in the ruling class and the power of the increasingly oligarchic elite as a whole.¹²⁴ This was part of a larger pattern of benefaction surrounding food supply. In times of crisis, local elites would sometimes sell their grain at below-market (though still elevated) rates in return for honor and gratitude. Without the grain fund, however, this could not have served as a durable, structural solution to food insecurity because these very same elites benefitted from elevated prices. Indeed, speculative hoarding by local elites that artificially inflated grain prices, rather than harvest failures, were often blamed for causing or at least exacerbating food crises. The ideological incentive that drove spontaneous benefactions was just as insufficient as the economic incentive that drove spontaneous sales of grain. Instead, a regular, institutionalized solution was found that brought together the ideological incentive of civic engagement driving the magistrates, the economic incentive of profit driving the grain dealers, and the political power of the city that raised the money needed.

The interest of the emperor and of municipal governments made grain supply mechanisms exceptional in the Roman economy. In both cases, the political power of the state, imperial and municipal, played an important role in generating incentives, but it is notable that many of the individuals involved were responding as much to the state's economic power. If this supply system, focused as it was on the large-scale movement of bulky cargos, incentivized the construction of larger ships or tighter cohesion of voluntary organizations (as in the *corpora naviculariorum*), it would have influenced general supply mechanisms as well.¹²⁵ In any case, at every step in the supply chain, individuals coordinated their behavior in response to a complex mix of incentives, just as in the general supply mechanisms discussed above.

IV Coordinating Production: Connecting Human and Physical Capital

Coordination of behavior was also critical in the production process. As in supply mechanisms, coordination was motivated by a tight combination of economic and social incentives operationalized through culturally specific institutional forms. Here I focus less on the particularized incentives and more on the overall organizational forms in which labor of different types was combined with capital to produce

¹²⁴ De Ligt 2020, 42–45; Zuiderhoek 2008, 172–177; 2013.

¹²⁵ Arnaud 2016, 139–150.

the goods that were distributed through supply mechanisms and consumed by the consumers discussed above. I focus in particular on two production systems that were particularly characteristic of the Roman economy: market-oriented agriculture, and workshop-based craft production.

A wide variety of institutions existed in the Roman world to mobilize labor.¹²⁶ In the past, scholars heavily emphasized the role of slave labor, and there is still a case to be made that, because of the structural position of slavery in supporting the economic and social power of the dominant class, the Roman economy could be called a ‘slave economy.’¹²⁷ However, as more and more documentary evidence comes to light from more different contexts, the ubiquity of wage labor even in industries once thought to rely on slave labor has shifted the emphasis away from slavery.¹²⁸ Here, rather than trying to characterize the economy as a whole, I prefer to highlight the combination of labor mobilization strategies in productive endeavors.

IV.1 Agricultural Production Systems

One characteristic feature of the Roman economy that sets it apart from other pre-modern economies is the widespread distribution of bulky foodstuffs. This marketed surplus could be produced in a variety of ways. Rabbinic literature contains off-hand descriptions of small-scale householders bringing produce to market,¹²⁹ and Kron has argued that small-scale agriculture in Italy was intensive and market-oriented as well.¹³⁰ Thus, it would be wrong to imagine a mass of peasant, subsistence farmers juxtaposed with market-oriented, wealthy landowners. Nevertheless, the focus here will be on the activities of wealthy landowners because this is where we see the most complex and strategic coordination of labor and capital.

The wealthy landowner had two, complementary options for exploiting land: direct management and leasing to tenants. In the former system, the landowner was heavily involved in arranging labor and capital and in making decisions about cultivation.¹³¹ This is the type of exploitation described by the Roman agricultural writers, and the ostensible purpose of their handbooks was to guide the owner’s

126 Verboven and Laes 2017, 6–13; Zuiderhoek 2017.

127 Scheidel 2012, 89.

128 Verboven and Laes 2017, 7–9 for an overview.

129 Rosenfeld and Perlmutter 2020, 124.

130 Kron 2000; 2008; de Ligt 1990 for the marketing activity of ancient peasants in general. But see de Ligt 2012 for the impoverishment of the Italian peasantry in the Republican period.

131 Although Columella seems to imply that landowners might have some influence over how their tenants cultivate the land when he advises the landowner to “be more exacting in the matter of work than of payments” because “when land is carefully tilled it usually brings a profit” (*De re rustica* [Rust.] 1. 7. 1, trans. Ash).

decision-making process. The agronomists are an invaluable source for describing the ‘villa economy,’ which became prominent in west-central Italy beginning in the mid-Republic.¹³² Typically, this involved heavy investments of capital in medium-sized estates worked primarily (not exclusively) by slaves and managed by a servile overseer. The use of slave labor in this type of agriculture is directly connected to the wars of conquest in which thousands of captives were sold into slavery, and to Italian sociocultural structures that tied prestige to property ownership and valorized autarky (the consumption of goods produced within one’s household). Villas – the architectural complexes at the heart of these estates that combined well-appointed residential quarters and productive infrastructure for processing crops – and the cultivated fields themselves played an important role in aristocratic self-fashioning.¹³³ The use of slave labor, then, was not purely an economic decision.¹³⁴ It did, however, allow the landowner a high degree of control over cultivation efforts, allowing them to finely calibrate labor with other capital inputs, the amount of land and the capacity of processing equipment like presses.¹³⁵ It also allowed them to enforce specialization – both at the level of the individual¹³⁶ and at the level of the property, emphasizing certain cash crops.

Slave labor, however, was not the only option for achieving such control. All of the agricultural writers assume that their readers’ land is cultivated either by slaves or by tenants,¹³⁷ and that hired labor is used primarily for seasonal tasks such as harvesting and processing. However, in Egypt, a third-century large-scale landowner managed his property differently.¹³⁸ We know of this management through the archive of one Heroninos, the overseer of one part of the estate. The labor force of this section was a mix of (predominantly) short-term wage labor and two types of longer term wage labor. *Oiketai* worked for the estate their entire lives in return for accommodation, rations, and a modest cash salary; *metrematiaioi* had more special-

132 White 1970 remains fundamental. For more recent overviews, Kron 2017; Launaro 2015.

133 Purcell 1995.

134 The profitability of slave labor is the subject of ongoing debate. Launaro 2015, 183–185 for a balanced overview.

135 Cato lists the equipment and personnel required for specific sizes of olive orchard and vineyard (*De agricultura* [Agr.] 10–13), while Columella, using the language of a mathematical proof, traces the precise amount of labor needed to cultivate a variety of crops and uses these to calculate the total labor requirements of an estate (*Rust.* 2. 12).

136 E.g., Cato *Agr.* 66–67 describes the duties of the watchmen and ladler in an oil pressing establishment, and Columella *Rust.* 3. 3. 8 distinguishes between a cheap vine dresser and an expensive one, who could sell for as much as 8,000 *sesterces*, almost nine times the annual salary of a legionary.

137 Cato primarily assumes slave labor, but also includes terms for leasing land (*Agr.* 136–137); Varro has a typically systematizing statement that “all agriculture is carried out by men either slave or free or both” (*De agricultura* 17. 1. 2); Columella describes how an owner should behave toward his people, being “either tenants or slaves” (*Rust.* 1. 7. 1).

138 Rathbone 1991; 2005; cf. Kehoe 1992 with the review by Bagnall 1993.

ized functions and worked for a fixed period ranging from months to years. They also received a wheat ration and cash salaries, but these often exceeded those of the *oiketai*. While the *oiketai* were not slaves, they must have been socially dependent on the estate and its managers to a certain extent. Because the Heroninos archive is unique, it is difficult to know if this style of management extended beyond third-century Egypt. Nevertheless, it shows that large-scale agricultural production systems with close, sophisticated management of labor and capital did not require the extensive use of slaves. Even market-oriented, rational, ‘capitalist’ agricultural production is a product of its sociocultural context, and the labor regimes that underpinned that production must have varied accordingly.

Landowners did not manage all of their property so closely. Columella writes that distant estates, which the owner could not easily visit, should be leased to tenants.¹³⁹ Tenancy, which must have existed in some form everywhere in the Roman Empire, took a variety of forms, but it always combined the capital resources of the owner with the labor resources of the tenant.¹⁴⁰ According to standard Roman law, the owner provided not only the land but also the fixed and heavy farm equipment needed for cultivation (buildings, presses, storage vessels, etc.) while the tenant provided the movable capital (tools and slaves), which functioned as security for the rent. Although there was clearly variation,¹⁴¹ this division of capital investment seems to have been common throughout the empire. In the “parable of the wicked tenants,” told in first-century CE Palestine, a man plants a vineyard, encircles it with a wall, digs a pit for a wine press, and builds a tower before renting it out.¹⁴² More complex arrangements were possible too. In Egypt, *P. Oxy* 4. 707 records a lease in which the tenant was responsible for significant capital improvements to a vineyard, including the construction of a water wheel, but the owner provides liquid capital for the project.¹⁴³ The tenant’s contribution of labor did not always come from themselves or their household. In second-century CE Judaea, a large-scale landowner leased multiple plots to a man named Hillel, who then sublet them to cultivators.¹⁴⁴ Tenancy, then, provided a very flexible institution for combining labor and capital to produce agricultural surplus.

Given the ubiquity of cash rents and the leasing of fields planted with a single cash crop, much of the produce from these arrangements was destined for the market. It is possible that the landlord provided resources here as well. Kehoe has ar-

139 *Rust.* 1. 7. 6.

140 For a brief overview, Broekaert and Zuiderhoek 2020, 101–107. Kehoe has studied tenancy extensively using especially the legal sources (1997; 2007a). See also Erdkamp 2005, 23–33.

141 E.g., Pliny the Younger, contemplating buying a property where the owner had seized the movable capital of the tenants, assumed he would have to provide slaves and other movable equipment to them without considering the possibility of finding other tenants (*Ep.* 3. 19).

142 Mark 12. 1 with Keddie 2019, 96–97.

143 Bagnall 1993, 133–134 discussing Kehoe 1992, 136–137.

144 *P. Mur* 24 with Keddie 2019, 95.

gued on the basis of Pliny's letters and legal sources that the senator sold not only his own share of the produce, but that of his tenants as well. When the tenant was relatively poor, this practice would have greatly facilitated marketing. The landlord already had control of a great deal of produce and therefore was an attractive business partner to merchants. Furthermore, the social power of the landlord gave them added bargaining power when agreeing on a price. Small scale cultivators who had to dispose of their own crop would probably have had to carry it themselves to a market (assuming there was one nearby), where they would not have been able to negotiate as high a price. Tenancy, therefore, could serve to coordinate not only labor and capital for production but also produce and merchants for distribution.

IV.2 Manufacturing Systems

With a few, notable exceptions,¹⁴⁵ most manufacturing systems in the ancient world were loosely integrated. The industrial-era factory, which combined multiple types of labor and capital in one tightly integrated organization, was not the mechanism that produced *terra sigillata* and other products on such impressive scales. Rather, labor and capital came together through short-term agreements between small work groups and property owners that were mediated by social relations.¹⁴⁶ In light of the impressive ceramic production evident from the archaeological record and documentary evidence of specialization, this is surprising to modern scholars. Kehoe explained this fragmentation as a result of elite hesitancy to invest in 'sordid' and risky commerce,¹⁴⁷ but Hawkins has proposed a more structural explanation that highlights the costs of integration.¹⁴⁸ On the one hand, Hawkins sees all ancient demand as highly seasonal, and the demand of elites to be particularized and therefore unpredictable, whereas integrated production systems are most efficient when demand is regular and predictable. On the other hand, the costs of subcontracting parts of the production process were lowered by voluntary associations.¹⁴⁹ Geographic clustering of industries would have had a similar effect.¹⁵⁰ To better understand how this loosely integrated production system worked, we can examine three different sets of relations: those that bound the workgroup together, those between workgroups, and those by which workgroups acquired raw materials and equip-

145 See Fabian and Weaverdyck, ch. 3.A, VIII.2, this volume.

146 Hawkins 2012 for an overview.

147 Kehoe 2007b, 561–562. Murphy 2017, 145 summarizes some alternative explanations similarly focused on elite investment.

148 Hawkins 2012; 2016; 2017b.

149 There is little empirical evidence for the coordination of labor within associations, as pointed out by Evers (2017, 66 n. 492), but it is plausible.

150 Goodman 2016.

ment. Relations by which manufacturers acquired credit to finance their activities are addressed in the next section.

Workgroups were generally led by a skilled craftsman, supported by a staff consisting of both skilled and unskilled workers.¹⁵¹ Given the structural underemployment of agricultural economies, unskilled labor was probably fairly easy to hire on a short-term basis. A third-century contract for the production of 15,000 amphorae specifies rates of pay that vary by season, likely reflecting variations in the number of support staff required.¹⁵² Skilled workers would have been harder to come by, and therefore are more likely to have been long-term employees. Hawkins argues that these were most likely slaves because free skilled workers could have left their employer in times of peak demand and would have been able to refuse certain tasks considered to be degrading.¹⁵³ On the other hand, Freu's analysis of apprenticeship contracts in Roman Egypt suggests an alternative source of skilled labor that would, nevertheless, have remained socially bound to the master.¹⁵⁴ Freu also identifies a group of less-privileged workers, with shorter apprenticeships, who, though skilled, were not able to own their own firm, and therefore would have worked for others.¹⁵⁵ Skilled slaves could either operate a workshop themselves or be hired out by their master. Finally, within the context of a larger project, skilled workers might temporarily work for others. A stone cutters' contract from the second century CE stipulates that two stone cutters will supply blocks for a building project and work for the builders if required.¹⁵⁶ Workgroups, thus, were made up of a small, hierarchical core group (or individual) that could expand or contract as needed, but that expansion cannot have been costless. In the case of the stone cutters and the builders, the client incurred the search cost of finding the stone cutters and economized by bundling their services with that of the builders. The amphora maker's contract specified that he would provide the assistants,¹⁵⁷ so he bore the search cost. To successfully create 15,000 amphorae in a year, the potter must have been plugged into social networks through which he could find the labor he needed.

A similar problem confronts craftsmen who make complicated products requiring the skills of several specialists.¹⁵⁸ This is especially evident in the production of luxury goods. The ivory and citrus wood tables mentioned above required not only the import of both ivory and (at first) citrus wood, but also the services of wood carvers, ivory carvers, joiners, and possibly other craftsmen. The demand for these

151 Freu 2011.

152 *P. Oxy.* 50. 3595; Freu 2011, 39.

153 Hawkins 2017b.

154 Freu 2011.

155 Freu 2011, 39–40.

156 *P. Oxy.* 3. 498; Freu 2011, 40.

157 *P. Oxy.* 50. 3595 l. 18–19; Freu 2011, 39.

158 Hawkins 2012.

tables did not stimulate an ivory-and-citrus-wood-table factory, but rather *collegia* of ivory and citrus wood traders and craftsmen. Interestingly, the traders seem to have excluded the craftsmen from their *collegium*,¹⁵⁹ and we hear of other *collegia* for craftsmen.¹⁶⁰ Coordination between traders and craftsmen, then, required alternative social networks.¹⁶¹ Even if the craftsmen within a *collegium* did coordinate amongst themselves, there is no evidence that the written rules of the *collegia* governed or enforced such relationships.¹⁶² Associations provided the opportunity to form social ties, but they were not the only venue for this relationship building. One can interpret the epigraphically attested cluster of gem and jewelry traders and workers on the *via sacra* in Rome in similar terms.¹⁶³ While a *collegium* of gold workers that would have connected different gold-working specializations is attested,¹⁶⁴ the variety and variability of jewelry that elites commissioned could only have been produced through the cooperation of traders in different metals, gems, and pearls as well as craftspeople specializing in different processes. Even the cutting and engraving of gems were performed by different specialists.¹⁶⁵ Rather than uniting in an association of jewelry makers, these specialists, who often had their own *collegia*, seem to have coordinated their labor primarily through the physical proximity of their shops.¹⁶⁶

Examining the owners of the raw material, however, shows that coordination was not always initiated by the craftsmen themselves. In most cases, it seems that gem cutters and other jewelry makers worked with gems that belonged to their clients. We can imagine someone in search of jewelry visiting the *via sacra*, buying the pearls, precious stones, and metal they needed, and then walking next door to the craftsmen who would process these materials into a finished product.¹⁶⁷ Similarly, producers of bricks, tiles, and amphorae worked clay that was owned by landowners on a contractual basis. Sometimes the landowner demanded a certain number of amphorae to store and ship the produce of their estate, but other times they provided the clay in return for cash.¹⁶⁸ A similar arrangement, in which artisans leased usufruct rights to clay fields, probably also supplied the raw materials for

159 Evers 2017, 19–22. It was forbidden to admit anyone other than a *negotiator eborarius aut citriarius* (CIL 6. 33885, l. 4).

160 E.g., the *citriarii Neapolitani*, who had a communal burial ground at Rome (Evers 2017, 19).

161 Liu (2017) emphasizes the importance of other, less formal social networks and the potential for competition between and even within *collegia*.

162 Evers 2017, 66–67.

163 Evers 2017, 50–54.

164 Hawkins 2012, 179.

165 A Pompeian graffito records the friendship between two such specialists (CIL 4. 8505; Evers 2017, 51).

166 In addition to clustering, Evers (2017, 48–67) emphasizes patronage as an alternative to associations. Evers 2017, 50 for specialist jewelers' *collegia*.

167 Broekaert and Zuiderhoek 2020, 130–131.

168 Kehoe 2007b, 561–562.

terra sigillata production.¹⁶⁹ In some cases, the landowners leased out not only the clay field but the equipment as well.¹⁷⁰ However, the ownership of urban-based workshops, as at Sagalassos, was probably separated from that of the raw material. Given the investments required, it is usually assumed that these facilities were owned by elites and rented to craftsmen.¹⁷¹ On the other hand, successful craftspeople could sometimes save up enough money to invest in property, such as the first-century Egyptian weaver Tryphon, who owned several properties and managed weaving workshops when he was too blind to weave himself.¹⁷² It is difficult to say how exceptional Tryphon was, but given that most artisanal operations were small in scale, it seems safer to assume that, in most cases, workshops were owned by a landowning elite. Through what channels these were rented out is difficult to say, but in some cases at least they would have been rented to slaves and freedmen of the owner.¹⁷³

The fact that productive systems were fragmented made them versatile, and they could easily expand through the creation of new work groups. However, it also meant that the costs of coordinating activities to produce complex items were not borne by any one firm alone. Sometimes the client bore the cost, and other times it was borne by the producers, but the labor of arranging for production could never be taken for granted. As a result, there was a constant need for people who would arrange things, for fixers and brokers. Simply making arrangements must have occupied a huge portion of the time of *negotiatores* as well as *procurators* and other agents. These fixers were the central nodes in networks that connected not only different types of labor and capital, but also distribution systems and, ultimately, consumers.

V Facilitating Institutions

In both production and in supply mechanisms, interpersonal social relationships played a major role in coordinating economic activity. There are two different ways in which institutions facilitated this coordination and expanded the possibilities for coordinated behavior: they strengthened and extended the reach of social relations, and they took some of the pressure off of social relations in conducting business. Many of these institutions are described more fully in chapters 3.A and 8.A above. In this section, I explore how they operated together to expand the social networks within which economic activity took place.

169 Poblome 2016, 389–391.

170 Broekaert and Zuiderhoek 2020, 135.

171 Broekaert and Zuiderhoek 2020, 131–134.

172 Freu 2011, 36–37.

173 Broekaert 2016.

I begin with institutions that strengthened long-distance interpersonal relationships. Some institutions structured strong interpersonal ties between individuals, such as personal patronage and friendship, the *familia* (including slave owning), and membership in a voluntary association. The networks that these ties constituted could transcend great distances in several ways. Trade diasporas are one well-known form, and city-based associations of shippers such as those attested in the *piazzale della corporazione* in Ostia might have functioned similarly. We should also, however, consider the landholdings of the imperial elite. These might have been dispersed across the empire, but even if concentrated in a particular region, they would have tied that region to Rome. The networks of *publicani* functioned on the basis of the Roman legal institution of *societas* ('partnership') rather than kinship, but they also spanned huge distances. The army provided an even stronger institutional framework for long-distance relationships, binding not only soldiers to each other, to officers, and to suppliers, but to their communities of origin as well. The social relations that members of the Italian diaspora (*negotiatores* in the middle and late Republic and colonists at the end of the Republic and beginning of the Principate) would have maintained with friends and relations back in Italy might have been less formally institutionalized. But the sheer number of them, the (possibly weak) ties between the emigrants, and their (informally) privileged standing in the network of the Roman state made Italians abroad an important part of empire-wide social networks.¹⁷⁴ All of these networks were either created, expanded, or recentered as a result of Rome's conquest of the Mediterranean and much of continental Europe.

The Italian diaspora highlights the importance of institutions that had the potential to bring people together casually and therefore form weak ties. Italian identity was one, Roman citizenship another. Citizenship and origin in other cities would also have been important, but was obviously less widespread. Religion also played a role. Some gods were strongly associated with particular cities, but other religions, such as Christianity, the Isis cult, and Judaism, would have facilitated weak-tie formation in the absence of common origin. We could add to this list linguistic ability and education.

This enumeration of institutions that supported long-distance social relationships and therefore economic activity might sound overdetermined, but the plurality of institutions is actually important. Relationships articulated through multiple institutions are often stronger than those articulated through only one, and if weak ties can arise from multiple institutions that do not completely overlap, the chances of weak-tie formation increase. The ties that bound the Tyrian trade diaspora might have been strengthened by being articulated through both origin and religion, but these coterminous institutions did not broaden their network in the way that Christianity allowed someone from Tarsus to connect with people in Corinth. The prolif-

174 Weaverdyck, vol. 1, ch. 7, 282–285.

eration of partially overlapping institutions that could structure social relations, then, must have increased the density and the reach of social networks.

While many institutions facilitated complex economic activity by supporting social relationships, others did so by taking some of the pressure off of those relationships, allowing weaker ties to bear the weight of more involved economic transactions. I discussed above how the collective reputation of trading colonies and voluntary associations helped outsiders to do business with members despite imperfect knowledge about the individual. Roman law similarly increased the predictability of people's behavior. While never imposed, Roman commercial law could be applied to and by noncitizens, and provincials were able to use these laws in court to persuade (Roman) judges to rule in their favor. It is not a coincidence that the development of commercial law coincides with a dramatic rise in the number of shipwrecks in the last two centuries BCE.¹⁷⁵ In the imperial period, the universality of Roman law is often cited as a major factor in lowering transaction costs by providing a common ground from which to negotiate, and this it probably did. Here I would emphasize, however, the law's enforcement function. Even if Roman courts were difficult to access and failed to enforce their decisions,¹⁷⁶ judgement from a Roman magistrate affected one's social standing and legitimized private-order enforcement. The threat of being sued was usually enough to compel cooperation. The law did not obviate considerations of reputation and relationships, but by reducing the risk of misbehavior it allowed economic transactions to be carried out across weaker social ties.

Monetization allows for transactions across very weak ties. The spread of the *denarius* as a top currency lowered transaction costs in numerous ways, and the impact of the phenomenal production of widely accepted coins in the last two centuries BCE and the first two centuries CE can hardly be overstated. However, coinage was only one, albeit critical, part of a deeply monetized economy.¹⁷⁷ Equally important were the institutions that allowed for the flexible and profitable reallocation of money between actors, that is, financing. First, the role of inheritance in passing money (as well as business networks and other forms of capital) down through the generations of a single household should not be forgotten. Several trading dynasties involved in Indian Ocean trade are known, and a second-century CE poet, in denying involvement in this trade, says he has no "inherited business."¹⁷⁸ Those who controlled large patrimonies and engaged in multiple enterprises would also reallocate profits between these enterprises.¹⁷⁹ This is where the *peculium* that a slave

¹⁷⁵ Candy 2020.

¹⁷⁶ See n. 76 above and Weaverdyck and Fabian, ch. 8.A, V.2, this volume.

¹⁷⁷ Verboven 2009 for deep monetization and different monetary modes.

¹⁷⁸ Dionysius Periegetes, 710; De Romanis 2020, 314. For trading dynasties, see Tchernia 2016, 38–71 and Evers 2017, 91–97 for Indian Ocean dynasties specifically.

¹⁷⁹ Rathbone 2003.

would use to operate a business or the start-up capital lent to a freedman came from. Roman business partnerships (*societates*) were legally fragile, so household institutions played an important role in allowing for the accumulation of funds over time that could then be deployed in major enterprises. However, the custom of partible inheritance would have checked this accumulation.

In addition to the household, there were a variety of institutionalized relationships through which money could be reallocated. *Societas* is the Latin legal term for a partnership entered into by partners (*socii*) for a specific purpose, either an ongoing business or a specific task. The *socii* shared all profits and losses arising from the endeavor equally unless otherwise specified.¹⁸⁰ By entering into a *societas*, humbler craftsmen and traders could pool resources, and the wealthy could invest in the activities of others. Although *societates* were often formed by people who were already connected by other relationships,¹⁸¹ the legal protections that this contractual form offered and the pooling of losses allowed them to take greater risks than they otherwise would have. Plutarch, writing in the second century CE, describes a *societas* of 50 partners and ships formed at the instigation of Cato the Elder (second century BCE), who thereby reduced the risks of investing in shipping.¹⁸² *Societas* also allowed for pooled resources to be deployed in capital-intensive ventures. The astronomical value of one cargo in the Indian Ocean trade suggests the operation of *societates*, though no positive evidence has been found.¹⁸³

The other way to allocate money to productive enterprises was through credit. Here again, social relationships were paramount,¹⁸⁴ but in the Roman world there were intermediating institutions that allowed those with money to extend credit both within and beyond their immediate circle. Within a social circle, it was considered one of the duties of friendship to stand surety, to guarantee a friend or client's loans.¹⁸⁵ Although the creditor could technically extract payment from the guarantor, it was more common that the guarantor acted as an intermediary between the creditor and defaulting debtor, putting pressure on the latter to pay. The practice of witnessing contracts, which in Roman contexts was an important element in the

180 The legal scholarship on Roman *societates* is vast. For a recent overview with a legal emphasis, see Fleckner 2020; see Broekaert 2012 for the perspective of an economic historian.

181 Broekaert 2012, 247–248.

182 Plutarch, *Life of Cato the Elder*, 21. 6–7; Broekaert 2012, 225. Doubts about the historicity of the story do not detract from its value as an illustration of the risk-buffering function of *societates* in Plutarch's time.

183 De Romanis 2020, 312–317. De Romanis argues that the loan recorded in the Muziris Papyrus covered only transportation costs within Egypt and so envisions a *societas* of merchants who pooled money to pay for the cargo. Others see the loan as covering the cost of the cargo itself and imagine a *societas* of financiers backing the merchant (e.g., Verboven 2020, 393). In the papyrus itself, borrower and lender are both referred to in the singular.

184 For interpersonal loans, see Verboven 2002, 116–182.

185 Verboven 2002, 140–148.

performance of social status, similarly mobilized communal pressure to enforce the terms of an agreement by tying the reputation of the witnesses to the behavior of the contracting parties.¹⁸⁶

Other institutions encouraged the extension of credit more broadly. Charging interest was expected, with rates fluctuating between four and twelve percent per annum.¹⁸⁷ Maritime loans, in which the money is taken overseas and the loan is secured by the cargo, had higher interest rates because the creditor bore the risk of losses caused by ‘acts of god’ (shipwreck, piracy, etc.).¹⁸⁸ Lending money at interest was profitable, and loans typically constituted a significant portion of the fortunes of the wealthy.¹⁸⁹ In Petronius’s *Satyricon*, vagabonds constructing the character of a rich man say that he has thirty million *sesterces* invested in Africa in “estates and debts.”¹⁹⁰ Benefactors wishing to fund something (usually a ceremony) in perpetuity would often establish an endowment, usually a cash fund to be lent at interest, with a city or an association.¹⁹¹ We have little data on borrowers, but members of the association or citizens of the city in question are likely. For small-scale craftsmen and traders, membership in an association provided access to modest but important loans.

There were several types of financial specialists who handled loans. The wealthy might appoint slaves and freedmen to lend their money as *faeneratores* (those who lend money at interest). Independent *faeneratores* would lend out multiple people’s money for a share of the interest. Bankers (La. *argentarii*, Gr. *trapezitai*) form another category, distinguished by the fact that they took deposits and used the pooled deposits to lend. Some of our best evidence for financial intermediation comes from two sets of tablets found in Pompeii, parts of larger archives kept by financiers.¹⁹² One set (that of the Lucundi) concerns mostly loans advanced to cover purchases made at auction, a function performed by *argentarii*. The other set (of the Sulpicii) is more diverse, and there is no consensus as to whether they refer to the actions of *argentarii* or a different type of financial specialist.¹⁹³ This makes it difficult to delineate the realms in which *argentarii* and *faeneratores* operated, but deposit bankers generally made smaller, less risky loans than *faeneratores* because their deposits could be recalled at any time.¹⁹⁴ High-risk maritime loans in particular were the province of *faeneratores*.

186 Terpstra 2019, 125–167.

187 Andreau 1999, 90–99.

188 Rathbone 2003.

189 Andreau 1999, 9–29.

190 *Fundis nominibusque*, Petron. *Sat.* 117. Describing a great fortune as a combination of land and loans was typical. For further examples, see von Reden 2012, 279–280.

191 Liu 2008; Hoyer 2018, 31–50.

192 Rathbone and Temin 2008, 395–402 for an overview with further literature.

193 *Argentarii*: Rathbone and Temin 2008, 397–398; other types of intermediary: Verboven 2008, 219–224.

194 There were very wealthy *trapezitai* on Hellenistic Delos operating at a larger scale, but no similar examples from the Principate have been found (Andreau 1999, 49; Verboven 2020, 388).

Deposit banks were ubiquitous, and every city probably had at least one, but they did not form a superregional network. Bankers would execute payments on behalf of their clients, often simply transferring money between accounts. By opening accounts with other bankers, as we know happened in Egypt, bankers could effect interbank transfers, but this was probably rare.¹⁹⁵ Most banks operated on a local level. Because they were risk averse and dealt in modest sums, their clientele included successful urban craftsmen and retailers as well as lower-level local elites. Iucundus financed the sale at auction of a lot of boxwood, likely a loan to a furniture maker.¹⁹⁶ If the boxwood traveled over sea before being sold, that leg of the journey would have been financed by a *faenerator*. The various credit specialists performed complementary functions in the overall economy.

The small scale of banking operations makes it all the more noteworthy that deposit bankers, rather than *faeneratores*, drove institutional innovation in the middle and late Republic. Roman jurists had to invent or stretch the meaning of legal forms to account for their practices.¹⁹⁷ In contrast to other *societates*, by the early first century BCE it was customary to hold members of a banking *societas* responsible for the actions of their partners. By the early third century CE this custom was considered established law.¹⁹⁸ When a client mandated that their banker execute a payment, the banker became liable to the payee rather than the client. To cover the banking practice of making payments by paper transfer, the jurists invented the *obligatio litteris*, a debt created by entering it into an account. This was extremely useful for *faeneratores* and other businessmen as well.

Specialized brokers connected lenders and borrowers. The first-century CE senator Seneca wrote, “to be able to do business, you ought to take a loan, but I do not wish you to borrow through an intercessor (*intercessor*) nor for the brokers (*proxenetae*) to discuss your reputation.”¹⁹⁹ Philostratos, in the late second and early third century CE, describes merchants as constantly in search of brokers.²⁰⁰ In order to make a profit, bankers, brokers, and *faeneratores* needed to have information about borrowers and lenders, so they took on the search and information costs inherent in credit transactions. Without these specialists, borrowers and lenders would have

195 Verboven 2020, 387–388.

196 *CIL* 4. 3340. 5; Verboven 2020, 389.

197 Andreau 2020, 103–106; Rathbone and Temin 2008, 392–393; von Reden 2012, 282–283; Verboven 2020, 389–390. The chronology of these innovations is not very clear, but many date to the last two centuries BCE.

198 Andreau 2020, 105.

199 *Epistulae* 119. 1. In the last part of the quote, *nomen tuum iactent* can mean “discuss your reputation” or “toss about/flourish your debt.” The principal meaning of *nomen* is ‘name’ but secondary meanings include both ‘reputation’ and ‘debt,’ specifically, written notices of debt that, Harris argues, could be traded and therefore “tossed about” (2006; 2019; but cf. Verboven 2020). For the close connection between debt and reputation, see Verboven 2002, 174–177.

200 *Life of Apollonios* 4. 32; De Romanis 2020, 184–186.

had to rely on their own personal networks to obtain the information required, limiting the number of potential partners. By maintaining even weak relationships with a diverse group of individuals, financial specialists acted as bridges that moved money between distinct social networks. These relationships were able to bear the complex transactions that they did because they were structured by the institutionalized roles and formal rules of financial intermediation.

While the above institutions played important roles in facilitating economic transactions, the most fundamental institution of the Roman economy, which both supported the formation of social relationships and took pressure off of them, was the city. Demographic concentration made interaction between the inhabitants of the city easier, allowing craftsmen, landowners, financiers, and consumers to more easily coordinate their behavior. Institutions that structured relations within the city, such as bathing and spectacles, also promoted relationship formation and maintenance. Cities facilitated long-distance relationships as well. It is significant that the Tyrians in Puteoli paid for a Puteolan festival and maintained relations with Tyre. On the other hand, cities also facilitated transactions across less close relationships. Cities maintained their own courts to settle disputes, lessening the burden placed on reputation to facilitate transactions. Much of the retail activity that occurred in urban marketplaces was impersonal. In Apuleius's anecdote about the overzealous *agoranomos*, mentioned above, the fishmonger and the customer are strangers, and the personal relationship of the *agoranomos* to the customer impedes business.²⁰¹

Cities also have a role in the dissemination of information. Urban networks in general facilitate the long-distance transportation of goods by providing fixed locales where supply and demand for different products is somewhat predictable. This knowledge circulated within merchant communities, although we only catch rare glimpses of it as in the *Periplus Maris Erythraei* (*PME*) and perhaps in Strabo's descriptions of cities' specialized products. Even if precise information about the current market conditions at any given place was difficult to come by, there were some regularities that increased the chances of a profitable voyage (Alexandria supplied wheat and Indian Ocean imports, which were consistently in demand in Rome).²⁰² Urban networks in the ancient Mediterranean were also bound by festival circuits and the travels of Roman governors through their provinces. These periodic events brought crowds and commerce to different cities in a predictable cycle from which traders benefitted. As central places in urban networks, the ties of which were articulated through culturally specific institutions, cities increased the predictability of supply and demand, providing vital information to which producers and merchants could respond.

²⁰¹ Apul. *Met.* 1. 24–25.

²⁰² Evers 2017, 81–82 for the importance of structural market opportunities in the Indian Ocean trade.

VI Conclusion: Intra- and Extra-Imperial Economic Relationships

The account just given of the social relationships across which economic activity took place within the Roman Empire also sheds light on how people from the Empire conducted business beyond the reach of its political power. To summarize: State and elite consumption played critical roles in shaping trade networks and establishing a common repertoire of consumable goods, but the consumption of urban and middling groups provided more of the fuel that drove the Roman economy beyond what was achieved in most other premodern economies. The resulting economic activity, both distribution and production, was coordinated across social relationships that provided additional noneconomic incentives and shaped the particular forms that this activity took. These social relations were structured by institutions that increased the geographical extent of networks and allowed weaker ties to bear the weight of more complex and risky transactions. Cities in particular played a crucial role at all stages by concentrating people in space, providing fixed points of demand and distribution, and maintaining facilitating institutions.

In all of this, the role of the Roman imperial state is important, but not central. The Empire extended social networks across the Mediterranean and its hinterland through conquests that resulted in the Italian diaspora, dispersed landholdings, the spread of Roman citizenship, and the far-reaching organizations of *publicani* and the army. The urbanization of the Western Mediterranean increased consumption and expanded markets. The provision of coinage in previously unheard of quantities, the elaboration of financial institutions that originated in the Eastern Mediterranean, and the development of a relatively consistent legal framework all lowered transaction costs. However, these are all beneficial modifications of and additions to a system of Mediterranean trade that predated the Empire.²⁰³ That system was based on social ties structured by household institutions, voluntary associations, cities, religion, and trade diasporas. The contribution of the Roman Empire was to make these institutions more economically effective.

Many of the institutions that structured the Roman Economy, then, were transferrable to extra-imperial spaces. Roman businessmen operating in the Indian Ocean relied heavily on household institutions, voluntary associations, and trade diasporas.²⁰⁴ Members of the Annius family are attested operating from Puteoli to the Indian Ocean.²⁰⁵ The Nabataeans and Palmyrenes relied not only on informal, strong social ties, but on formally organized associations to conduct business across imperial frontiers.²⁰⁶ The evidence for non-Roman trade diasporas inside the Empire

²⁰³ Von Reden 2019; see also von Reden ch. 12.A, this volume.

²⁰⁴ Seland 2013; Evers 2017; Cobb 2018b, 149–178.

²⁰⁵ Evers 2017, 91–93.

²⁰⁶ Evers 2017, 127–134.

is fairly strong,²⁰⁷ but there are also some indications of merchant diasporas from the Empire in the Indian Ocean.²⁰⁸ ‘Yavanas’ (western foreigners) that appear to be Roman merchants are attested in Sangam literature from southern India.²⁰⁹ The *PME* mentions a community of resident foreigners on the southern coast of the Red Sea who would buy Roman money and reports that one could import grain to Muziris and other ports in southern India “in sufficient amount for those involved with shipping, because the [sc. local] merchants do not use it.”²¹⁰ Finds of amphorae, *terra sigillata*, and even gaming counters in India bear this picture out.²¹¹ Egyptian and Mediterranean coarse wares also suggest diaspora communities in southern Arabia.²¹² Distinctive foodways would have set these diasporic communities apart from their hosts and strengthened social cohesion within the communities. If they successfully maintained a communal reputation within their host communities, these foodways might also have functioned as identity markers that facilitated transactions between merchants and locals. Religion also played a role. The *Tabula Peutingeriana* shows a temple of Augustus at Muziris. Although no remains of such a temple have been found, the imperial cult, something that anyone coming from the Roman Empire had in common, would have facilitated the formation of (weak) social ties between foreigners.²¹³ It might also have provided a means for the diasporic community to proclaim a communal identity and negotiate its place in local society, but this must remain speculative for now.²¹⁴

The *PME* says very little about how a merchant is to do business in the ports that it describes, but some hints can be gleaned from this source. In general, the text assumes that most people adhered to a common system of negotiated exchange. The characterization of Zoskales, a king in east Africa, as “a stickler about his possessions and always holding out for getting more, but in other respects a fine person and well versed in reading and writing Greek”²¹⁵ indicates an extreme position within the range of accepted behavior. The description of some peoples as “unruly” or otherwise dangerous indicates deviation.²¹⁶

207 Evers 2017, 124–127; Cobb 2018b, 149–155, both focusing in Egypt.

208 Cobb 2018b, 155–178.

209 Cobb 2018b, 163–170. For Sangam literature, see Dwivedi, vol. 1, ch. 10.A, 435–438.

210 *Periplus Maris Erythraei* (*PME*) 56, trans Casson.

211 Evers 2017, 164–165 for a summary of the evidence.

212 Cobb 2018b, 156.

213 Cobb 2018b, 157–159; cf. Speidel 2016 for a political interpretation.

214 Dedications by Yavanas at Buddhist sites in western India have been interpreted as attesting to foreign participation in local religion, but the dedicators were probably not, in fact, from the Roman Empire (Evers 2017, 158–162; Cobb 2018b, 167–170).

215 *PME* 5, trans. Casson.

216 *PME* 7; 20; 34; 53; 62. See also 65 for a peaceful deviation from the norm.

The political fragmentation of the Indian Ocean is an important consideration in the *PME* that shapes trading opportunities, but does not seriously restrict them. Regional rulers structured the environment in which business occurred, just as municipal authorities inside the empire did.²¹⁷ They provided courts for dispute resolution,²¹⁸ and worked to make certain ports attractive. The most exceptional case is that of Barygaza, where the ruler arranged for fishing vessels to guide merchant ships through the difficult approach to the harbor and forcibly escorted Greek ships away from a rival port.²¹⁹ Some, such as the Arabian states that sought to control the predations of the peoples living on the east coast of the Red Sea, attempted to provide security.²²⁰ Many rulers actively engaged in trade themselves, buying prestige goods and selling specialized products from their realm that they controlled.²²¹ The attention paid to political power in the *PME*, including specifying who controlled ports and even watering stations and the diplomatic ties between one Arabian king and the emperor,²²² suggests that politics was an important component in the Indian Ocean trade, but this would have been true in the Hellenistic world as well. With the exception of one place, where merchants are advised to bring goods “not for trade, but as an expenditure for the good will of the Barbaroi,”²²³ the author of the *PME* did not think it necessary to describe how transactions in the Indian Ocean should be carried out.

The practices of buying and selling developed in Mediterranean ports, then, served Indian Ocean merchants well. The same or similar social networks structured economic activity in both seas. The impact of the Roman Empire was indirect. By facilitating economic activity in the Mediterranean, it expanded the market for Indian Ocean goods, made more Mediterranean goods (including coins) available for export, and made possible the fantastic concentrations of capital necessary to carry out this trade.

217 Seland 2010.

218 Dwivedi, ch. 10, VI, this volume for Indian legal systems.

219 *PME* 44; 52.

220 *PME* 20.

221 Seland 2010, 77–79. Casson (1989, 274–276) argues that the label *emporion nomimon* – applied to Adulis (*PME* 4), Muza (21), and Apologos (35) designates ports where all trade was controlled by the king. If this is correct, we should add Barbarikon/Minnagar to the list, since “vessels moor at Barbarikon, but all the cargoes are taken up the river to the king at the metropolis [Minnagar]” (*PME* 39). For royal monopolies, see *PME* 27–32 (frankincense) and, less certainly, *PME* 4–5 (ivory) and 59 (pearls). For goods described as “for the king,” see *PME* 6; 24; 28; 49; Casson 1989, 154.

222 *PME* 25; 26 (watering stations); 23 (diplomatic relations).

223 *PME* 17. Although the region is ruled by a South Arabian chief (a regional ruler subordinate to a king), the author of the *PME* says that the Barbaroi “behave, each in his own place, just like chiefs” (*PME* 16).

References

- Adams, C. 2007. *Land transport in Roman Egypt: A study of economics and administration in a Roman province*. Oxford: Oxford University Press.
- . 2018. “Nile river transport under the Romans.” In A. Wilson and A. K. Bowman (eds.), *Trade, commerce, and the state in the Roman world*, 175–208. Oxford: Oxford University Press.
- Andreau, J. 1999. *Banking and business in the Roman world*. J. Lloyd (trans.). Cambridge: Cambridge University Press.
- . 2020. “Banking, money-lending, and elite financial life in Rome.” In G. Dari-Mattiacci and D. Kehoe (eds.), *Roman law and economics*. Vol. 2, 81–111. Oxford: Oxford University Press.
- Arnaud, P. 2016. “Cities and maritime trade under the Roman Empire.” In C. Schäfer (ed.), *Connecting the ancient world: Mediterranean shipping, maritime networks and their impact*, 115–172. Rahden: Marie Leidorf.
- Bagnall, R. S. 1993. “Managing estates in Roman Egypt: A review article.” Review of *Management and Investment on Estates in Roman Egypt during the Early Empire* by D. Kehoe. *The Bulletin of the American Society of Papyrologists* 30.3/4, 127–135.
- Ball, W. 2000. *Rome in the East: The transformation of an empire*. London: Routledge.
- Bang, P. F. 2007. “Trade and empire – In search of organizing concepts for the Roman economy.” *Past and Present* 195, 3–54.
- . 2008. *The Roman bazaar: A comparative study of trade and markets in a tributary empire*. Cambridge: Cambridge University Press.
- Bes, P. 2015. *Once upon a time in the East: The chronological and geographical distribution of terra sigillata and red slip ware in the Roman East*. Oxford: Archaeopress.
- Bransbourg, G. 2017. “Panem et circenses. L’approvisionnement du marché privé en blé fiscal, ou les circuits parallèles des acteurs institutionnels de l’Empire.” *Rives Méditerranéennes*, no. 54, 75–89.
- Broekaert, W. 2012. “Joining forces: Commercial partnerships or *societates* in the early Roman Empire.” *Historia: Zeitschrift für Alte Geschichte* 61.2, 221–253.
- . 2016. “Freedmen and agency in Roman business.” In A. Wilson and M. Flohr (eds.), *Urban craftsmen and traders in the Roman world*, 222–253. Oxford: Oxford University Press.
- Broekaert, W. and A. Zuiderhoek. 2020. “Capital goods in the Roman economy.” In P. Erdkamp, K. S. Verboven, and A. Zuiderhoek (eds.), *Capital, investment, and innovation in the Roman world*, 99–146. Oxford: Oxford University Press.
- Candy, P. 2020. “Parallel developments in Roman law and maritime trade during the Late Republic and Early Principate.” *Journal of Roman Archaeology* 33, 53–72.
- Capdetrey, L. and C. Hasenohr, eds. 2012. *Agoranomes et édiles: Institutions des marchés antiques*. Paris: De Boccard.
- Casson, L. 1989. *The Periplus Maris Erythraei: Text with introduction, translation and commentary*. Princeton, NJ: Princeton University Press.
- Cobb, M. A. 2018a. “Black pepper consumption in the Roman Empire.” *Journal of the Economic and Social History of the Orient* 61, 519–559.
- . 2018b. *Rome and the Indian Ocean trade from Augustus to the early third century CE*. Leiden: Brill.
- De Romanis, F. 2020. *The Indo-Roman pepper trade and the Muziris papyrus*. Oxford: Oxford University Press.
- De Salvo, L. 1992. *Economia privata e pubblici servizi nell’impero romano: I corpora naviculariorum*. Messina: Samperi.
- Driel-Murray, C. van. 2001. “Vindolanda and the dating of Roman footwear.” *Britannia* 32, 185–197.

- . 2016. “Fashionable footwear: Craftsmen and consumers in the north-west provinces of the Roman Empire.” In A. Wilson and M. Flohr (eds.), *Urban craftsmen and traders in the Roman world*, 132–152. Oxford: Oxford University Press.
- Eberle, L. P. and E. Le Quééré. 2017. “Landed traders, trading agriculturalists? Land in the economy of the Italian diaspora in the Greek East.” *Journal of Roman Studies* 107, 27–59.
- Ellis, S. J. R. 2018. *The Roman retail revolution: The socio-economic world of the Taberna*. Oxford: Oxford University Press.
- Erdkamp, P. 2005. *The grain market in the Roman Empire: A social, political and economic study*. Cambridge: Cambridge University Press.
- . 2016a. “Annona (grain).” *Oxford classical dictionary, online edition*. oxfordre.com/classics.
- . 2016b. “Economic growth in the Roman Mediterranean world: An early good-bye to Malthus?” *Explorations in Economic History* 60, 1–20.
- Evangelidis, V. 2019. “Macella and Makelloi in Roman Greece: The archaeological and textual evidence.” *Hesperia* 88.2, 283–318.
- Evers, K. G. 2011. *The Vindolanda Tablets and the ancient economy*. Oxford: Archaeopress.
- . 2017. *Worlds apart trading together: The organisation of long-distance trade between Rome and India in antiquity*. Oxford: Archaeopress.
- Finley, M. I. 1999. *The ancient economy: Updated with a new foreword by Ian Morris*. Berkeley: University of California Press.
- Fleckner, A. M. 2020. “Roman business associations.” In G. Dari-Mattiacci and D. Kehoe (eds.), *Roman law and economics*. Vol. 1, 233–272. Oxford: Oxford University Press.
- Flohr, M. and A. Wilson. 2016. “Introduction.” In A. Wilson and M. Flohr (eds.), *Urban craftsmen and traders in the Roman world*, 1–19. Oxford: Oxford University Press.
- Foy, D. 2018. “An overview of the circulation of glass in antiquity.” In A. Wilson and A. K. Bowman (eds.), *Trade, commerce, and the state in the Roman world*, 265–299. Oxford: Oxford University Press.
- Freu, C. 2011. “Apprendre et exercer un métier dans l’Égypte romaine (Ier–VIe siècles ap. J.-C.)” In N. Monteix and N. Tran (eds.), *Les savoirs professionnels des gens de métier. Études sur le monde du travail dans les sociétés urbaines de l’empire romain*, 27–40. Naples: Centre Jean Bérard.
- Gabrielsen, V. 2005. “Banking and credit operations in Hellenistic times.” In Z. H. Archibald, J. K. Davies, and V. Gabrielsen (eds.), *Making, moving, managing: The new world of ancient economies (323–31 BCE)*, 136–164. Oxford: Oxbow.
- Garnsey, P. 1988. *Famine and food supply in the Graeco-Roman world: Responses to risk and crisis*. Cambridge: Cambridge University Press.
- Geraci, G. 2018. “Feeding Rome: The grain supply.” In C. Holleran and A. Claridge (eds.), *A companion to the city of Rome*, 219–245. Malden, MA: Wiley Blackwell.
- Goodman, P. 2016. “Working together: Clusters of artisans in the Roman city.” In A. Wilson and M. Flohr (eds.), *Urban craftsmen and traders in the Roman world*, 301–333. Oxford: Oxford University Press.
- Granovetter, M. S. 1973. “The strength of weak ties.” *American Journal of Sociology* 78.6, 1360–1380.
- Grewal, D. S. 2008. *Network power: The social dynamics of globalization*. New Haven, CT: Yale University Press.
- Harl, K. W. 1996. *Coinage in the Roman economy, 300 BC to AD 700*. Baltimore, MD: Johns Hopkins University Press.
- Harris, W. V. 2006. “A revisionist view of Roman money.” *Journal of Roman Studies* 96, 1–24.
- . 2019. “Credit-money in the Roman economy.” *Klio* 101.1, 158–189.
- Hawkins, C. 2012. “Manufacturing.” In W. Scheidel (ed.), *The Cambridge companion to the Roman economy*, 175–194. Cambridge: Cambridge University Press.

- . 2016. *Roman artisans and the urban economy*. Cambridge: Cambridge University Press.
- . 2017a. “Artisans, retailers, and credit transactions in the Roman world.” *Journal of Ancient History* 5.1, 66–92.
- . 2017b. “Contracts, coercion, and the boundaries of the Roman artisanal firm.” In K. S. Verboven and C. Laes (eds.), *Work, labour, and professions in the Roman world*, 36–61. Leiden: Brill.
- Henderson, J. 2013. *Ancient glass: An interdisciplinary exploration*. Cambridge: Cambridge University Press.
- Hirth, K. 2020. *The organization of ancient economies: A global perspective*. Cambridge: Cambridge University Press.
- Hodos, T. 2017. “Globalization: Some basics. An introduction to *The Routledge handbook of archaeology and globalization*.” In T. Hodos (ed.), *The Routledge handbook of archaeology and globalization*, 3–11. London: Routledge.
- Hohlfelder, R. L. and J. P. Oleson. 2014. “Roman maritime concrete technology in its Mediterranean context.” In C. J. Brandon, R. L. Hohlfelder, M. D. Jackson, and J. P. Oleson, *Building for eternity: The history and technology of Roman concrete engineering in the sea*, 223–236. Oxford: Oxbow Books.
- Holleran, C. 2012. *Shopping in ancient Rome: The retail trade in the Late Republic and the Principate*. Oxford: Oxford University Press.
- . 2019. “Market regulation and intervention in the urban food supply.” In P. Erdkamp and C. Holleran (eds.), *The Routledge handbook of diet and nutrition in the Roman world*, 283–295. London: Routledge.
- Hopkins, K. 1980. “Taxes and trade in the Roman Empire (200 BC–AD 400).” *Journal of Roman Studies* 70, 101–125.
- . (1995–1996) 2002. “Rome, taxes, rents and trade.” In W. Scheidel and S. von Reden (eds.), *The ancient economy*, 190–230. Edinburgh: Edinburgh University Press.
- Hoyer, D. 2018. *Money, culture, and well-being in Rome’s economic development, 0–275 CE*. Leiden: Brill.
- Jongman, W. 2007. “The Early Roman Empire: Consumption.” In W. Scheidel, I. Morris, and R. P. Saller (eds.), *The Cambridge economic history of the Greco-Roman world*, 592–618. Cambridge: Cambridge University Press.
- Kantor, G. 2013. “Law in Roman Phrygia: Rules and jurisdictions.” In P. Thonemann (ed.), *Roman Phrygia: Culture and society*, 143–167. Cambridge: Cambridge University Press.
- Katsari, C. 2008. “The monetization of Rome’s frontier provinces.” In W. V. Harris (ed.), *The monetary systems of the Greeks and Romans*, 242–266. Oxford: Oxford University Press.
- Kay, P. 2014. *Rome’s economic revolution*. Oxford: Oxford University Press.
- Keddie, A. 2019. *Class and power in Roman Palestine: The socioeconomic setting of Judaism and Christian origins*. Cambridge: Cambridge University Press.
- Kehoe, D. 1992. *Management and investment on estates in Roman Egypt during the early empire*. Bonn: Habelt.
- . 1997. *Investment, profit, and tenancy: The jurists and the Roman agrarian economy*. Ann Arbor, MI: University of Michigan Press.
- . 2007a. *Law and the rural economy in the Roman Empire*. Ann Arbor, MI: University of Michigan Press.
- . 2007b. “The Early Roman Empire: Production.” In W. Scheidel, I. Morris, and R. P. Saller (eds.), *The Cambridge economic history of the Greco-Roman world*, 541–569. Cambridge: Cambridge University Press.
- Kron, G. 2000. “Roman ley-farming.” *Journal of Roman Archaeology* 13, 277–287.
- . 2008. “The much maligned peasant. Comparative perspectives on the productivity of the small farmer in classical antiquity.” In L. de Ligt and S. Northwood (eds.), *People, land, and*

- politics. Demographic developments and the transformation of Roman Italy*, 71–119. Leiden: Brill.
- . 2017. “The diversification and intensification of Italian agriculture: The complementary roles of the small and wealthy farmer.” In T. C. A. Haas and G. W. Tol (eds.), *The Economic Integration of Roman Italy: Rural communities in a globalising world*, 112–140. Leiden: Brill.
 - Larson, K. A. 2019. “Cheap, fast, good: The Roman glassblowing revolution reconsidered.” *Journal of Roman Archaeology* 32, 7–22.
 - Launaro, A. 2015. “The nature of the villa economy.” In P. Erdkamp, K. S. Verboven, and A. Zuiderhoek (eds.), *Ownership and exploitation of land and natural resources in the Roman world*, 173–186. Oxford: Oxford University Press.
 - Leidwanger, J. 2020. *Roman seas: A maritime archaeology of Eastern Mediterranean economies*. Oxford: Oxford University Press.
 - Ligt, L. de. 1990. “The Roman peasantry between town and countryside.” *Leidschrift: Historisch Tijdschrift* 7.1, 27–41.
 - . 1993. *Fairs and markets in the Roman Empire: Economic and social aspects of periodic trade in a pre-industrial society*. Amsterdam: J. C. Gieben.
 - . 2000. “Governmental attitudes towards markets and *collegia*.” In Lo Cascio (2000), 237–252.
 - . 2012. *Peasants, citizens and soldiers: Studies in the demographic history of Roman Italy 225 BC–AD 100*. Cambridge: Cambridge University Press.
 - . 2020. “Political, social and economic determinants of responses to food crises in the early Roman empire.” In J. Dijkman and B. van Leeuwen (eds.), *An economic history of famine resilience*, 33–51. London: Routledge.
 - Liu, J. 2008. “The economy of endowments: The case of Roman *collegia*.” In K. S. Verboven, K. Vandorpe, V. Chankowski, and R. Bogaert (eds.), *Pistoi dia tèn technèn: Bankers, loans, and archives in the ancient world: Studies in honour of Raymond Bogaert*. Leuven: Peeters.
 - . 2017. “Group membership, trust networks, and social capital: A critical analysis.” In K. S. Verboven and C. Laes (eds.), *Work, labour, and professions in the Roman world*, 203–226. Leiden: Brill.
 - Lo Cascio, E. 2000. *Mercati permanenti e mercati periodici nel mondo romano: Atti degli Incontri capresi di storia dell'economia antica (Capri 13–15 ottobre 1997)*. Bari: Edipuglia.
 - . 2007. “The Early Roman Empire: The state and the economy.” In W. Scheidel, I. Morris, and R. P. Saller (eds.), *The Cambridge economic history of the Greco-Roman world*, 619–647. Cambridge: Cambridge University Press.
 - . 2018. “Market regulation and transaction costs in the Roman Empire.” In A. Wilson and A. K. Bowman (eds.), *Trade, commerce, and the state in the Roman world*, 117–132. Oxford: Oxford University Press.
 - Luley, B. P. 2018. “A terra sigillata revolution? Terra sigillata consumption in first-century AD Roman Mediterranean Gaul.” *Internet Archaeology*, no. 50. intarch.ac.uk/journal/issue50/8/index.html.
 - Machado, C. 2018. “Annona (other products).” *Oxford classical dictionary, online edition*. oxfordre.com/classics
 - Mann, M. 1986. *The sources of social power*. Vol. 1, *A history of power from the beginning to AD 1760*. Cambridge: Cambridge University Press.
 - Marzano, A. 2013. *Harvesting the sea: The exploitation of marine resources in the Roman Mediterranean*. Oxford: Oxford University Press.
 - Mayer, E. E. 2012. *The ancient middle classes: Urban life and aesthetics in the Roman Empire, 100 BCE–250 CE*. Cambridge, MA: Harvard University Press.
 - . 2018. “*Tanti non emo, Sexte, Piper*: Pepper prices, Roman consumer culture, and the bulk of Indo-Roman trade.” *Journal of the Economic and Social History of the Orient* 61.4, 560–589.
 - Monson, A. 2012. *From the Ptolemies to the Romans. Political and economic change in Egypt*. Cambridge: Cambridge University Press.

- Morley, N. 1996. *Metropolis and hinterland: The city of Rome and the Italian economy, 200 BC–AD 200*. Cambridge: Cambridge University Press.
- . 2000. “Markets, marketing and the Roman élite.” In Lo Cascio (2000), 211–221.
- . 2013. “Cities and economic development in the Roman Empire.” In A. Bowman and A. Wilson (eds.), *Settlement, urbanization, and population*, 143–160. Oxford: Oxford University Press.
- Mouritsen, H. 2011. *The freedman in the Roman world*. Cambridge: Cambridge University Press.
- Murphy, E. A. 2017. “Roman workers and their workplaces: Some archaeological thoughts on the organization of workshop labour in ceramic production.” In K. S. Verboven and C. Laes (eds.), *Work, labour, and professions in the Roman world*, 133–146. Leiden: Brill.
- Noreña, C. F. 2013. Review of *The ancient middle classes: Urban life and aesthetics in the Roman Empire, 100 BCE–250 CE* by E. E. Mayer. *The American Historical Review* 118.5, 1576–1577.
- Pitts, M. 2014. “Globalisation, circulation and mass consumption in the Roman world.” In M. Pitts and M. J. Versluys (eds.), *Globalisation and the Roman world: World history, connectivity and material culture*, 69–98. Cambridge: Cambridge University Press.
- Pitts, M. and M. J. Versluys. 2015. “Globalisation and the Roman world: Perspectives and opportunities.” In M. Pitts and M. J. Versluys (eds.), *Globalisation and the Roman world: World history, connectivity and material culture*, 3–31. Cambridge: Cambridge University Press.
- Poblome, J. 2016. “The potters of ancient Sagalassos revisited.” In A. Wilson and M. Flohr (eds.), *Urban craftsmen and traders in the Roman world*, 377–404. Oxford: Oxford University Press.
- Purcell, N. 1995. “The Roman villa and the landscape of production.” In T. J. Cornell and K. Lomas (eds.), *Urban society in Roman Italy*, 157–184. London: Routledge.
- Rahyab, S. 2019. “The rise and development of the office of *agoranomos* in Greco-Roman Egypt.” *New England Classical Journal* 46.1, 37–61.
- Rathbone, D. 1991. *Economic rationalism and rural society in third-century AD Egypt: The Heroninos archive and the Appianus estate*. Cambridge: Cambridge University Press.
- . 2003. “The financing of maritime commerce in the Roman Empire, I–II AD.” In E. Lo Cascio (ed.), *Credito e moneta nel mondo romano: Atti degli Incontri capresi di storia dell’economia antica (Capri 12–14 ottobre 2000)*, 197–229. Bari: Edipuglia.
- . 2005. “Economic rationalism and the Heroninos Archive.” *Topoi: Orient-Occident* 12.1, 261–269.
- Rathbone, D. and P. Temin. 2008. “Financial intermediation in first-century AD Rome and eighteenth-century England.” In K. S. Verboven, K. Vandorpe, V. Chankowski, and R. Bogaert (eds.), *Pistoi dia tèn technèn: Bankers, loans, and archives in the ancient world: Studies in honour of Raymond Bogaert*, 371–419. Leuven: Peeters.
- Rice, C. 2016a. “Mercantile specialization and trading communities: Economic strategies in Roman maritime trade.” In A. Wilson and M. Flohr (eds.), *Urban craftsmen and traders in the Roman world*, 97–114. Oxford: Oxford University Press.
- . 2016b. “Shipwreck cargoes in the Western Mediterranean and the organization of Roman maritime trade.” *Journal of Roman Archaeology* 29, 165–192.
- Richard, J. 2014. “Macellum/μάκελλον: ‘Roman’ food markets in Asia Minor and the Levant.” *Journal of Roman Archaeology* 27, 255–274.
- Rohde, D. 2018. “Die Getreideversorgung Roms und die *navicularii*.” In K. Wojciech and P. Eich (eds.), *Die Verwaltung der Stadt Rom in der Hohen Kaiserzeit: Formen der Kommunikation, Interaktion und Vernetzung*. Vol. 2, 145–165. Paderborn: Ferdinand Schöningh.
- Rosenfeld, B. Z. and H. Perlmutter. 2020. *Social stratification of the Jewish population of Roman Palestine in the period of the Mishnah, 70–250 CE*. Leiden: Brill.
- Ruffing, K. 2006. “Städtische Wirtschaftspolitik im hellenistisch-römischen Kleinasien? Zur Funktion der Emporia.” In H.-U. Wiemer (ed.), *Staatlichkeit und politisches Handeln in der römischen Kaiserzeit*, 123–150. Berlin: De Gruyter.

- Scheidel, W. 2011. "The Roman slave supply." In K. Bradley and P. Cartledge (eds.), *The Cambridge world history of slavery*. Vol. 1, 287–310. Cambridge: Cambridge University Press.
- . 2012. "Slavery." In W. Scheidel (ed.), *The Cambridge companion to the Roman economy*, 89–113. Cambridge: Cambridge University Press.
- Schumacher, L. 2010. "On the status of private *actores*, *dispensatores*, and *vilici*." In U. Roth (ed.), "By the sweat of your brow: Roman slavery in its socio-economic settings." Supplement, *Bulletin of the Institute of Classical Studies* 109, 31–47.
- Seland, E. H. 2010. *Ports and political power in the Periplus: Complex societies and maritime trade on the Indian Ocean in the first century AD*. Oxford: Archaeopress.
- . 2013. "Networks and social cohesion in ancient Indian Ocean trade: Geography, ethnicity, religion." *Journal of Global History* 8.3, 373–390.
- Shaw, B. D. 2013. *Bringing in the sheaves: Economy and metaphor in the Roman world*. Toronto: University of Toronto Press.
- Sirks, A. J. B. 1991. *Food for Rome: The legal structure of the transportation and processing of supplies for the imperial distributions in Rome and Constantinople*. Amsterdam: J. C. Gieben.
- Speidel, M. A. 2016. "Augustus-Tempel in Indien und im Partherreich? Zur Tabula Peutingeriana und zum römischen Kaiserkult ausserhalb des Römischen Reiches." In A. Kolb and M. Vitale (eds.), *Kaiserkult in den Provinzen des Römischen Reiches: Organisation, Kommunikation und Repräsentation*. Berlin: De Gruyter.
- Sperber, D. 1977. "On the office of the agoranomos in Roman Palestine." *Zeitschrift der Deutschen Morgenländischen Gesellschaft* 127.2, 227–243.
- Tacoma, L. E. 2006. *Fragile hierarchies: The urban elites of third century Roman Egypt*. Leiden: Brill.
- Tchernia, A. 2016. *The Romans and trade*. J. Grieve with E. Minchin (trans.). Oxford: Oxford University Press.
- Terpstra, T. 2013. *Trading communities in the Roman world: A micro-economic and institutional perspective*. Leiden: Brill.
- . 2019. *Trade in the ancient Mediterranean: Private order and public institutions*. Princeton, NJ: Princeton University Press.
- Verboven, K. S. 2002. *The economy of friends: Economic aspects of amicitia and patronage in the Late Republic*. Brussels: Editions Latomus.
- . 2008. "Faeneratores, negotiatores and financial intermediation in the Roman world (late Republic and early Empire)." In K. S. Verboven, K. Vandorpe, V. Chankowski, and R. Bogaert (eds.), *Pistoi dia tèn technèn: Bankers, loans, and archives in the ancient world: Studies in honour of Raymond Bogaert*, 211–229. Leuven: Peeters.
- . 2009. "Currency, bullion and accounts: Monetary modes in the Roman world." *Revue Belge de Numismatique et de Sigillographie/Belgisch Tijdschrift voor Numismatiek en Zegelkunde* 155, 91–121.
- . 2012. "The freedman economy of Roman Italy." In S. Bell and T. Ramsby (eds.), *Free at last! The impact of freed slaves on the Roman Empire*, 88–109. London: Bristol Classical Press.
- . 2020. "Capital markets and financial entrepreneurs in the Roman world." In P. Erdkamp, K. S. Verboven, and A. Zuiderhoek (eds.), *Capital, investment, and innovation in the Roman world*, 381–416. Oxford: Oxford University Press.
- Verboven, K. S. and C. Laes. 2017. "Work, labour, professions. What's in a name?" In K. S. Verboven and C. Laes (eds.), *Work, Labour, and Professions in the Roman World*, 1–19. Leiden: Brill.
- von Reden, S. 2012. "Money and finance." In W. Scheidel (ed.), *The Cambridge companion to the Roman economy*, 266–286. Cambridge: Cambridge University Press.
- . 2019. "Trade." In C. F. Noreña and A. Burton (eds.), *A cultural history of Western empires*. Vol. 1, 63–85. London: Bloomsbury Academic.

- Wallace-Hadrill, A. 2008. *Rome's cultural revolution*. Cambridge: Cambridge University Press.
- . 2013. “Trying to define and identify the Roman ‘middle classes.’” Review of *The ancient middle classes: Urban life and aesthetics in the Roman Empire, 100 BCE–250 CE* by E. E. Mayer. *Journal of Roman Archaeology* 26, 605–609.
- White, K. D. 1970. *Roman farming*. Ithaca, NY: Cornell University Press.
- Zuiderhoek, A. 2008. “Feeding the citizens: Municipal grain funds and civic benefactors in the Roman East.” In R. Alston and O. Nijf (eds.), *Feeding the ancient Greek city*, 159–180. Leuven: Peeters.
- . 2013. “No free lunches: ‘Paraprasis’ in the Greek cities of the Roman East.” *Harvard Studies in Classical Philology* 107, 297–321.
- . 2017. “Sorting out labour in the Roman provinces: Some reflections on labour and institutions in Asia Minor.” In K. S. Verboven and C. Laes (eds.), *Work, labour, and professions in the Roman world*, 20–35. Leiden: Brill.
- . 2019. “Benefactors, markets, and trust in the Roman East: Civic munificence as extramercantile exchange.” In D. B. Hollander, T. R. Blanton IV, and J. T. Fitzgerald (eds.), *The extramercantile economies of Greek and Roman cities: New perspectives on the economic history of classical antiquity*, 51–62. London: Routledge.

Lauren Morris

13 Economic Development under the Greek Kingdoms of Central Asia to the Kushan Empire: Empire, Migration, and Monasteries

I Scope and Key Developments

This chapter examines the development of the economy under and between two successive empires emergent from the Central Asian region of ancient Bactria. These are the Greek Kingdoms of Central Asia (the Graeco-Bactrian and Indo-Greek Kingdoms, ca. 250 BCE–10 CE) and the Kushan Empire (ca. 50–350 CE). Here, I focus on the core regions of Bactria and Gandhāra, although when available data permits, I look to other regions within and beyond the empires under examination. The character of the available evidence for looking at economic development in this period, of course, presents a litany of limitations that make it impossible to achieve a fine-grained historical perspective on these processes.¹ That being said, it is certainly possible to observe broader trends at play – although it should be reiterated that development throughout this period was not necessarily linear – and identify some of the major catalysts instigating these changes. I begin by describing three key catalysts: the phenomenon of empire, increasing migration, and the growing influence of Buddhist monasteries. Then, I look at key processes of development that characterize the period under study, and examine the role of empire, migration, and monasteries in helping to drive them. These processes are changes in settlement patterns, urbanization, and agricultural extensification, in addition to an increase in volume and specialization in production, and ultimately intensifying connectivity and coordination both within regions, as well as across increasingly broad spaces – crucially, between southern Central Asia and northern India.

Of course, from a wider historical perspective, these processes were neither inherently new, nor inscribed onto a blank slate. In southern Central Asia, urbanization phases had already begun in the Bronze and Iron Ages. Agricultural production had drawn on artificial irrigation since the Neolithic in Bactria, and double-cropping was practiced since the Bronze Age in the Swat Valley.² Sedentary agriculturalists and mobile pastoralists had cultivated symbiotic relationships from at least the

¹ Morris, vol. 1, ch. 9.

² Olivieri forthcoming.

Note: I am indebted to Henry Albery, Luca Maria Olivieri, and Ladislav Stančo for their insights and comments on parts of an earlier version of this chapter.

Bronze Age.³ Craft production had gone through ebbs and flows in respect to quality and specialization. Central Asia has always been marked by mobility, and exchange networks had linked Central Asia with the Eurasian Steppe, and west, south, and east Asia by the Bronze Age, providing mechanisms for the exchange of goods, transfer of knowledge about domestication of animals, and crop dispersal. However, as I will show below, such processes in the period under study are remarkable because of their speed, scope, and intensity.

II The Catalysts and their Roles

In highlighting three key catalysts for development in the period under study, I have two goals. The first is to make the case for an alternative to the predominant explanation for the development of the economy under the Kushans in Western scholarship of the last century: controlling long-distance external transit trade. Instead, I have argued elsewhere that this idea is essentially an artifice of modern historiography.⁴ My second goal is to highlight that other scholars have pointed to different phenomena that impacted the economy, and to consider these together in a more cohesive and wide-ranging way.

First, let us look at the phenomenon of empire. A range of scholars working in different fields have linked the establishment and maintenance of the Kushan Empire to the creation of a new macroregional stability. This is sometimes even glossed as the *pax Kushanica* or *pax Kushana*.⁵ The phenomenon of empire, in this case, then facilitated high connectivity between Central Asia and northern India, as well as contributing to the expansion of arable land through the creation of new irrigation canals in southern Central Asia⁶ and the high level of urbanization in Bactria, which represented the maximum level of such in ancient Central Asia.⁷ Some scholars have also attributed phases of urbanization in parts of Pakistan and India to their inclusion in the Kushan Empire.⁸ Parts of this picture still stand, but others must be nuanced. A number of scholars have rightfully criticized connections drawn between centralized states and the organization and maintenance of irrigation in southern Central Asia.⁹ Similar critiques have been leveled in respect to the Kushans as a driving force for a phase of urbanization in early historic India.¹⁰ Compa-

³ See most recently Rouse 2020.

⁴ Morris, vol. 1, ch. 16.

⁵ See, e.g., Tucci 1977, 49; Aldrovandi and Hirata 2005; Lam 2013.

⁶ Mukhamedzhanov 1975; Mukhamedjanov 1994.

⁷ Litvinskii and Sedov 1983, 120.

⁸ E.g., Dani and Khan 1974, 102; Mani 1987, 39–62.

⁹ Francfort and Lecomte 2002; Stride, Rondelli, and Mantellini 2009. This topic is discussed further below, sec. III.3.

¹⁰ Ray 2010, 6–7.

rably, connections between the Greek Kingdoms and economic development have been less emphatically drawn, but Yang has recently remarked that imperial expansion under Alexander and his successors “expanded communication and contacts between the Greeks and civilizations in the East and thus unintentionally prepared for the emergence of the Silk Road.”¹¹

There are some missing links here. Irrigation and urbanization do not *require* the intervention of a centralized state – but how should the extensification of arable land and accelerating urbanization in Bactria under the Kushan Empire be explained? Likewise, what links imperial expansion and expanded communication besides physical proximity on the ground? I will suggest below that the impact of the phenomenon of empire in respect to urbanization and increased agricultural productivity in certain places (sec. III.3), and intensifying connectivity (sec. V) can partly be understood through the extractive fiscal regimes they cultivated, but this should be conceptualized in a more abstract way than a matter of explicit policy.¹² Indeed, as we will see throughout this chapter, empire affected the economy in other far-reaching ways – and it is important to reiterate here that these impacts do not have to be interpreted as intentional, nor as examples of ‘economic’ thinking. Rather, the economic activity of imperial rulers and their inner circles had strong ideological and political components, and eventually enacted consequences far beyond their initial purview.

Acknowledging that high mobility – both the potential and capacity for movement – is a persistent theme in the history of Central Asia is nothing new, but an important baseline to work from. Indeed, as I will highlight later (sec. V), the mobility of people from and within Bactria and Gandhāra grew immensely in the period under study, encompassing a range of actors, such as merchants, soldiers, diplomats, travelers, pilgrims, monks, and missionaries. But a specific form of movement to and from these core regions – migration in all forms – was not only a constant but saw an increase in this period, with knock-on effects for economic activity and connectivity.¹³ In general, the regular, seasonal horizontal and vertical migration of mobile pastoralist groups in Central Asia helped to carve out preferred routes of transregional mobility across marginal landscapes¹⁴ and could instigate the formation of periodic markets in areas occupied by sedentary agriculturalists or border fortresses to exchange primary and secondary produce.¹⁵ Likewise, members of mobile groups living in Central Asia outside of its southern oases could be temporarily

¹¹ Yang 2009, 15.

¹² On these regimes, Morris, ch. 9, II, this volume.

¹³ For a discussion on mobility and migration in the Hellenistic and post-Hellenistic period in Central Asia and similar observations, see Mairs 2014, 156–176.

¹⁴ Gorbunova 1993; Frachetti et al. 2017.

¹⁵ See, for example, Stark 2020, 79 and also below, sec. V.2.2.

attracted to them through raids or by employ as mercenaries, with the additional prospect of gathering booty.¹⁶

However, the long-term and even permanent resettlement of a number of different peoples into Bactria and Gandhāra occurred in this period, which is a reality reflected by a variety of textual and material sources.¹⁷ These range from the arrival of Graeco-Macedonian ruling elites, soldiers, and colonists in the Hellenistic period, to the members of mobile groups arriving in southern Central Asia from the mid-second century BCE, namely the ‘Saka’ (putatively from northern Central Asia) and ‘Yuezhi’ (thought to have had earlier rangelands near modern Gansu, China).¹⁸ Likewise, members of other ‘Saka’ groups were also on the move in this period (whether from northern Central Asia or the Iranian plateau), arriving into Gandhāra from the first century BCE, and a ruling elite with connections to the Arsakids also was established in the same region a century later. Although scholarly discussions about the ethnocultural identity of the above mobile groups, let alone their connections with specific archaeological material and the lifeways they cultivated, remain entangled with unsolved theoretical and methodological problems,¹⁹ it remains clear that a broad spectrum of people with diverse origins (but often elites) came to Bactria and Gandhāra in this period. A number of push and pull factors were at play in these processes. With respect to mobile groups connected to the Eurasian Steppe, the major push factor was clearly the rise and expansion of the Xiongnu Empire, which caused far-reaching repercussions in terms of political upheaval and population displacements. Notably, according to Chinese standard histories, they were the force that drove the Yuezhi migration to Bactria.²⁰ Comparably, pull factors for Graeco-Macedonian soldiers and colonists who came to Central Asia under its early Hellenistic kings could be the potential to earn income or high status, as well as land.²¹

These migrations had far-reaching consequences, which are particularly obvious to us in the political domain. Some of these incoming elites seized power, established kingdoms and empires (including the Greek Kingdoms and the Kushan Empire), minted coins in their own names, and established eras for measuring time. But they had wider economic impacts too. First, members of these groups also maintained and cultivated elite exchange networks with their homelands – including the

16 On this phenomenon generally, Stark 2020, 82. A parchment from Hellenistic Bactria appears to testify to this practice, discussed with bibliography in Morris, ch. 4, III, this volume.

17 For these groups within an overview of the political history of the period, see Morris, vol. 1, ch. 2.

18 See also, conveniently, discussion and references in Stark 2020, 83, 86.

19 Discussed a little further in Morris, ch. 4, VII.

20 Stark 2020, 85–86. On the Xiongnu Empire, see further in Brosseder, vol. 1, ch. 5.

21 However, Mairs has rightfully noted that, for an émigré Greek settler seeking social or economic advancement, or a mercenary seeking employment, other Hellenistic cities and states were probably more attractive than Bactria. See Mairs and Fischer-Bovert forthcoming.

wider Hellenistic world, other parts of Central Asia, and the Eurasian Steppe – which helped to contribute to heightened connectivity across vast spaces, again affecting consumption behavior and demand for certain kinds of imported goods (sec. V.2.1). Second, these migrations helped to contribute to increasingly multi-ethnic and multicultural societies (especially visible with respect to elite strata) that had broader impacts on consumption preferences and the demand for certain kinds of objects, both locally produced and imported (sec. IV.2, sec. V.2.1). In particular, these processes must have contributed in some way to the ‘demand’ for Buddhism and its growth in popularity and patronage by more people, which eventually helped lead to the establishment of more monasteries from Gandhāra as a springboard (sec. V.2.1), and shaped the visual and material output of the sculptural industry of Gandhāran art (sec. IV.3).

There are also important cases of migration between Bactria and Gandhāra in this period, such as the establishment of diasporas of communities from the latter region in the former, especially in apparent connection with mercantile activity and Buddhist monasteries.²² Likewise, emigration from both regions to beyond imperial frontiers was both attracted by the pull factor of commercial prospects, as well as push factors of political instability. In the latter case, certain imported features from the Hellenistic Bactrian ceramic assemblage (grey ware and stamped decoration) at Marakanda-Afrasiab, Sogdiana, have been interpreted as either evidence of Greek refugees escaping Bactria or an example of deported craftsmen.²³ Likewise, other shifts in cultural behavior in Sogdiana have been theoretically linked to migration from Bactria after the collapse of Kushan power.²⁴ Emigration from Gandhāra has also been suggested to explain the uptake of the Kharoṣṭhī script and Niya Prakrit in administrative use in the southern Tarim Basin city states.²⁵ However, the latter situation – if it truly did occur on a large scale – was probably also supported by long-term interaction and exchange between the regions, the most important factor preferred by Høisæter, including through the mobility of Buddhist monks and missionaries.²⁶

Finally, a third important catalyst in this period for economic development was the growing power and influence of Buddhist monasteries as organizations. Monasteries were especially important actors in Gandhāra, but as the popularity of Buddhism and its base of patrons expanded beyond the region from the first century CE (including to Bactria, as well as to the oases of the Tarim Basin), so did the spatial coverage of the power of these organizations. Numerous scholars have explored

²² Rtveladze 2012, 225–227.

²³ Compare Lyonnet 2018, 434 and Stark 2020, 92.

²⁴ Vaissière 2005, 110.

²⁵ See, e.g., Lin 1996, 188–189; Hansen 2012, 26. Both highlight a sixth-century CE Chinese biography of a certain Zhi Qian which explicitly mentions a migration of hundreds from “Da Yuezhi” (i.e., the Kushan Empire) into China in the late second century CE.

²⁶ Høisæter 2017.

other conditions that helped to facilitate this process. Some important factors include the patronage of ruling powers and various elite groups, the facilitation of heightened mobility through political unification under the Kushans, a prosperous economy with a high level of urbanization, the rise of multicultural middling classes attracted to Buddhism's tenets, and increased mobility for various reasons along transregional routes by lay and monastic agents who spread the faith.²⁷ On the other side of this equation, some have pointed to the role played by Buddhism's lay adherents and monastic communities in broader political life,²⁸ as well as in the wider economy. Elsewhere in this volume, I have laid out the potential scope of economic activity of monasteries as organizations, in addition to that of individual monks,²⁹ remarked on their role as providing legal services,³⁰ and in expanding spheres of the use of Gāndhārī as a *lingua franca*.³¹ Below, I further explore the role of monasteries in expanding agricultural production in Gandhāra (sec. III.3), in driving the sculptural industry of Gandhāran art (sec. IV.3), and acting as agents facilitating connectivity more broadly (sec. V).

III Settlement Patterns, Urbanization, and Agricultural Extensification

In the period under study, changes in settlement patterns in the core regions of Bactria and Gandhāra and their frontiers can be detected, as well as processes of urbanization and the extensification of arable land through irrigation. I will first summarize these developments, then discuss their possible causes (sec. III.3).

III.1 Bactria

The traditional main units structuring settlement and agricultural production in southern Central Asia (Bactria, Margiana, Sogdiana, and Chorasmia) are river valleys with the capacity for artificial irrigation that are conventionally referred to as

²⁷ See, e.g., Klimburg-Salter 1999, 10–11 on the role of various emergent middling groups as patrons of Buddhism, Neelis 2011 on the link between early Buddhist transmission and trade networks, and Lam 2013 for a synthetic perspective on the Kushan period.

²⁸ For example Skinner 2017 and Alberty 2020 explore the connections between the support of the Buddhist community and the political legitimacy and success of various regimes ruling in north-west India. More specifically, Alberty (2021) highlights the prevalence of relic dedications by political groupings, especially prior to the Kushan period, as well as the politicization of relic theft.

²⁹ Morris, ch. 4, V.2, this volume.

³⁰ Morris, ch. 9, III.2, this volume.

³¹ Morris, ch. 9, IV.1, this volume.

oases. The extent of settlement in these landscapes is dependent on their affordances – shaped by topography, elevation, and access to additional natural resources – as well as ritual landmarks and strategic routes of mobility.³² Within the Bronze Age (ca. 3000–1500/1400 BCE), complex societies with protourban and protostate features had already emerged and collapsed in certain areas.³³ Likewise, some regions developed protourban centers in the Iron Age (ca. 1500/1400–330 BCE),³⁴ while others with more mobile agropastoral populations developed large fortified enclosure sites that served as defensible ceremonial and political capitals, in addition to having dispersed settlements along waterways.³⁵ Equally important to the development of urban sites was the extensification of arable land through the creation and maintenance of irrigation canals, which were already well developed in some areas by the Bronze Age. These canals can be either directly traced or reconstructed on the basis of settlement patterns in now-transformed landscapes. Socio-political processes also emerged alongside the development of settlements and irrigation, particularly with the formation of local aristocracies and rulers (and in some cases, polities) in oases. Oases and their local elites constituted the building blocks of later administrative landscapes in Bactria.

That being said, with the expansion of empires into Bactria, shifts to prevailing settlement patterns can also be observed. For example, recent archaeological research shows an increase in settlement activity in the Achaemenid period, including the establishment of sites at strategic river crossings and mountain passes, additional infrastructure for irrigation, and most importantly, the emergence of more centralized settlement systems, sometimes in hitherto unexploited landscapes. These consist of a large, central site – attracting possible political, administrative, ritual, and economic functions – surrounded by small, dispersed satellite settlements.³⁶ Some excavated central sites constituted a citadel plus a lower town enclosed with a fortification wall (often referred to as a *shakhristan* [*shahristan*] in Russian archaeological literature), which would become a typical form of towns and cities in the region.³⁷

After an initial phase of large-scale abandonment of Achaemenid-period settlements as a result of Alexander's conquests, similar settlement processes were continued in the Hellenistic period, although results differed oasis by oasis. Although the available archaeological data are uneven, patterns that can be extracted for the region writ large include: the persistence, enlargement, and fortification of certain

³² See discussion in Stančo and Tušlová 2019, 11.

³³ Emblematically represented by the emergence of the Oxus Civilization/Bactria-Margiana Archaeological Complex of the Middle Bronze Age, surveyed in Lyonnet and Dubova 2020.

³⁴ See for example, the sites of Ulug Depe in Margiana, Koktepa in Sogdiana, and Bektepa, Jandavlattepa, and Kyzyltepa in northern Bactria, discussed in contributions in Lhuillier and Boroffka 2018.

³⁵ See Negus Cleary 2018.

³⁶ Stančo 2018; Wu 2018; 2020, 603–608.

³⁷ See a discussion of the term in Pugachenkova and Rtveldze 1990, 72.

important former central settlements; the development of a number of new centers of varying sizes (some with evidence for public buildings indicating: administrative functions); the emergence of further settlements surrounding central sites (although certainly not in all areas), and the widespread establishment of smaller sites acting as forts and watch-posts to monitor movement across landscapes and defend key nodes of communication (like river fords and mountain passes) and political frontiers.³⁸ Eastern Bactria in particular was fundamentally transformed through the creation of a new urban settlement and royal capital of Ai Khanum.³⁹ This was initiated by the Seleukids but the city developed into an important center with characteristic institutions of a *polis* (including a *gymnasion* and theater) as well as an administrative-palatial complex under the Graeco-Bactrian kings.⁴⁰ However, this form of urbanism and the city's possible sociopolitical organization as a *polis* may only represent a special exception within the wider region.⁴¹ Additionally, detailed studies of the irrigation systems and settlement patterns of eastern Bactria also reveal the extension of artificial irrigation systems into hitherto unexploited areas such as mountain terraces.⁴² Likewise, the hinterland of Ai Khanum (the adjacent plain, Dasht-i Qala) became densely populated with small, dispersed settlements in this period, such as small villages, hamlets, farmsteads, and isolated houses.⁴³ Of course, the landscape was used in other ways too: some sites were created in zones outside of oases, such as the urban site at Takht-i Sangin and the supraregional temple dedicated to the god of the Oxus,⁴⁴ and communities of semimobile or mobile pastoralists exploited particularly marginal parts of the landscape outside of traditional oases, seen for example by burials in the Bishkent valley.⁴⁵

A slight shift in settlement patterns in Bactria can be detected between the fall of the Graeco-Bactrian Kingdom and the emergent Kushan Empire. Here, many settlements and fortresses appear to have been temporarily abandoned, showing little evidence of destruction, and subsequently repopulated.⁴⁶ Of course, there were ebbs and flows and reshuffling across the settled landscape too – for example, Ai Khanum in the east was not renewed into an urban center, the extent of irrigation on some terraces surrounding it declined, and the focus of population and agriculture would come to shift particularly to the lower Kunduz in the Kushan period.⁴⁷

38 Compare observations in Martinez-Sève 2020; Stančo 2020; Lindström 2020.

39 On urbanization processes in east Bactria, see generally Gardin 1998, 142–145.

40 On this building program, Martinez-Sève 2014.

41 Martinez-Sève 2020, 243; see also discussion in Morris, ch. 4, I, this volume.

42 Martinez-Sève 2020, 229–235, synthesizing data from Gardin 1998.

43 Martinez-Sève 2020, 227–229.

44 Lindström 2020, 291–295.

45 Staviskij 1986, 79, 81.

46 Leriche 2010, 160; see however the destruction phases at the Oxus temple attributed to the Yuezhi and Saka in the transitional period, Drujinina and Lindström 2013, followed by its continued use.

47 Gardin 1998, 115–116.

On the whole, the organization of this territory through local rulers based in central settlements of oases probably persisted.⁴⁸ A number of burial complexes particularly dating to this transitional period have been detected, which (judging from their form and grave goods) can be linked with mobile pastoralist lifeways. Although many have been identified with the Saka and Yuezhi – i.e., inward-migrating mobile pastoralist groups with traditional pastures perhaps in northern Central Asia and near Gansu – these identifications are somewhat problematic. At minimum, the close proximity of several burial complexes to permanent settlements raises questions about the identity of the inhabitants of the burials and demonstrates their close links to settled communities.⁴⁹ Indeed, some mobile groups may have imposed a form of rule over certain settled communities, which has been proposed regarding the first-century CE Tillya Tepe elites and the nearby settlement at Emsi Tepe.⁵⁰

Urbanization and agricultural exploitation in Bactria came to reach its greatest extent in antiquity in the Kushan period. The broad picture of this presented in Staviskij's classic synthesis⁵¹ probably remains roughly correct, although archaeological research continues to provide nuance and new details. The extent of development is clear in the valleys of Balkhab, Surkhan Darya, and the left bank of the lower Kunduz river, which were among the most important regions in terms of the size and number of settlements there. Each river valley had at least one major urban center, and was connected to expansive areas which could be irrigated for agricultural use.⁵² The Surkhan Darya province in particular experienced dramatic development and urbanization processes.⁵³ The case of the development of cities in each of the main valleys is different; Balkh (Balkhab) remained an important center,

48 An observation coherent with the account provided by Zhang Qian on Daxia during his visit to the Western Regions: "It has no great ruler but only a number of petty chiefs ruling the various cities." *Shiji* 123.3164, trans. Watson 1993, 269.

49 See, e.g., the Ksirov burial grounds in the Dangara plateau, comprised of kurgans linked with mobile populations of the Babashov type and dated from the second century BCE–second century CE (Denisov 2007); the Tupkhona *necropolis*, associated by its excavators with a sedentary population, located in the vicinity of Khoki Safed and the Hissar Arg in the Dushanbe-Gissar oasis (Litvinskii and Sedov 1984); and Rabat I and II burial grounds, located in proximity to Payon Kurgan (Sverchkov 2005, 15). See also Leese-Messing, ch. 11, IV, this volume.

50 Rapin 2007, n. 37 with references.

51 Staviskij 1986, 57–111.

52 Estimating the surface area of land used for irrigation in each valley in antiquity is difficult. Acknowledging that the Kushan period saw expansive occupation in each valley, Staviskij (1986, 93, 96) cites Vavilov's estimates for the maximum area of irrigated land in the 1920s to suggest that the Balkhab valley may have watered 55,000 ha and the Kunduz valley 50,000 ha. In respect to data collected during the East Bactria survey, Gardin (1998, 150, tab. 2) indicates that the canals watering the Khanabad-Kunduz system and the left bank of the lower Kunduz could have irrigated a total of 27,400 ha. For the Surkhan Darya province (not entirely the same area as the valley), Stride (2005, 435–436) has estimated that about 125,000 ha could be used for irrigated agriculture.

53 Noticed by Soviet-era researchers and reiterated by Stride 2005, 326–327.

while Old Termez was developed from a Hellenistic garrisoned fort located on a citadel to a capital and urban center (Surkhan Darya at its juncture with the Oxus), and Qala-i Zal was apparently established *ex novo* (Kunduz).⁵⁴

The Kushan period also saw the growth of a number of smaller urban centers, and development in the networks of settlements and hinterlands around these.⁵⁵ This likewise occurred in some oases where settlement had been relatively limited in the Hellenistic period. For example, archaeological data collected recently from the Sherabad oasis (north Bactria) indicates a new program of settlement established in the region, implying also the expansion of the oasis's irrigation system and arable land. Settlements here were organized into a 'hierarchy,' judging from their surface areas: at least one central fortified site of more than 10 ha in size (here Jandavlattepa), followed by a network of evenly spaced levels of sites in decreasing surface area, falling off with hamlets and homesteads about < 1 ha in size. The authors of this study observe that the structure of settlements here is similar to that which was observed by Stride as emerging around the large Kushan-period towns (> 40 ha in size) of Dal'verzintepe and Khalchaian in the upper Surkhan Darya valley.⁵⁶ Presumably, the development of more regional urban centers (i.e., towns and cities) attracted the mobility of occupants of satellite settlements for permanent and/or periodic markets, the availability of certain specialized craft products, and other services. Finally, an interesting case is presented in Kampyrtepa; formerly a fortress guarding a crossing on the Oxus in the Hellenistic period, it developed into fortress-town by the Kushan period, before falling in importance around the mid-second century CE.⁵⁷

The built sacred landscape was also developed by the direct initiative of Kushan kings and their upper officials through the establishment of monumental temples dedicated to gods of the Kushan pantheon, namely at Surkh Kotal and Rabatak, but also possibly in the vicinity of Old Termez (Chingiz Tepe) and Airtam.⁵⁸ From around the mid-first century CE, Buddhist monasteries and monuments also began to be established in Bactria. They were primarily attracted to regional capitals, like Old Termez (see the first phases of the suburban monasteries, Fayaz Tepe, Kara Tepe, and probably another attached to Zurmala *stūpa*), and Balkh. Another 'monument' (with a since destroyed, undiscovered monastery?) was also established outside the walls of the town Dal'verzintepe (DT-1). Monasteries were occupied by monks of diverse origins (but including a strong component of Gāndhārī speakers), and relied on the patronage of the inhabitants of the settlements they were estab-

⁵⁴ On Qala-i Zal, Gardin 1998, 87–88.

⁵⁵ Soviet scholarship produced several typologies for settlements in the Kushan period, although these feature some unresolved methodological issues, for which see the discussion in Stančo and Tušlová 2019, 18–19.

⁵⁶ Stančo 2019, 370–371; see also Stride 2005, 1:324

⁵⁷ See the summary of the life of the settlement in Bolelov 2018, 8–23.

⁵⁸ Fussman 2001, 260.

lished next to – the majority of the population, however, remained unconverted.⁵⁹ Important supraregional sanctuaries dedicated to local gods, namely the temple of the Oxus at Takht-i Sangin, continued to function in this period.⁶⁰

III.2 Gandhāra

In comparison to Bactria, available data for early historic and historic period urban settlements in Gandhāra are relatively limited. However, it is also clear that settlement patterns in this region were structured differently. Two key urban centers had emerged by the Achaemenid period: Puṣkalāvati (Charsadda-Bala Hisar) located on the semiarid steppe of the Peshawar plain in Gandhāra proper, and Taxila (Hathial mound?) in the Taxila valley. Throughout the period under study, these centers grew and were refounded several times (Charsadda-Shaikhan-Dheri; Taxila-Bhir Mound, Taxila-Sirkap, Taxila-Sirsukh). Additionally, an urban center emerged in Puruṣapura (Peshawar, Gor-khuttree), which was – to judge from epigraphic evidence – also called Kanishkapura, and associated with Kanishka.⁶¹ Importantly, these cities were connected with the *uttarāpatha*, a major historical route linking Gandhāra to cities of Gangetic India, including Pāṭaliputra.⁶²

However, these lowland cities had limited access to enough arable land to feed them. Simultaneously, settlements increasingly developed in the adjacent, agriculturally rich highlands that could facilitate the production and export of food for the lowland cities.⁶³ The best-studied example of this is the case of the Swat Valley, with the urban centers of Barikot, Udegram, and Barama.⁶⁴ Barikot – although founded much earlier and structured as a city during the Achaemenid period⁶⁵ – had been equipped with a major stone masonry fortification wall under the Indo-Greeks.⁶⁶ In a similar way, the number and size of settlements in the fertile Kashmir valley – previously very limited – also expanded profoundly in the Kushan period.⁶⁷

More broadly, in the era spanning the first century BCE to the first century CE, i.e., the transitional or Saka/Parthian period, the number of settlements on the Peshawar plain starts to accelerate.⁶⁸ Perhaps most importantly, the period under

⁵⁹ See synthesis and discussion of the above in Fussman 2015, 186–187, 191–194.

⁶⁰ Lindström 2016.

⁶¹ See Morris, ch. 4, II.3, this volume.

⁶² On the *uttarāpatha*, see Dwivedi, vol. 1, ch. 3, 112–113, and Neelis 2011, 186–204; 2013.

⁶³ On the relationship between these highland and lowland settlements, Coningham and Ali 2007, 244; Olivieri 2020, forthcoming.

⁶⁴ On Udegram and Barama, see Gullini 1962; Faccenna 1964.

⁶⁵ See Olivieri and Iori 2020.

⁶⁶ On the dating and development of these settlements in the Swat Valley in light of radiocarbon data obtained at Barikot, Olivieri et al. 2019.

⁶⁷ Shah 2012.

⁶⁸ Ali 1999; 2003; Coloru, Iori, and Olivieri forthcoming.

study also witnesses the emergence of Buddhism as a major religion in Gandhāra and an explosion in the foundation of new monasteries. These appear in the vicinity of urban sites as well as along routes of mobility through the region, and even in more remote locations in highland valleys, beyond the limits of fertile land. In such areas, they could be found in the vicinity of hydraulic infrastructure such as wells, barrage works, and even aqueducts, as seen in valleys of the tributaries of the Swat river.⁶⁹

Finally, an interesting case of a settlement developed beyond Gandhāra's western frontiers in this period should be mentioned: Mes Aynak, the major copper source in Afghanistan's Logar province. As outlined earlier,⁷⁰ the early history of settlement at this site (until recently subject to rescue excavations) prior to the third century CE is especially murky. However, numismatic evidence perhaps points to the development of a mining settlement oriented toward extraction of this resource already by the Achaemenid period⁷¹ which, at some point, came to be fortified and surrounded by rich Buddhist monasteries.⁷²

III.3 The Causes – Or, the Problem of Empire on the Ground

What caused these changes in settlement patterns, and accelerated urbanization processes and the extensification of arable land? While the growth of some urban centers and the extension of some irrigation networks can easily be read as organic and recursive processes driven by local initiative, and perhaps by slow population growth,⁷³ this model does not fit many of the scenarios described above, and a number of different explanations should be offered. Generally, additional significant driving forces probably included imperial revenue extraction, the growing influence of Buddhist monasteries (including their ability to acquire and manage land), and the increasing interdependency between agricultural hinterlands and growing urban centers.

The key problem here is identifying what empires look and act like on the ground. What should give us caution about offering broad-sweeping answers are

⁶⁹ On this infrastructure, Olivieri and Vidale 2006, 132–133. For further on Buddhist monasteries, see Morris, ch. 4, IV.2, this volume.

⁷⁰ Morris, ch. 4, IV.2, this volume.

⁷¹ Noori, Olivieri, and Iori 2019, 107–109.

⁷² Marquis 2016.

⁷³ Note that even in the case of the comprehensively surveyed region of east Bactria, Gardin stressed that while settlement dimensions and the size of irrigated areas could provide the basis for a hypothetical population estimates, the data cannot be used to explain population variations as being the result of either agricultural development or town planning, as too many variables are involved. Likewise, he cautioned away from necessarily reading agricultural expansion as the result of population pressure, and reiterated that irrigated agriculture is not the only food source of this region (Gardin 1998, 146–147).

longstanding debates about the sociopolitical organization of major irrigation works in Central Asia, which highlight the difficulties of reading imperial policy and even agency into archaeological data. Earlier works emphatically linked irrigation works with the existence of a centralized state. A number of Soviet-era archaeologists – namely Tolstov, Andrianov, and Mukhamedzhanov – interpreted the digging and maintenance of massive canals as implying centralized state power because they necessitated the command of a mass labor force, presumably comprised of slaves.⁷⁴ This scheme's link between centralized power and irrigation has parallels to a Wittfogelian model of hydraulic despotism – i.e., that despotic states emerged to control irrigation – although the causal factors are framed differently.⁷⁵

Recent studies see things differently. For example, Francfort and Lecomte have stressed that the realization of major irrigation works does not require a central state, that such works were probably organized on a local basis, and moreover that east Bactria's canals (studied by Gardin's survey team between 1974–1978) may have been gradual works that did not require such an immense, simultaneous mobilization of labor.⁷⁶ Likewise, Stride, Rondelli and Mantellini have looked at the development of irrigation in the oasis of Samarkand from a similar perspective, highlighting its gradual development and local management, as well as the historical frequency of the oasis's rule by elites of a pastoral nomadic origin.⁷⁷

So in principle, artificial irrigation works do not *require* a central state, and were probably facilitated primarily by local technicians and the labor of local communities. But the question of how ruling powers may still be involved in somehow developing these systems – particularly as beneficiaries from the extensification of arable land and hence increased extraction of tribute or tax – remains more difficult to answer. The scope of the problems involved in these questions are well represented in a debate ongoing since the 1980s as to the extent of Achaemenid imperial involvement in exploiting Bactria's landscape.

In short, the archaeological data collected by Gardin's survey team in east Bactria led them to highlight continuity in local irrigation practices, and hence their local management, and doubt the necessity of Achaemenid state intervention, while Briant posited that satrapal authorities should have been involved in some way, if mobilizing local technicians.⁷⁸ More recently, and especially in light of the site of Kyzyltepa in the Mirshade oasis (Surkhan Darya province) as well as the Aramaic Documents from Bactria, Wu has argued that the development of a center-satellite settlement structure emanating from Kyzyltepa can be viewed as a part of wider,

⁷⁴ See discussion and bibliography in Morris, vol. 1, ch. 16, II.4.

⁷⁵ See comments in Francfort and Lecomte 2002, 633–634; Stride, Rondelli, and Mantellini 2009, 74–75.

⁷⁶ See especially Francfort and Lecomte 2002, 661, n. 106.

⁷⁷ Stride, Rondelli, and Mantellini 2009

⁷⁸ Synthesized recently in Briant 2020.

centralized Achaemenid initiatives for managing and expanding exploitation in the empire.⁷⁹ Briant has highlighted the uncertainty of this picture and the need to leave questions about the organization of irrigation open, but has also observed that the management of local territory by *hyparchs* (as in Graeco-Roman sources) may actually represent an articulation between preexisting local power structures and the empire. Possibly, they acted as local dynasts in a relatively autonomous, subordinate relationship with *satraps* (with the expectation to provide troops and tribute when needed), rather than imperial ‘governors’ or ‘minor *satraps*’ proper.⁸⁰

Of course, the situation in Achaemenid Bactria and the following Hellenistic and Kushan periods should not have been entirely similar, as the region was not a frontier, but the core of the Graeco-Bactrian and Kushan Empires, and implies the potential for more direct ‘state’ involvement. Yet, besides acknowledging that Hellenistic rule was different in that it involved colonization through the establishment of settlements to an uncertain degree, there is also a strong underlying sense that Achaemenid approaches to administration in this landscape were also replicated by Bactria’s later powers. Indeed, although the Greek Kingdoms seem to have installed a relatively wide-ranging administrative system (judging by the officials that turn up in some of our documentary sources as well as later epigraphy), we are lacking evidence as to whether the Kushans did the same.⁸¹ This problem makes it particularly difficult to speak with any certainty about the logic and extent of the Kushan Empire (hence why I limit most of my analysis to Bactria and Gandhāra),⁸² let alone make assertions about matters of intentional imperial policy and how these might have impacted economic development.

It is perhaps useful to frame the issue of Greek and Kushan imperial involvement in the development of Bactria and Gandhāra in a more indirect way: providing ‘incentives’ (or pressure) for surplus production through their regimes of revenue extraction. Comparably, Briant already observed that the development of production capabilities under the Achaemenids cannot be explained as the result of an ‘economic policy’ or central interference, but rather a ‘tribute policy’ with incoming revenue oriented toward royal consumption and indirect ‘encouragement’ detectable in spheres of activity attached to this.⁸³ Interestingly, Stride, Rondelli, and Mantellini cite Golab’s study of irrigation in East Turkestan (modern Xinjiang) from the mid-twentieth century⁸⁴ as an example of a lack of state involvement in the process, which was instead locally managed and financed, with the government

⁷⁹ See, e.g., Wu 2018, 2020. See a similarly intensive view of administrative landscapes in the Achaemenid Empire in Henkelman 2017; 2018.

⁸⁰ See especially Briant 2020, 36–39; see also the discussion in Morris, ch. 9, II.2, this volume.

⁸¹ See Morris, ch. 9, II.2, this volume.

⁸² See comments in Morris, ch. 4, I, this volume.

⁸³ Briant 2002, 809.

⁸⁴ Golab 1951, 195–196.

providing no funds, supplies, nor assistance.⁸⁵ However, considering this case as a potential model for our present purposes, it should be noted that this information is framed by other important remarks:

The government (in East Turkestan that means the provincial governor) is a highly interested party, but it is not so much the public welfare as the possibility of additional revenue for the public coffers that motivates its interest. The provincial governor sends an order to the *dautai* (chief magistrate of a *dau* or department), directing him to plan for new cultivated tracts, or to enlarge those already existing. The *dautai* calls a meeting of all the district mandarins, irrigation officials and village headmen under his jurisdiction, to discuss what can be done. Should they regard a new irrigation project as feasible, – and this is generally left for the *lung kuan* and the headmen to decide, – the mandarins and irrigation officials receive written orders and the necessary authorizations from the higher authorities to get the project underway. Beyond these preliminaries the government does nothing. It neither grants funds nor supplies provisions, nor lends any technical assistance whatever. The district mandarins must see that the orders are carried out, while the irrigation officials manage the details of organization and construction.⁸⁶

In this case – despite not being involved in the practicalities of construction, labor management, and financing – the government exercises its power in the development of the project and is a clear beneficiary with respect to potential increased revenue extraction.

So, acknowledging all of these caveats, an imperial impact on development can be seen in a number of places. For example, Hellenistic royal initiative seems (unsurprisingly) clearest in the vicinity of Ai Khanum. The foundation and expansion of this royal city makes this obvious, as well as in terms of the required labor. For example, Leriche estimates that major renovations of the city's mudbrick wall (of which there were three during the 150-year life of the city) required the labor of 3,000 men for six months.⁸⁷ Additionally, it is also easy to see the attraction of other resources from an imperial perspective in the vicinity of the site – not only its rich agricultural hinterland, but its proximity to precious stones in Badakhshan (famously lapis lazuli) as well as gold. According to Martinez-Sève, the extension of artificial irrigation systems into new areas and foothills in eastern Bactria can be linked to an initiative to increase productive capacity on a regional scale and was perhaps organized by royal officers.⁸⁸ Royal initiatives and local demographic growth in east Bactria probably contributed to such works (especially in foothills) in a reciprocal fashion. For example, one canal (no. 2) dug into the foothills approximately in the reign of Euthydemus I was 30 km long but only watered a maximum of 4,000 ha of new land. This was not great value for the effort involved, according to Gardin and Gentelle, who considered that the canal's construction must have

⁸⁵ Stride, Rondelli, and Mantellini 2009, 80.

⁸⁶ Golab 1951, 195–196.

⁸⁷ Leriche 2007, 142, n. 47.

⁸⁸ Martinez-Sève 2020, 230.

been instigated by the pressure of demographic growth – but on the flipside, this may have made labor cheaper and justified the project.⁸⁹

More broadly, the impact of Greek rule was inscribed onto the landscape more clearly with a number of fortresses. These have been highlighted by Leriche as evidence for the militaristic quality of foundations of the Hellenistic period in Bactria (in contrast to its storied ‘thousand cities’), concluding that Greek control of this region was characterized not by any intentional attempt to develop the territory but by its organization through the “setting up of colonies to support its power and seeking to control fords and passes as much for financial considerations as those concerned with ‘policing’ activity.”⁹⁰

Turning to Hellenistic Gandhāra, Olivieri has highlighted a similar role played by empires (starting with the Achaemenids) in bolstering settlement and agricultural production in the Swat Valley. In particular, he aligns the construction of a massive masonry fortification wall around the settlement of Barikot in the Indo-Greek period (replacing an earlier earthen fortification of the fourth century BCE) with official initiative oriented toward establishing power and protecting this collection point for surplus agricultural and pastoral produce. This wall was later restored in the Saka-Parthian period.⁹¹ Produce of the Swat Valley would then be exported to urban centers of the Peshawar plain, specifically Puṣkalāvātī (Charsadda-Bala Hissar, Charasdda-Shaikhān dheri), which was the last city on the Swat river before it joined the Kabul river.⁹² Accordingly, by supporting urban centers in the Swat Valley, both empires and regional powers probably sought to both protect resources in this important highland agricultural region, and the potential for the capture of revenue from these urban centers as points for the collection and export of produce. The initial emergence of Puṣkalāvātī can be explained both in terms of its role as a regional urban center, as well as its connection to mobility and trade, as it was linked with the *uttarāpatha*. Indeed, Coningham and Ali observe that the site of Charsadda-Bala Hissar had grown slowly as an urban center from the beginning of the first millennium BCE and its early material culture had strong links with Gangetic India.⁹³

Looking back to Bactria in the Kushan period, Stride highlighted development and urbanization in the Surkhan Darya province during this time, but hesitated to explain it. Acknowledging that development in this period probably follows patterns of continuity established earlier, Stride observed the centrality of the region between Sogdiana and the steppe, the Parthian world, and Kushan India, and fur-

⁸⁹ Gardin and Gentelle 1979, 13–15, discussed recently in Coloru 2021, 83–85.

⁹⁰ Leriche 2007, 148.

⁹¹ Coloru, Iori, and Olivieri forthcoming.

⁹² Olivieri 2020, forthcoming. On agricultural production in the region, see also Morris, ch. 4, VII.1.1, this volume.

⁹³ Coningham and Ali 2007, 265.

thermore that it would make sense that the Kushans would want to contribute to its development, and that of Old Termez (which evolved from a Hellenistic fortress) as a commercial, religious, and production center.⁹⁴ Stride later reiterated the connection between the rise of Termez and the agency of supraregional states and empires – as “Termez alone has no reason to exist.”⁹⁵ Termez’s importance as a crossing point on the Oxus especially followed the decline of Kampyrtepa, located downstream, in the second century CE. Kampyrtepa had initially been a fortress in the Hellenistic period, emerging into a fortress-town and major transshipment point by the Kushan period. Before its decline (instigated by the collapse of part of the site into the Oxus), it featured a substantial settlement of a community probably including traders, as well as individuals engaged in related economic activities, such as managing the transportation and storage of goods, providing security, and transport across the river. As the settlement had been subject to replanning in the Kushan period, Bolelov has suggested that a portion of Kampyrtepa’s inhabitants that were engaged in activity relating to transport were employed by the Kushan state.⁹⁶ Stančo has observed that the fundamental transformation of the Sherabad oasis (Surkhan Darya province) seems better explained not as the initiative of local authorities and labor forces but of the Kushan state, as well as implying a wider backdrop of political and economic stability provided by the empire.⁹⁷ Among the new or renovated fortifications found at a number of settlements in this period, Pugachenkova and Rtveldze pointed at the size and professional quality of those at Dal’verzintepe as evidence for a centralized state mobilizing slave labor.⁹⁸ Finally, Gardin remarked that the *ex novo* foundation of Qala-i Zal in eastern Bactria indicated that the region was also included in the wider urbanization program of the Kushan Empire.⁹⁹

Again, Gandhāra by the Kushan period developed for different reasons. Some earlier patterns continue: settlement in the Swat Valley continued, and in light of Olivieri’s model of comparable highland double-crop pocket zones within and beyond northwest India in the Hindukush-Karakorum-Himalaya piedmonts,¹⁰⁰ the influx of settlements in the Kushan period in Kashmir – the produce of which could have fed the lowland urban center of Taxila – was probably also stimulated to some degree by imperial revenue extraction. That being said, already from the beginning of the second century CE, production in Swat came into the hands of Buddhist mon-

94 Stride 2005, 326.

95 Stride 2007, 112.

96 See Bolelov 2018, 327–334.

97 Stančo 2019, 371.

98 This assessment was made in comparison to the organization and construction of such projects in the Middle Ages, being left primarily to cities, and tending to be of lower quality, for which see Pugachenkova and Rtveldze 1978, 186–187.

99 Gardin 1998, 116, 144.

100 Olivieri forthcoming.

asteries. Here, monasteries apparently came to acquire land, control water management infrastructure, and hence manage production in the Swat Valley. Indeed, and apparently this system was so robust that it continued well after the collapse of the urban site of Barikot (caused by two earthquakes) and the crumbling of Kushan rule.¹⁰¹ A similar scenario for Kashmir is plausible, but not yet proven.

More broadly, Buddhist monasteries came to be further dispersed across the landscape – unlike in Bactria, where they were only attracted to urban settlements. Donative epigraphic records indicate that patronage from imperial powers was relatively limited, while local elites played the critical role of facilitating the establishment of these structures and their communities.¹⁰² Finally, the precise relationship between Mes Aynak and the Buddhist community in this early period is not clear.¹⁰³ Although this copper source presumably attracted imperial interest as the source of their ubiquitous base metal coinages, it is also highly plausible that activity at this mining settlement was at least partly organized or facilitated by the inhabitants of its monasteries at an early stage.

It is worth concluding with some thoughts on the problem of the impact of the Kushan Empire in Gangetic India. As mentioned above, assessing the extent of the empire in northern India more broadly, let alone its impact, remains a problem. This is despite the conventional attribution of horizons of certain kinds of material culture (e.g., Śunga-Kuṣāṇa) to an imperial presence. Mathura, at least, was certainly incorporated into the empire in the first century CE: it is replete with inscriptions mentioning kings of the dynasty (largely in dating formulae from religious donative contexts), has portrait sculptures of the kings at the *devakula* at Māt (a temple to a Brahmanical god?) and was probably the location of a copper coin mint.¹⁰⁴ Although the Kushans had facilitated the establishment of this *devakula*, as well as at least one Buddhist monastery,¹⁰⁵ their involvement in the development of the city and its hinterland is less clear. On the one hand, settlements (including religious sites and monasteries) do appear to grow in number in Mathura during this period.¹⁰⁶ On the other hand, Härtel's unusually precise excavation data from the town of Sonkh (which, because of their high quality, tend to be taken as representative of the Mathura district more broadly), reiterates a sense of continuity with only small changes in certain patterns of material culture, including the use of Kushan coins.¹⁰⁷

Bracey has recently discussed some evidence for the presence of the Kushan Empire across northern India (i.e., inscriptions, copper coins, seals). Although he notes

101 Olivieri forthcoming, and for an earlier discussion on the connection between Buddhist monasteries in water and land management, see Olivieri and Vidale 2006, 132–134.

102 Fussman 2015, see also Morris, ch. 4, IV.2, this volume.

103 See Morris, ch. 4, IV.2, this volume.

104 See Morris, ch. 4, I, this volume.

105 Morris, ch. 4, IV.2, this volume.

106 The data are still quite imprecise, for which see Gupta 2014.

107 Härtel 2007, 329–340. For further on the Kushan layers, Härtel 1993, 50–65.

that Mathura was probably directly administered by the Kushans during the second century CE, he also stresses the difficulty of interpreting state control – whether by the Kushans or other local polities – at a number of urban centers.¹⁰⁸ Indeed, it is plausible that Kanishka’s conquests deeper into Gangetic India did not establish direct rule there, but perhaps some kind of “overlordship” over local kings.¹⁰⁹ This is probably correct, but the issue can be framed in a different way. Many of these centers (including Mathura) had emerged as enormous, rich cities with developed economies and hinterlands well before Kushan armies arrived,¹¹⁰ and were already populated with numerous competing agents in respect to political and ritual power who employed highly developed fiscal, administrative, and legal systems to fulfil their own purposes.¹¹¹ Mathura, moreover, had already grown into a renowned center of stone-carving production,¹¹² and under Kushan rule, we see probable examples of products of this region being donated by a nun, monk, and governors (plausibly, of Mathura) at certain important Buddhist sites beyond the region.¹¹³

As there seems to be no necessity so far to read developments around Mathura as very directly driven by the Kushan Empire, perhaps the Kushans had a less-involved approach to administration and revenue extraction in this space. Indeed, here we can note that the lack of material evidence of Kushan rule is even more obvious in respect to the Indian subcontinent’s northwest and western coasts, despite frequent assertions that the empire was oriented toward controlling the routes and emporia or these regions connected with maritime trade.¹¹⁴ Instead, elsewhere I have highlighted the Greek Kingdoms’ and especially the Kushan Empire’s faintly attested pushes into Gangetic India as possible examples of irregular revenue extraction through the capture of booty and perhaps the establishment of tributary arrangements with local ruling powers.¹¹⁵ Here, they were most likely attracted to the wealth of the region’s rich old urban centers – themselves the long-term developments of an incredibly productive economy.

IV Changing Patterns in Resource Extraction and Production

In the period under study, we see some important changes in patterns of production. In particular, these constitute increased output and specialization across vari-

108 Bracey 2020, 125, 131–132, 134.

109 Cribb and Bracey forthcoming, § 5.D.1.

110 See generally Erdosy 1987; Smith 2006. On settlement at Mathura, see again Gupta 2014.

111 See generally Dwivedi’s contributions, this volume.

112 Note too that sometimes products of the Mathura school are often – by force of convention – attributed to the Kushans, see, e.g., Czuma 1985.

113 E.g., at Kosam, and Sarnath, see Cribb and Bracey forthcoming, § 5.D.6.2.

114 See Morris, vol. 1, ch. 16.

115 Morris, ch. 4, II.2, and ch. 9, II.2, this volume.

ous arenas. Above, we have already seen processes of extensification in agriculture by expansion of arable land to its limits in parts of Bactria and Gandhāra, which were probably driven especially by imperial revenue extraction, the growing influence of Buddhist monasteries, and the recursive growth of urban centers and expansion of agricultural hinterlands needed to feed them. Generally, these processes also imply population growth and the acceleration of trade – especially when taxes were expected to be paid in coin. Additionally, longer-standing processes of intensification starting prior to the Hellenistic period are also seen in the cultivation of millet as a summer crop in Bactria, as well as the practice of double-cropping in certain highlands of the Hindu Kush-Himalaya-Karakorum.¹¹⁶ With respect to changes in the pastoral economy, I have noted elsewhere that this period also appears to see the growth of specialized horse-breeding for transregional export.¹¹⁷

Below, I look more closely at increased specialization and volumes of resource extraction and production in respect to three areas – metal and mineral resources, then craft production (including prestige and luxury goods), and finally sculpture – and consider what drove these patterns.

IV.1 Increasing Extraction of Metal and Mineral Resources

Throughout the history of Central Asia, members of both sedentary and mobile communities were probably involved with the extraction of a variety of minerals, metals, and semiprecious stones, with mining sites – often with polymetallic ores – distributed widely throughout the mountains and deserts of this landscape. Although specific data relating to extraction in antiquity is ordinarily very limited, ongoing research suggests a long-term historical pattern of small-scale extraction and processing, as well as technological conservatism.¹¹⁸ Thus, although we have very little direct data about changing scales of extraction in the period under study, a strong impression of acceleration is provided by proxy evidence, particularly in the gold, silver, and base metal (bronze and various copper alloy) coinages minted by rulers,¹¹⁹ and finds like the jewelry and articles of bodily adornment utilizing gold and precious stones, especially turquoise, at Tillya Tepe. These bodies of evidence imply that mineral resource extraction was entangled with the phenomenon of empire, as well as the growing consumption capacities and demands of imperial and local elites.

Other direct imperial interest in ore and mineral resources is plausible, but the data tend to be unclear. For example, salt mining in the Pashkurt basin (Bactria) is

116 See Morris, ch. 4, VII.1.1, this volume.

117 Morris, ch. 4, VII.1.2, this volume.

118 See especially Sverchkov 2009, 142.

119 Discussed in Morris, ch. 9, II.3, this volume.

of considerable antiquity, but the extent of its exploitation in antiquity is not known. Nonetheless, the location of this resource may have instigated the foundation of the nearby settlement Dabil Kurgan in the Achaemenid or Hellenistic period.¹²⁰ Comparable phenomena are theoretically possible for the Hellenistic and Kushan periods – see, for example, the proximity of Ai Khanum to lapis lazuli deposits in Badakhshan and alluvial gold placer deposits in east Bactria.¹²¹ The case of Mes Aynak, a relatively isolated copper source, has been mentioned above (sec. III.3) as an example of development that may have begun at imperial instigation, but later might have come to be organized by Buddhist monasteries at the settlement.

IV.2 Changes in Craft, Prestige, and Luxury Good Production

Craft production in this period changes too. While most households probably engaged in some form of craft production for their own use, there was also increased specialization.¹²² Some specialist producers supplied wider markets. For example, among the Hellenistic pottery corpus of the Surkhan Darya region, two production centers have been determined that respectively served sites along the Oxus, and sites on the piedmonts, linking fortresses of the region. The products they produced were highly standardized in terms of medium, shape, and method of production.¹²³ Specialization particularly developed in urban contexts. In respect to the Kushan period, the potter's quarter at Dal'verzintepe (DT-9) – including kilns, as well as a temple and residential premises – probably supplied the majority of the town's demand, but may also be interpreted as evidence for the development of professional corporations of craftspeople.¹²⁴ Some residents of fortresses (Kampyrtepa) and monasteries (Kara Tepe) might have also been served by itinerant master potters.¹²⁵ In respect to Gandhāra, highly specialized pottery production techniques were also developed for the production of certain luxury wares.¹²⁶

Additionally, as I have noted elsewhere,¹²⁷ a number of different technologies were introduced in the realms of textile, pottery, and sculptural production in this period. However, rather than being particularly oriented toward efficiency, they speak more to the fact of growing mobility between the western and Indic worlds, as well as goals of creating goods with certain kinds of visual and material qualities that were appealing to consumers in Bactria and Gandhāra.

120 Stančo 2020, 279.

121 See Morris, ch. 9, II.3, this volume.

122 Further discussed in Morris, ch. 4, VII.2.

123 Martínez Ferreras et al. 2018, 1053–1054; see also the discussion in Stančo 2020, 279.

124 Bolelov 2010, 28.

125 See Bolelov 2011, 69–70; Tsantini et al. 2016. See also Morris, ch. 4, IV.2. and VII.2, this volume.

126 See Maritan et al. 2018; Maritan et al. 2020.

127 Morris, ch. 9, V.5, this volume.

Particularly important developments in this period are found in respect to the production of prestige and luxury goods. A significant component of this production was most likely driven by the consumption capacity and demands of imperial and local elites, who used the wealth they extracted and accumulated to sponsor workshops. There are numerous, well-known examples of this. Although it is unclear whether royal workshops proper existed in the Hellenistic period, it seems likely, particularly because finds of raw materials likely used for prestige good production were found in Ai Khanum's palace, if without tools.¹²⁸ Indeed, as a point of comparison from Central Asia, a likely parallel situation can be cited in prestige objects excavated at the Square House at the Arsakid ceremonial capital of Nisa – probably formerly a banqueting complex later transformed into a treasury – which included, among other goods, the famous corpus of carved ivory rhytons. Just as clay statues were molded in situ in some of the citadel's monumental buildings, it is highly plausible that a local workshop at Nisa made such objects for the Arsakid kings.¹²⁹

The evidence becomes clearer in post-Hellenistic Bactria. While the embroidered textiles of probable Bactrian origin found in Sampula (Tarim Basin) and the Xiongnu tombs of Noyon uul broadly attest to the existence of highly specialized workshops in the region, it is particularly the hangings depicting the 'Yuezhi' that imply their production in workshops connected with royal or courtly patronage.¹³⁰ Additionally, the enormous quantity of jewelry, articles of bodily adornment, and clothing appliqués made primarily from gold and inlaid with a range of semiprecious stones (especially turquoise) recovered in the Tillya Tepe burials were produced by a highly specialized workshop patronized by these local elites.¹³¹

The persistence of elite-sponsored and -controlled workshops in the Kushan period is indicated by the Begram hoard, although the context and output of production it implies are not clear. Here, besides the dominant corpus of luxury imported tableware, were a few limited examples of raw materials, but moreover a collection of Graeco-Roman plaster casts and an accumulation of cast bronze decorative elements (formerly attached to articles of furniture and other objects) which may have been accumulated for use as items of visual and formal 'inspiration' in an elite-controlled workshop.¹³²

IV.3 A Sculptural Explosion

With respect to changes in production driven by imperial and local elites, one of the most important developments in this period is the explosion of a sculptural

¹²⁸ Room 104 in Rapin 1992, 48–50, see also Morris, ch. 4, II.3, this volume.

¹²⁹ See further comments and references in Bruno 2020, 70, n. 17.

¹³⁰ See discussion in Morris, ch. 4, VII.2, this volume.

¹³¹ Hickman 2012, see further in Morris, ch. 4, V.2, this volume.

¹³² Morris 2021, §5.3.

industry, producing stone architectural elements, figural sculpture of ruling elites in both painted clay and stone in Bactria, and most notably, an immense volume of figural and decorative architectural stone sculpture in Gandhāra that adorned the sacred spaces connected to Buddhist monasteries.

Prior to Bactria's Hellenistic period, carved stone features were uncommon in the local architectural repertoire. Earthen construction media (especially sundried mudbrick) were traditionally favored and more easily facilitated by the region's resources. Sometimes, in the Achaemenid period, carved stone elements were incorporated in what were probably administrative buildings.¹³³ But such elements were increasingly adopted in administrative and public buildings of the Hellenistic period, most visibly as column capitals and bases,¹³⁴ indicating the development of sector of production driven by imperial demand. In the Kushan period, carved stone architectural elements came to be incorporated into elite private residences too.¹³⁵

This period also sees the emergence of painted clay portrait sculpture in Bactria depicting ruling elites, speaking both to their command of workshops, as well as the cultivation of the use of this visual medium to express and communicate royal power. For example, there are the diademed Seleukid or Graeco-Bactrian royal figures (probably as patrons) installed in the Oxus Temple¹³⁶ and – despite the contested date and identity of the monument's patrons – the painted clay sculptural program at Khalchaian.¹³⁷

Unlike in Bactria, stone suitable for building material was far more readily available in Gandhāra, and stone masonry was accordingly a predominant feature of both settlement and religious architecture in the region, and its features (e.g., manner of dressing and arrangement of stone) developed over time.¹³⁸ Buddhism was introduced to the region by the third century BCE, and although it developed into a major religion relatively quickly, the production of Gandhāran Buddhist art only appears to have emerged in intensity by the early first century CE (i.e., especially the decorative and figural stone – particularly schist – reliefs carved to adorn *stūpas* and sacred areas). Interestingly, this phenomenon postdates the flowering of early Buddhist figural sculpture in India proper. In a parallel fashion, the 'school' of sculpture in Mathura also came to flourish in the Kushan period. Regardless, the only well-attested local precursor to Gandhāra's sculptural tradition are the so-called 'toilet trays' (perhaps with both cosmetic and ritual functions),¹³⁹ and a

133 See, e.g., rare 'Campaniform' capitals in Francfort 2018.

134 The existence of these buildings is often only known by the finds of such re-used features.

135 See the examples at houses Dt-5 and Dt-6 and Dal'verzintepe, discussed in Pugachenkova and Rtveldadze 1978, 197–199.

136 Bernard 1987, 107–108; Martinez-Sève, 2010, 10–11.

137 On the sculptures, Pugachenkova 1971.

138 For a summary of the development of these masonry styles with reference to Buddhist architecture, see Behrendt 2003, 255–265.

139 See Lo Muzio 2018.

strong impetus for its conception must have come from changing ritual beliefs and practices, as well as more contact with other sculptural traditions in India.¹⁴⁰

But Gandhāran art especially thrived in its specific local conditions. It was commissioned by donors, especially local elites, and even though we do not know many details about the production and commissioning process,¹⁴¹ this industry of production was driven by a broadly pious desire to accumulate merit. In addition, the flowering of this industry necessitated vigorous stone quarrying in different microregions and the export of this stone to workshops, probably usually in the same region as quarries.¹⁴² Moreover, the volume of production and formal qualities of Gandhāran sculpture not only speak to expansive surplus production and wealth accumulation directed toward monasteries, but also the sociocultural composition and outlook of its patrons. In creating a new visual language, this body of art drew on a famously wide iconographic, stylistic, and technical vocabulary – prominently the ‘classical’ Graeco-Roman world, with Iranian and Central Asian elements too, overlaid on an Indic base. The ‘Hellenistic’ features may have been particularly attractive to their elite donors (many of diverse cultural origin) as reflecting something of an ‘international’ style.¹⁴³ Additionally, the reality of the ‘Roman’ elements in this body of art have been recently rehabilitated, and may well (after all) be partly explained through the presence of sculptors trained in the Roman world in the region.¹⁴⁴

Indeed, the artistic influence of Gandhāran sculpture also refracted into Bactria under the Kushans, with similar stone sculptural elements (if much more limited in volume) incorporated into the various religious monuments across the region.¹⁴⁵ The intensified drive for architectural and decorative stone sculpture, naturally, must have also instigated the development of more quarry sites, like the limestone one detected at Khodja-Gul’suar/Orlinaia on the Oxus.¹⁴⁶

V Intensifying Connectivity

A third key process of development seen in the period under study is intensifying connectivity within and between the regions of Bactria and Gandhāra, as well as

140 On Gandhāran art’s relations with other schools and its development, Zin 2018.

141 See, however, a recent study of pieces of sculpture collected from a number of sacred areas in the vicinity of Barikot, which were apparently produced in the same workshop, in Brancaccio and Olivieri 2019. Here, Brancaccio suggests that they are the product of a workshop in Swat specializing in genre scenes inspired by classical (Graeco-Roman) imagery, and that the patrons of such votive *stūpas*, i.e., members of the local aristocracy, seem to have preferred such non-Indic genre scenes.

142 For stone quarrying in the lower Swat Valley, Di Florio et al. 1993; Lorenzoni and Zanettin Lorenzoni 1994.

143 Filigenzi 2012.

144 Stewart 2020.

145 The evidence from possible Buddhist sites in Bactria has been surveyed recently in Iwai 2020, although in some cases it is not clear whether certain monuments were Buddhist or not.

146 Staviskij 1986, 90.

across increasingly wide spaces. Most significantly, the movement of goods, ideas, and people between southern Central Asia and northern India increased immensely. In the following, I outline the evidence we have for the scope and patterns of this increasing connectivity from the perspective of the major routes connecting different regions (sec. V.1), and then clarify how hurdles to this connectivity were navigated and overcome to make it happen (sec. V.2).

V.1 New Patterns of Connectivity

Above, I have highlighted processes of urbanization and agricultural extensification in Bactria and Gandhāra during this period (sec. III). These developments were parallel to intensifying interregional patterns of connectivity too. To give just a few examples from the Hellenistic period in Bactria, locally minted Seleukid and Graeco-Bactrian coins came to be used in small transactions more widely, including at border fortresses (e.g., Uzundara),¹⁴⁷ and local pottery production centers and mobile specialists started to supply wider areas with a standardized repertoire of products.¹⁴⁸ More generally, the growth of urban centers and satellite systems of sites around them reiterate the important political, administrative, cultural, and economic roles that such central places cultivated, attracting people from their hinterlands for a variety of services. Presumably, staple agricultural produce like grain was probably traded and transported primarily within such local systems, as we are lacking evidence for the long-distance trade of these goods (which, however, does not mean it did not occur). With reference to better-attested administrative systems (Achaemenid and Hellenistic),¹⁴⁹ we may presume that produce taxed in kind was collected at regional, central storehouses, perhaps some of which were found in the largely unexcavated Hellenistic fortresses detected in Bactria. From there, some portion of produce could have been redistributed (e.g., for rations), while another portion could have been transferred to storehouses of the capital.

But here I want to focus particularly on the dramatic increase in connectivity seen in this period between Bactria and Gandhāra, and – through these regions – southern Central Asia and northern India more broadly. On the Bactrian side, the evidence for this is manifold. Already under the Seleukid Empire, a Bactrian *satrap* was recorded sending war elephants to Babylon in 273 BCE,¹⁵⁰ which must have been raised in Indian territory not under the control of the Seleukids. Certain silver coins minted in Gandhāra and/or the northwestern Indian frontier – both local *kārṣāpaṇas* as well as Indo-Greek issues – likewise appear in the Graeco-Bactrian

¹⁴⁷ Discussed in Morris, ch. 4, III, this volume.

¹⁴⁸ See above, IV.2.

¹⁴⁹ See Morris, ch. 9, II, this volume.

¹⁵⁰ Sachs and Hunger 1988, 345, no. 273 B, 31'–32'.

period (at Ai Khanum) and ‘Yuezhi-Saka’ period (in the Kunduz hoard).¹⁵¹ Raw elephant ivory also reached Bactria and southern Central Asia en masse; see, for example, the ivory rhytons at Parthian Nisa (sec. IV.2), as well as a range of locally carved ivory goods in Bactria, such as decorative objects, furniture, figurines, flutes, scabbards, and belt buckles associated with mobile groups.¹⁵² Finished products were also brought to the region too, such as the remnants of a decorative shell plate and throne inlaid with agate and rock crystal in the treasury of Ai Khanum’s royal city in the Graeco-Bactrian period,¹⁵³ and game pieces and a comb in the Kushan period at Dal’verzintepe.¹⁵⁴ Of course, in the Begram hoard, an enormous amount of ivory furniture elements (footstools, chair backrests, legs) carved in India proper was also found.¹⁵⁵ And, crucially, within this context of expanding connectivity, people and ideas were moving too: Buddhism began to be propagated beyond Gandhāra and into Bactria in the first century CE, and Gāndhārī-speakers came to live at Bactria’s monasteries, cities, and fortress towns (e.g., Old Termez, Kampyrtepa).¹⁵⁶ More broadly, the artistic influence of Gandhāran art in Bactria, as well as the cross-fertilization of visual and material cultures between the two regions, accelerated in the first centuries of the Common Era.

Material remains of this connectivity are somewhat less obvious in respect to Gandhāra and Gangetic Indic – but the bigger picture of expanding contacts is quite evident. In Gandhāra, of course, the material presence of the Greek Kingdoms, the Kushans, and other rulers is most obvious through the coins they minted, as well as inscriptions referring to their regnal eras and kings. In the Hellenistic period (as there had been in Bactria), there were some shifts in the culture of the region particularly in respect to elite activity, including the introduction of pottery forms in tableware, terracotta figurines, and the use of the Greek language.¹⁵⁷ But there were a number of links cultivated deeper into India too. Besides apparent memories of Indo-Greek military campaigns into the Gangetic valley,¹⁵⁸ a hoard of Graeco-Bactrian gold staters was found at Vaiśali,¹⁵⁹ an ambassador (Heliodoros) sent by the Indo-Greek king at Taxila to a ruler in the Deccan (Vidisha, Madhya Pradesh) had a pillar erected in this distant place,¹⁶⁰ and the author of the *Periplus* observed

151 See respectively Audouin and Bernard 1973; 1974 and Bopearachchi 1990.

152 For a brief overview of ivory objects carved in Bactria, and a list of the predominantly locally produced ivory goods found at the Oxus Temple, Litvinskii 2010, 364–382.

153 Rapin 1992, 185–232, 237–244.

154 Pugachenkova and Rtveladze 1978, 39, 136–137.

155 For an overview, Morris 2021, §4.13.1.

156 Rtveladze 2012, 225–227.

157 Olivieri 2020, 405–406.

158 Morris, ch. 4, II.2, this volume.

159 Bopearachchi and Grigo 2001.

160 Discussed in Morris, ch. 4, II.4, this volume.

that old *drachms* of Apollodotos and Menander (Indo-Greek kings) were found on the market in Barygaza.¹⁶¹

In the slightly later sphere of Gandhāran art, the cultural impact of Hellenistic rule in the region refracted in the incorporation of ‘classical’ Graeco-Roman motifs and visual elements into this new visual language emerging in the first century CE.¹⁶² Likewise, in this corpus, Central Asian and Iranian-styled people – who variously might be Indo-Scythian/Saka, Indo-Parthian, or Kushan elites – are also sometimes depicted. In relation to Gangetic India, although the Kushans may have only directly ruled at Mathura and undertaken military campaigns against the cities of the Gangetic valley,¹⁶³ Kushan copper coins have been found across this space, and later imitations in gold and copper particularly in the east.¹⁶⁴ In addition, there is evidence of an emerging transregional horse trade from Bactria (associated with ‘Da Yuezhi’) that seems to have extended into India and beyond into Southeast Asia by the third century CE.¹⁶⁵ In the Kushan period, new elements introduced from Gangetic India to Gandhāra also came in the form of technological influences in craft production (such as the paddle and anvil technique in pottery),¹⁶⁶ and imported finished goods – even including examples of stone sculpture.¹⁶⁷

Connections between southern Central Asia and India were not new and had certainly flourished in previous periods, especially in the Bronze Age.¹⁶⁸ But conditions had to be right, and the long-term historical pattern is one of ebbs and flows. What marks the period under study is the intensity of the connections intertwining these two regions.

On a map of Afro-Eurasia, the regions of Bactria and Gandhāra do not seem so far from each other, but dividing them was a formidable physical boundary: the Hindu Kush. Although I have noted elsewhere that this mountain range did not constitute an impervious physical or cultural boundary during the period under study,¹⁶⁹ the way through it was still slow and difficult, especially for larger groups – the shortest routes still cross passes at an elevation of over 3600 m. The physical geography was a constant, but it was the social, cultural, political, and economic affordances and incentives on either side of the mountains that helped to drive and facilitate journeys across it. Nonetheless, travel was strongly determined by season, the possession of knowledge about routes to take, and a lack of physical infrastruc-

161 *Periplus Maris Erythraei* (PME) 47.

162 See above, sec. IV.3.

163 Discussed above, sec. III.3, and in Morris, ch. 4, II.2; ch. 9, II.2, this volume.

164 See Morris, ch. 9, II.3, this volume.

165 Morris, ch. 4, VII.1.2, this volume.

166 See Morris, ch. 9, V, this volume.

167 Taddei 2004.

168 See, e.g., Rtveldadze 2012, 33–38.

169 Morris, vol. 1, ch. 2, 60.

ture like today's roads and tunnels – although many fertile high valleys of the mountain were probably dotted with villages along the way. Some of the paths were well trodden, others must have required guides. Local protection was probably required for travelers too. Although they are invisible to us in antiquity, bandits have remained a fact of life well into recent centuries.¹⁷⁰ Indeed, some historical Pashtun groups in eastern Afghanistan and northwestern Pakistan have both raided caravans passing through tribal areas, as well as extracted revenue from them by offering escorts for protection and safe passage in exchange for payment (*badraga*). In the early twentieth century, this caused conflict between these groups and the central government wishing to control and extract duties from the same routes.¹⁷¹

To give some concreteness to this route between India and southern Central Asia, we can trace a path that would be taken by travelers from India going north in the late first century CE and make some observations about key links to wider Afro-Eurasia encountered along the way.

Caravan travel approaching Gandhāra through the lowlands of India was probably relatively straightforward with well-provisioned roads of the *uttarāpatha* network,¹⁷² which connected Gangetic India to the Gandhāran cities of Taxila and Puṣkalāvati. Before reaching Gandhāra, a traveler could cross a pass in the Sulaiman range and enter Arachosia and its urban center of Kandahar. The region was then in the Arsakid sphere of influence, and Kandahar was connected to Arasakid Mesopotamia through the network of *Stathmoi Parthikoi* outlined by Isidoros of Charax.¹⁷³

Routes attached to the *uttarāpatha* also linked the Indian Ocean coastal port of Barygaza (described in the *Periplus*) to Gandhāra. The *emporion* Barbarikon at the mouth of the Indus (also mentioned in the *Periplus*) was likewise linked to Gandhāra by following the Indus upstream. Both ports exported some goods that came from southern Central Asia (turquoise and lapis lazuli)¹⁷⁴ and India's northwestern frontiers (nard brought via Proklais),¹⁷⁵ and had markets for western imports that are attested in Gandhāra and beyond (most visibly, glassware and silverware brought to Barbarikon).¹⁷⁶ While the majority of silverware in Gandhāra was probably locally produced (and sometimes inspired by Parthian visual and material culture), there are some examples of probable imports from Roman territory,¹⁷⁷ and

170 See also Babur's remark (sixteenth century) on Kafir highway robbers in the Hindu Kush, *Baburnama* 131, trans. Thackston 2002, 155.

171 Male and Viaro 1982, 68.

172 See above, sec. III.3.

173 See also Taasob, ch. 8.B, this volume.

174 *PME* 39.

175 *PME* 48.

176 *PME* 39; see also Dwivedi, ch. 14, this volume.

177 See a mixture of silverware produced both locally and in the Roman Mediterranean in Baratte 2002, reportedly found in a village near Buner (Gandhāra).

Roman glass vessels found in a number of houses at Saka-Parthian period Taxila-Sirkap.¹⁷⁸ An impression of the mobility of Bactrians and Gandhārāns in Indian Ocean networks is provided by a passing reference to “Bactrians, Scythians, and a few Indians” in a discourse at Alexandria’s theater,¹⁷⁹ a find of a hoard of Kushan gold coins in Ethiopia (Debra Damo),¹⁸⁰ and a couple of later inscriptions at the island of Socotra.¹⁸¹

Leaving Taxila, fording the Indus (most easily done in winter), and coming into the Peshawar valley, travelers had a few options. For example, they could take one of many capillary routes across the Hindu Kush-Karakoram mountains to travel to the oasis states of the Tarim Basin,¹⁸² particularly those along its southern side (see below). However, it was probably far more common to travel in the direction of Bactria. Every route through the Hindu Kush was more or less mountainous, and almost all would have been closed for four or five months over the winter.¹⁸³ For small parties, capillary routes could be followed through Dir, coming out in the Kokcha valley in east Bactria (i.e., where the old Graeco-Bactrian capital of Ai Khanum had been located).¹⁸⁴ But the main routes connecting Gandhāra and Bactria followed the Kabul river valley toward Kapisa,¹⁸⁵ the way being framed by a plethora of newly founded Buddhist monasteries. Donors of a few of *stūpas* had sometimes included Roman gold coins and even silk wrappings in their reliquary deposits.¹⁸⁶ Reaching Kapisa, travelers passed through the rich urban center of Begram. As the hoard found here shows, some high-status inhabitants of this settlement developed demands for Indian ivory furniture, as well as a range of imports from the Roman Mediterranean (including a wide variety of glass vessels, metalware, plaster casts, and luxury stone vessels). They had also cultivated connections with Han China (indirectly or directly) shown through the lacquerware found there.¹⁸⁷

From Begram, one could then choose from among the several passes across the Hindu Kush to travel to Bactria. For example, a traveler could pass through the Ghorband river valley, Bamiyan, and then (via the Balkhab) onto Bactra (Balkh). This path was a key route in Late Antiquity, and would certainly be well suited for

178 On the glass, Marshall 1951, 685–689.

179 Dio Chrysostomus *Orationes* 40, trans. Lamar Crosby.

180 See Morris, ch. 9, II.3, this volume.

181 Strauch 2012, nos. 16:13, 16:18.

182 On these routes, Neelis 2011, 257–287.

183 Remarkd by Babur in the sixteenth century, *Baburnama* 130, trans. Thackston 2002, 155.

184 Described in Rtveladze 2012, 89–92, who however thinks this was the main route between northwest India and the Oxus valley in antiquity.

185 This is Foucher’s “*vieille route*” between Bactria and India, examined in Foucher 1942–1947.

186 Three Roman aurei of Domitian, Trajan, and Hadrian were found in the deposit of Ahinposh *stūpa* (Jalalabad/Nagarāhara), Errington 2017, 59. Among other examples, silk-wrapped parcels were found in the reliquary deposited in the *stūpa* of Qul-i Nadir (Kapisa), for which see Meunié 1959, 123–124.

187 See Morris 2021, §4.2.6, 5.4.

large caravans and armies. The problem is that there is hitherto very little evidence of a Hellenistic or Kushan period presence in Bamiyan.¹⁸⁸ Regardless, the Bamiyan valley also provided an eventual gateway to Herat (Alexandria-Aria) in the west under the Arsakids, although it is difficult to assess how much this route was used in the period under study.¹⁸⁹

But another major route into Bactria (possibly taken by Alexander) probably ran from Begram via the Panjshir valley, the Khawak pass, and Anderab, before coming out at Pul-i Khumri and the Baghlan plains.¹⁹⁰ Besides being agriculturally fertile, these were also significant, religiously and politically symbolic areas. For example, they were the location of both the Kushan royally sponsored temple of Surkh Kotal,¹⁹¹ and (in the mountain passes) the Sasanian rock relief of Rag-i Bibi.¹⁹²

From Baghlan, one could descend along valleys and plains to the major oases of east Bactria, with the option to follow the Kunduz river to the Oxus, cross with a ferry, and visit the temple dedicated to the river's god, before traveling to towns along the northern tributaries of the Oxus. Alternatively, one could travel from Pul-i Khumri via Samangan (which became a caravan town in the Middle Ages) to the oases of Khulm/Tashkurgan, then onward further west to the capital, Bactra. If Bactra is the location of Lanshi, it was in the market here that the Han envoy Zhang Qian famously reported seeing bamboo canes and cloth from the present-day Sichuan province in China already in the second century BCE. He was told that the merchants of Daxia (Bactria) purchase them in the markets of Shendu (India).¹⁹³ Among its urban features, Bactra also had Buddhist monasteries in its vicinity.¹⁹⁴

From Bactra, one could cross the deserts of northern Afghanistan to one of several fortified crossing points on the Oxus – Airtam, Termez, Kampyrtepa (where fragments of Egyptian papyrus were found)¹⁹⁵ – and pass into northern Bactria. Here, one might visit the urban market of Termez or its suburban monasteries, Fayaz Tepe and Kara Tepe. From Termez, one could travel along the caravan route following the Surkhan Darya river, reaching the rich towns of the region later known as Chaghaniyan. Here at Dal'verzintepe, imports from Gandhāra (jewelry) and India were found (ivory goods), and at Khalchayan's royal pavilion, fragments of (presumably) Chinese silk and Roman glass.¹⁹⁶ Or a traveler could continue onward to routes through the Hissar range (such as through the Vakhsh valley), across the Pamirs, and into the Tarim Basin. This region, as mentioned above, could also

188 Fussman (2015, 179) thinks the problem is simply a bias of exploration.

189 Again, see also Taasob, ch. 8.B, this volume.

190 On Alexander's entrance into this region, Martinez-Sève 2020, 221.

191 Discussed in Morris, ch. 4, II and IV.1, this volume.

192 Grenet et al. 2007.

193 *Shiji* 123.3166, trans. Watson 1993, 269.

194 Fussman 2015, 186–187.

195 For a discussion, Rtveldzė 2012, 234–242.

196 Pugachenkova 1966, 53–54.

be accessed through mountain passes in the Karakoram from Gandhāra. From the first century CE, contact accelerated with the oasis states of the Tarim Basin – especially Kashgar, Yarkand, Khotan, Niya, and Kucha – as well as Han agents governing in this region, and finally, the eastern Han capital, Luoyang. This contact occurred along a number of axes: wars, diplomacy,¹⁹⁷ Buddhist proselytism and pilgrimage, and commerce. The latter activity is especially clear from occasional finds of Kushan copper coins in this space, the phenomenon of Sino-Kharoṣṭhī coinage (which was partly inspired by coinages in Gandhāra and Kapisa in the first century CE),¹⁹⁸ the use of the Kharoṣṭhī script (again, via Gandhāra) in the Niya Prakrit documents which emerged around the third century CE, and the survival of terminology of Greek and Bactrian origin in the latter documentary corpus.¹⁹⁹

Alternatively, from Termez on the Oxus in Bactria, a traveler could journey to the piedmonts of north Bactria, through the fortified wall at the Iron Gates,²⁰⁰ and enter into the Sogdian oases of Nakhshab and Kesh, or travel further onto the oases of Marakand-Afrasiab (Samarkand) and Bukhara. Graeco-Bactrian coins (silver and bronze) and Kushan coins (copper alloy) have been found in some of these oases, as well as some craft products – such as a stray imitation of Hellenistic Bactrian pottery on the frontiers of the Bukhara oasis.²⁰¹

From Bactra, a traveler could also go west, crossing the desert (probably by night) to reach the Shebergan oasis, where the Tillya Tepe elites had been buried. As mentioned already,²⁰² their grave goods (both locally made and imported) speak to immensely far-reaching connectivity: they included Roman glass unguentaria, Chinese mirrors, and gold Parthian and Roman coins, and the locally made articles indicate wide cultural and artistic links with mobile groups of the broader Eurasian Steppe, from the north Pontic and Caspian areas, to the Xiongnu in modern Mongolia. Similar wide-reaching connectivity through northern Central Asia and the Eurasian Steppe is also reiterated by the prestigious, embroidered textiles produced in Bactria that were found in elite Xiongnu burials.²⁰³ Relatively high-status burials of people usually identified as mobile pastoralists across Bactria in this period also frequently came to include Egyptian faïence ornaments and beads among their grave goods around the turn of the Common Era.²⁰⁴

Also from Bactra, one could also reach the Murghab river and its oasis city Merv, entering into the realm of Arsakid then later Sasanian influence. Speaking of Bactria

197 For these, Morris, ch. 4, II.4, this volume.

198 Morris, ch. 9, II.3, this volume.

199 Above, sec. II and Morris, ch. 9, IV.1, this volume.

200 See Weaverdyck et al., ch. 7, IV, this volume.

201 Stark 2016.

202 Morris, ch. 4, V.2, this volume.

203 Discussed above, sec. IV.2, and also in Morris, ch. 4, VII.2, this volume.

204 Sherkova 1991, 62–91.

more broadly, we do not know the extent to which the rivers of this region were used for transport, although Rtveladze has strongly argued that the Oxus was used for shipping, especially in the Kushan period.²⁰⁵ Boatmen would then be responsible for conveying cargo downstream to Margiana, all the way to Chorasmia. There, Kushan copper alloy coins have also been found,²⁰⁶ as well as strong links in royal elite representation with Kushan Bactria.²⁰⁷ Or, cargoes could be brought from the Oxus to the Caspian Sea, and then onward by land and water to the Black Sea. This segment thus formed a critical part of the Oxo-Caspian-Caucasus route attested by Strabo and Pliny – although some modern scholars have questioned its existence and importance – that connected India and the Black Sea. Rtveladze has argued that this route was very important, more so than the so-called ‘Silk Road’ and called it ‘the Great Indian Road.’²⁰⁸ Movement along this route flourished in the Kushan period, but Graeco-Bactrian coins have also been found along it to the west, including in the South Caucasus.²⁰⁹

I have spent some time outlining a very broad view of the evidence for accelerating regional, interregional, and transregional connectivity cultivated in Bactria and Gandhāra during this period for a few reasons. First, it was expansive and intense in a way that was unprecedented. Second, although trade was probably oriented primarily toward high-value and low-bulk prestige goods consumed by elites, we see significant and wide-ranging demands for such goods being cultivated by a range of elites. Third, as a number of recent works on long-distance trade in the ancient world have stressed,²¹⁰ many journeys along such long-distance networks would have been broken up by different agents who regularly traveled shorter segments. But this was not necessarily the case in Central Asia. Beyond the examples cited above, one only has to look at the long-distance network already cultivated by the fourth century CE by the Sogdians that reached through the Tarim Basin, Dunhuang, and China (illuminated in the Sogdian ancient letters).

In the following, I argue that a key reason that such expanding networks of connectivity – and especially those emanating from Bactria and Gandhāra – were able to flourish in the period under study is because a number of barriers inherent to contact and exchange over these spaces were gradually eroded and negotiated by a number of actors and phenomena. Here, empire, migrations, and Buddhist monasteries played important roles.

205 Rtveladze 2012, 168–185. See also Morris, ch. 9, V.1, this volume.

206 See Morris, ch. 9, II.3, this volume.

207 On these links, Minardi 2018.

208 Rtveladze 2012.

209 An overview of these finds is in Rtveladze 2012, 130–131.

210 See, for example, Andrade 2015 on the itinerary of Maes Titianos and his agents.

V.2 The Hurdles – And Overcoming them

V.2.1 Demand

The core transformation driving the intensification of networks of connectivity is found in shifting structures of demand. Put simply, because of changing political, cultural, economic, and demographic conditions there was a great deal of demand for certain kinds of resources, goods, ideas, and relationships that did not exist before, and moreover the means to acquire them. New, prolific sources of such demand were found in imperial elites in Bactria and Gandhāra and the states they commanded, and this demand was facilitated by the extractive regimes they maintained. The Greek Kingdoms and the Kushans did not only draw and gather resources out of Bactria and Gandhāra, where the core of their wealth was accumulated from the agricultural surplus of both regions. When taxes or tribute were demanded in cash, this must have driven payers to markets (whether at urban centers, villagers, or border fortresses) to exchange their primary and secondary products for coinage. And in this way, the demand of these empires probably heightened interregional connectivity within Bactria and Gandhāra too. Indeed, I have also argued that the kings of both empires were repeatedly driven toward the wealth of Gangetic India, whether simply attempting to extract booty or establish tributary arrangements with the urban centers of the northern plains.²¹¹ Additionally, new military foes and conflict at imperial borders created demand for diplomatic relationships, which were cultivated in India, the Tarim Basin oasis states, and Sogdiana.²¹²

But a key feature was elite demand for imported prestige and luxury goods. On an imperial level, this manifested emblematically in the prestige objects from India found at Ai Khanum's treasury. Local elites in Bactria and Gandhāra also exercised major consumptive capacities in this direction, supported by extractive regimes and other sources of wealth. The flourishing of urbanism during this period also probably contributed to create new 'middling groups' in society who also had expendable wealth.²¹³ But new, crucial ingredients in this equation shaping patterns of connectivity included sociocultural behavior and taste. This is because the imported prestige and luxury goods we see in Bactria and Gandhāra follow clear patterns, speaking to directed exchange. Migration played a critical role in developing these behaviors and taste. For example, Greek ruling elites who established themselves in Bactria maintained links with the Mediterranean world to acquire certain goods (like philosophical texts written on papyrus),²¹⁴ and the consumption of objects from the Roman Mediterranean in Kushan Central Asia was probably driven by per-

²¹¹ Morris, ch. 4, II.2; and ch. 9, II.2, this volume.

²¹² Morris, ch. 4, II.4, this volume; Morris, vol. 1, ch. 2, 78–80, 82.

²¹³ As in the model proposed in Smith 2018.

²¹⁴ Discovered in the treasury of Ai Khanum, Rapin 1992, 115–121.

ceived links between these objects and the region's Hellenistic past, and were attractive because of the enduring prestige associated with the social memory of Greek rule.²¹⁵ Some elites in Bactria connected with the nomadic world of the steppe also participated in wider spheres of elite prestige economies, which impacted their cultural expressions and choices of certain grave goods.²¹⁶

Beyond the realm of the highest elites, empire and migration also influenced consumption preferences in this period in other ways, creating wider spheres of shared taste and consumption practices. For example, just as pottery forms of Iranian origin had become popular in tableware repertoires under the Achaemenids, certain forms shared with the wider Hellenistic world were produced in the Hellenistic periods of both Bactria and Gandhāra.²¹⁷ New vessel shapes also emerged in Bactria's transitional period – namely, pedestaled goblets – and became popular in Gandhāra too.²¹⁸ Importantly, the introduction of new vessel forms reflect shifting practices and tastes in consumption and commensality. This all being said, coarse and cooking ware in these regions tends to be conservative, with forms staying fairly static.²¹⁹

Finally, a 'demand' for Buddhism also grew in the period under study, contributing to the accelerating establishment of more monasteries. Social and demographic changes were critical to this process. Of course, a local component of society persisted throughout this period in Gandhāra.²²⁰ But by the time of Alexander the Great's entrance into Gandhāra, a socioreligiously conservative Brahmanical population played a significant role in society, and Taxila was conceived of as a major cultural center of India. Through migrations and expanding empires, the region then slowly became home to an increasingly multiethnic society with ruling elites frequently of foreign origin. Interestingly, as argued by Bronkhorst, the presence and importance of Brahmins in the region became very weak and remained so in the first few centuries of the Common Era, while Buddhists became predominant.²²¹ It is plausible that Buddhist beliefs were more attractive and accommodating to members of Gandhāran society in flux, as non-Brahmanical local groups and foreigners did not fit well into restrictive Brahmanical social structures (namely the *varṇa* system and its four hereditary socioritual classes). Accumulating more adherents and rich patrons, especially among ruling elites of both local and foreign ori-

215 Morris 2020.

216 See Bactrian material, especially that of Tillya Tepe, discussed in Brosseder 2015.

217 On Bactria, Martinez-Sève 2020, 224; Stančo 2020, 279. On Gandhāra, Olivieri 2020, 405–406. See also the case of Hellenistic Margiana in Puschnigg 2020, 347–348.

218 On the emergence of these vessels in Bactria, Lyonnet 1997, 165–169. Local variations have been found in Kapisa at the capital, Begram (Ghirshman 1946, pl. XL), and the urban centers of Gandhāra, Charsadda-Shaikhan Dheri (Dani 1965, fig. 52) and Taxila-Sirkap (Ghosh 1944, fig. 12.53–56).

219 See, e.g., Olivieri 2020, 406; Puschnigg 2020, 348.

220 On the local component in Swat, see Olivieri 2020, 408–410.

221 Bronkhorst 2016, 17–33.

gins, Buddhist monasteries were thus able to flourish in the region, as well as around Bactria's urban centers.

V.2.2 Information, Instruments, and Infrastructure

The ability to cultivate connectivity, including acquiring specific imported goods, is predicated on the development of knowledge and exchange of information. Although we are typically lacking information about how trade was organized in this period, information exchanges about the availability and acquisition of certain goods must have occurred at least through social networks (such as merchant diasporas), as well as in markets. An obvious example is the aforementioned merchants of Daxia (Bactria) at the market of Lanshi (Bactra?) purchasing bamboo cane and cloth in the markets of Shendu (India). The intensity of transregional and interregional exchange in the period under study implies the expansion of information exchange networks. Knowledge was also needed to negotiate mobility, especially across marginal landscapes, like the Hindu Kush, Karakoram, Pamir, and Hissar mountains, as well as desert-steppe areas. Critically, such knowledge must have been attained by mobile pastoralist groups, particularly through the practice of seasonal transhumant migration that took these groups and their herds from summer to winter pastures.

It is important to note here that not all goods (whether raw or finished) moving through transregional networks in this period were transferred through commercial market systems. Other important modes of exchange must have included elite gift exchange (including as largesse in court contexts or in the cultivation of diplomatic relations), as well as in the capture of booty. Nonetheless, long-distance commercial trade through market systems appears to have gained in importance in this period, which raises the question of how this trade was organized. Elsewhere, I have suggested that merchants in Bactria and Gandhāra were possibly organized into formal associations (e.g., the *sahaya* groups in Gandhāra) as well as social networks and diasporas built on a basis of shared ethnocultural identity or kinship, like the network of Sogdian merchants and caravan leaders who reached into China by the fourth century CE.²²² It is also unclear whether merchant networks specialized in certain prestige or luxury goods, and what implications this may have had for the organization of trade. For example, the structure of imported goods from the Roman Mediterranean in Central Asia (crucially at Begram) speak to highly directed exchange in restricted elite spheres. In respect to the present state of the evidence, it seems difficult to conceive that such goods were simply sourced from coastal emporia in northwest India and then sold at periodic or permanent urban markets in Bactria and Gandhāra. Rather, one may hypothesize other models, for example, where

²²² Morris, ch. 4, VIII, this volume.

elites may have contracted merchants to obtain certain goods (including by commission), or such goods were imported by merchants or merchant associations with the knowledge that they could be directly marketed to specific buyers in a merchant's social network.²²³ Such models diverge somewhat to those of trade systems in the Roman world, where luxury goods were often processed and sold in ways similar to other commodities.²²⁴ In addition, with respect to the organization of Indian Ocean trade, Seland has pointed out that imports listed “for the king” in the *Periplus* are clearly prestige goods, but are implied by the text to be distributed by the same merchants who organize trade more broadly.²²⁵

A related and unsolved problem is the question of where merchants in Bactria and Gandhāra obtained capital to fund their ventures. Multiple answers are possible. The Sophytos epigram (first century BCE?) from Kandahar only states that in acting as a merchant, he obtained an interest-bearing loan in silver from ‘elsewhere.’²²⁶ As there is considerable proxy evidence for elite accumulation of wealth in this period, it is plausible that loans from these figures constituted one source. Likewise, with respect to the Achaemenid-period Bactrian tally sticks, Henkelman and Folmer have tentatively interpreted a possible reference to silver on one of these documents as a record for a loan from a state to a nonstate agent, who was then perhaps a merchant contracted to acquire certain goods.²²⁷ But among the different actors emergent in this period who had the capacity to loan capital to merchants, Buddhist monasteries and monks may well have been major players, although we lack direct evidence for this. As I have noted elsewhere, monasteries and monks could acquire considerable wealth, and moreover were careful to ideologically justify their capacity to use that wealth, including lending money out on interest.²²⁸

More generally, market systems expanded in this period. As urban centers grew, they would have developed bigger markets (whether permanent or periodic), which had the capacity to supply and distribute the most diverse goods. Again, a clear example of this is the market of Lanshi (Bactra?) mentioned above, where imported bulk commodities from Sichuan were available. Such markets were also probably often regulated by state or local officials. For example, although no formal agora was detected in the excavations of Ai Khanum, the find of a (probably) locally made amphora handle stamp referring to an *agoranomos*,²²⁹ indicates both the presence of such an official, and that this official was not only in charge of contracts,²³⁰ but a market proper. Later texts among the Bactrian Documents also refer to an ‘over-

223 Morris 2020 §5.4.4.

224 See Weaverdyck, ch. 12.C, IV.2, this volume.

225 Seland 2010; see also Weaverdyck, ch. 12.C, VI, this volume.

226 See Morris, ch. 4, VIII.

227 Henkelman and Folmer 2016.

228 Morris, ch. 4, IV.2, this volume.

229 Schlumberger and Bernard 1965, 636–639.

230 On the functions of *agoranomoi*, Weaverdyck, ch. 12.C, III.1, this volume.

seer of the market' as a witness to legal documents,²³¹ so presumably the existence of such regulatory bodies was a relatively widespread phenomenon. Larger urban centers also probably ordinarily had some permanent shops that sold secondary products (like craft products and wine).²³² Otherwise, periodic markets and fairs were probably also hosted at smaller towns and villages, as well as at frontier zones such as the borderlands of oases,²³³ and fortresses (like at Uzundara).²³⁴ Such borderland markets not only had the potential to spread behavior surrounding the use of money, but also had the capacity to attract mobile pastoralist groups and were probably particularly stimulated by the arrival of such groups on their regular passages of seasonal transhumance.²³⁵ Fairs were also probably held in the vicinity of religious monuments such as temples and *stūpas* on the occasion of religious festivals.²³⁶

The question of how these market systems were connected through wider supply networks and infrastructure remains something of a problem. On the one hand, thus far there seems to have been relatively little physical transportation infrastructure (such as paved roads and bridges) developed in Bactria and Gandhāra in this period.²³⁷ On the other hand, such infrastructure was probably not critical, as trans-regional mobility was probably managed on foot and with horses, camels, and mules through marginal terrain, and rivers could be forded at a number of points, if not used for transporting goods too (e.g., with rafts).²³⁸

It is better to conceive of transportation infrastructure in the region with respect to the provision of supplies, security, and accommodation. While provisions and accommodation could surely be found at urban centers and settlements along caravan routes, as well as villages in isolated fertile mountain valleys, states impacted and supplemented this system to some degree. By this, I mean that the political unification of wider areas may have generally provided security and lowered barriers to mobility,²³⁹ but also refer specifically to the network of fortresses established across the landscape of Bactria by its Hellenistic rulers, including at ferry crossing points on the Oxus, and along certain routes and mountain passes.

Leriche has observed that these fortresses do not reflect an intention to develop the territory, but rather a militaristic management of the landscape for security and

231 See Documents F (fifth century), P and Q (seventh century) in Sims-Williams 2012.

232 See the study of commercial space at Taxila-Sirkap in Coningham and Edwards 1997, and what has been interpreted as a wine shop in Dal'verzintepe in Pugachenkova and Rtveldze 1978, 172–173.

233 For comparative cases with respect to the Bukhara oasis in Sogdiana, see Stark forthcoming.

234 See Morris, ch. 4, III, this volume.

235 See also Stark 2020, 79.

236 On *stūpa* festivals, Pagel 2007.

237 Morris, ch. 9, V.1, this volume.

238 See further in Morris, ch. 9, V.1, this volume.

239 See above, sec. II.

financial reasons.²⁴⁰ The latter function means they probably also served to extract duties,²⁴¹ as well as facilitate state supply and redistribution networks of extracted resources. However, these fortresses probably also had the unintentional effect of facilitating nonstate supply networks too. Of course, a clear line can be drawn here between earlier Achaemenid and later Hellenistic imperial practice in the region. Briant has already remarked that the forts ('towns') putatively established by Darius along the Jaxartes probably had a double function of defending the empire's boundary and serving as trading posts connecting the steppe with Bactria-Sogdiana,²⁴² and we have seen with the case of Uzundara fortress that such establishments probably attracted periodic markets. Other intersections between fortifications and economic activity can be pointed to. For example, it is possible that the Iron Gate wall – which cut across a pass connecting the oases of the Surkhan Darya (Bactria) and Kashka Darya (Sogdiana) – not only functioned as a militarized northwestern imperial frontier under the Graeco-Bactrians and Kushans, protecting Bactria to some degree against threats of raids by mobile pastoralists, but may have also been utilized to extract duties from passing caravans, as it did in the fifteenth century.²⁴³ Finally, the development of Kampytepa from the Hellenistic to the Kushan period makes the intersecting state and economic functions of fortresses clearer. As mentioned above (sec. III.3), the site was initially established as a fortress guarding a crossing on the Oxus, presumably intended to protect and facilitate state supply networks, but by the Kushan period, it had evolved into a fortress town and major transshipment point, if perhaps run by state employees.

We can only wonder if accommodation for nonstate travelers could eventually be had at certain fortresses in the Hellenistic period, in parallel to the (probably justified) assumption that Achaemenid waystations on the royal road also functioned as protocaravanserais for distinguished travelers,²⁴⁴ particularly as archaeologically we do not have any such dedicated structures until well into late antiquity in Central Asia.²⁴⁵ A similar function must have been served by the institution of the *pandocheion* (inn) at a crossing on the Oxus, perhaps located at Kampyrtepa, which may have been overseen by state officials,²⁴⁶ again raising the possibility for overlap between state and nonstate supply networks and infrastructure in this space. It is also plausible that some Buddhist monasteries may have also accommodated travelers to some degree.²⁴⁷

240 Leriche 2007, 148.

241 Although there is no explicit evidence for this function, see Morris, ch. 4, II.2, this volume.

242 Briant 2002, 747.

243 See Weaverdyck et al., ch. 7, IV, this volume.

244 See recently Colburn 2013, 38.

245 Vaissière 2005, 190–193 explores the emergence of the functional and physical institution of caravanserais in Late Antique Sogdiana.

246 See Morris, ch. 9, V.1, this volume.

247 See Morris, ch. 4, IV.2, this volume.

V.2.3 Negotiating Common Ground

Finally, a number of innovations were introduced or developed that facilitated connectivity by enabling a range of actors to find common ground in transactions (and hence lower transaction costs) over increasingly wide spaces. On a regional level, a number of legal systems in Bactria and Gandhāra allowed people to regulate certain transactions and negotiate disputes.²⁴⁸ In Hellenistic Bactria, one legal system applied to civic matters, presided over by a *nomophylakes*, while lower-level legal matters may have been managed by local ruling elites, with contracts about land ownership and marriage (with attendant implications for inheritance and dowries) likewise drawn up within local systems, to judge from the early Bactrian Documents (fourth century CE). These formulaic documents also suggest the possibility that contract law became more codified in the period under study. In Gandhāra, Buddhist monks were probably sometimes engaged by laypeople to provide everyday legal services, such as the preparation or safekeeping of contracts. While contracts may have been traditionally orally negotiated, the discoveries of written contracts especially from the fourth century CE onward may reflect that the use of written documents in transactions became more widely available. To hypothesize about the impact of this development, the increased use of writing and codified documentation, particularly in respect to contracts, might have imparted more of a sense of security in transactions. However, the rising expectation to produce appropriately written and sealed documents was probably also the cause of bureaucratic frustrations – such an obstacle is documented in at least one official context.²⁴⁹ Interestingly, documents in Niya Prakrit of the Kroraina Kingdom (third to fourth centuries CE) contain a couple of loanwords from Bactrian with respect to contracts and legal issues,²⁵⁰ implying that Bactrian contracts influenced those in Niya, presumably through contact.

In parallel to this increase in the use of written documents, the challenge remained to organize transactions in multilingual environments where illiteracy was also presumably common. In institutional transaction contexts where state and nonstate actors did not share a common language, the technology of split tally sticks (although hitherto attested only before and after the period under study) was probably used. Although examples in the Aramaic and Bactrian languages from Bactria both do include some written details about their transactions, in principle, tally sticks do not necessitate literacy or a shared language between parties.²⁵¹

248 On this and the below, Morris, ch. 9, III, this volume.

249 See the letter admonishing Nawaz Kharagan for not providing a sealed document, Document ci in Sims-Williams 2007, discussed in Morris, ch. 9, III.1, this volume.

250 On the Bactrian ‘penalty’ and ‘litigation, dispute’ see respectively Sims-Williams 2007, 184, 226.

251 Discussed in Morris, ch. 9, V.6, this volume.

Otherwise, a number of languages came to be used over wider spaces, and were given particular impetus from their adoption in imperial political and administrative contexts.²⁵² For example, just as the use of Aramaic had been adopted under the Achaemenids for administrative purposes, the Seleukids and the rulers of the Greek Kingdoms utilized Greek, and written Gāndhārī in the Kharoṣṭhī script developed from the Aramaic script. The Bactrian language (written with a modified Greek script) became the primary language used for official purposes in the reign of Kanishka. Although it is difficult to assess how widespread multilingualism was in Bactria and Gandhāra during this period (most written records relate to relatively high-status or elevated contexts of communication), first Greek then later Gāndhārī certainly came to function to some degree as *lingua francas* in different spheres. That Greek served this role is evident from its continued use well into the Kushan period in Bactria, but the use of Gāndhārī in a widening supraregional context is especially remarkable. Although it was apparently not used as a primary official language by members of the Kushan dynasty from the reign of Kanishka onward, Gāndhārī was the primary language used in donative epigraphy, everyday documents, and in Buddhist literature written in Gandhāra. Moreover, as inhabitants of this region traveled (here, especially missionary Buddhists) and migrated to new regions, Gāndhārī came to be used among members of diasporas in more distant contexts such as Buddhist monasteries in Bactria. Importantly, it was through intense contact with inhabitants of Gandhāra (the precise mechanisms involved are unclear) that the Kharoṣṭhī script and a locally distinct Prakrit related to Gāndhārī came into widespread administrative documentary use in the southern oasis states of the Tarim Basin's Kroraina kingdom, particularly at Niya, by the third century CE – despite the fact that the native idiom was another (still unidentified) language entirely. As noted above, a number of Bactrian loanwords in these texts also reflect contact with Bactrian speakers. Ultimately, the expanding use of these languages in supraregional contexts must have facilitated heightened connectivity between actors in Bactria and Gandhāra and wider regions of Afro-Eurasia.

In a similar way, certain standardized weights and measures introduced into Bactria and Gandhāra performed such functions across wider spaces.²⁵³ A range of weight systems were in use in these regions over time, but some were more readily used across frontiers. In particular, although their precise weights were not always stable, the units *dhane*, *stater*, and *drachm* (the latter two certainly introduced through Greek rule) were used as denominations of coinage and measurements of weight. Over time, they came to be adopted in an increasingly wide range of transactions, persisting well into Late Antiquity in Central Asia, as well as into the Tarim Basin, speaking to their utility in both commercial and administrative contexts there.

252 For this and below, see the discussion in Morris, ch. 9, IV.1, this volume.

253 For the following and bibliography, Morris, ch. 9, IV.3, this volume.

Finally, the coinage minted by rulers in Bactria and Gandhāra in this period likewise helped to enable monetary transactions representing increasingly smaller values within these regions, as well as across an increasingly broad space.²⁵⁴ Of course, because of their value as bullion, precious metal coinages tend to have the capacity to ‘travel’ from the regions within which they were minted. But the finds of hoards of Graeco-Bactrian gold *staters* and Kushan *dinars* well beyond imperial frontiers – respectively at Vaiśali in the Gangetic valley in India and in Debra Damo in Ethiopia – suggest the reality of massive outgoing payments, possibly relating to state agents in some way. The minting of Graeco-Bactrian silver according to the Attic standard also contributed to the capacity of this coinage to circulate in wider Hellenistic monetary networks. But the case of the expanding circulation of locally minted copper alloy coinages is particularly interesting, as it tends to be assumed that such coins possess only a fiduciary value and thus only circulate within spaces under the control of the minting party. Instead, Graeco-Bactrian bronzes and Kushan copper alloy units are sometimes found well beyond imperial frontiers, and some of these regions incorporated these foreign base metal coinages into their own preexisting or developing monetary systems in different ways. It is evident that the especially widespread circulation of Kushan copper alloy coinage not only demonstrates the expansion of monetary networks and commercial exchanges from Bactria and Gandhāra, but the high mobility of people and intensity of connectivity through the Kushan Empire and beyond.

VI Conclusion

In this chapter, I have examined the development of the economies of Bactria and Gandhāra between two empires emergent from Bactria, the Greek Kingdoms of Central Asia and the Kushan Empire. As I have shown, major arenas of development include shifts in settlement patterns, urbanization, and agricultural extensification, which built on traditional patterns of settlement and agricultural exploitation, but, among other factors, were probably driven and expanded by the extractive regimes of ruling powers, and additionally facilitated (in Gandhāra) by the organizing roles of Buddhist monasteries. Major changes in the realms of production and extraction more broadly can be traced with respect to increased extraction of mineral resources driven by imperial elites and states in particular, as well as an increase in the volume, quality, and types of craft goods being produced. In the case of prestige and luxury goods, changes were especially shaped by the tastes and accelerating consumptive capacity of imperial and local elites. In addition, a major sculpture industry emerged in Gandhāra to adorn Buddhist sacred areas attached to monasteries,

²⁵⁴ See Morris, ch. 9, II.3, this volume.

which spoke especially in form and style to multicultural patrons of the region. Finally, connectivity within, between, and beyond Bactria and Gandhāra evolved immensely in this period, establishing new patterns of intense networks of exchange (including commercial transactions) and mobility across an increasingly wide space. This was able to occur because preexisting hurdles to this kind of wide-reaching connectivity were progressively eroded in the period under study. New demands for certain kinds of imported goods from across Eurasia were cultivated, especially by imperial and local elites, and changes in the composition of society helped to create a ‘demand’ for Buddhism, contributing to the increasing power and influence of Buddhist monasteries. The accessibility and exchange of information helped to clarify routes of mobility and ideas about where imported and exported goods could be acquired from and marketed to, and the infrastructure of market exchange systems also probably developed. Finally, people found ways to negotiate common ground and lower transaction costs on a number of axes, including in the management of contracts and disputes, overcoming problems encountered multilingual contexts especially by utilizing the lingua francas of Greek and Gāndhārī, using similar weights and measures across increasingly wide spaces and contexts, and participating in increasingly wide monetary networks – which even incorporated base metal coinages of the Greek Kingdoms and Kushan Empire beyond their imperial frontiers.

References

- Albery, H. 2020. “Buddhism and society in the Indic north and northwest. 2nd century BCE–3rd century CE.” PhD diss., Ludwig-Maximilians-Universität München.
- . 2021. “Stupa destruction, relic theft, and Buddhist propaganda: (Re)-dedicating the Buddha’s relics in the Indic Northwest.” In H. Albery, J.-U. Hartmann, and H. P. Ray (eds.), *Power, presence, and space: South Asian rituals in archaeological context*, 103–140. New York: Routledge.
- Aldrovandi, C. and E. Hirata. 2005. “Buddhism, *Pax Kushana* and Greco-Roman motifs: Pattern and purpose in Gandharan iconography.” *Antiquity* 79, 306–315.
- Ali, I. 1999. “Urbanization in the Kushan time: Early settlements, irrigation, trade routes, settlement hierarchy and religion in the Vale of Peshawar.” *Journal of Asian Civilizations* 22.1, 1–38.
- . 2003. “Early settlement, irrigation and trade routes in Peshawar plain, Pakistan.” *Frontier Archaeology* 1, 1–289.
- Andrade, N. 2015. “The voyage of Maes Titianos and the dynamics of social connectivity between the Roman Levant and Central Asia/West China.” *Mediterraneo Antico* 18.1/2, 41–74.
- Audouin, R. and P. Bernard. 1973. “Trésor de monnaies indiennes et indo-grecques d’Ai-Khanoum. I. Les monnaies indiennes.” *Revue Numismatique* 15, 238–289.
- Audouin, R. and P. Bernard. 1974. “Trésor de monnaies indiennes et indo-grecques d’Ai Khanoum (Afghanistan). II. Les monnaies indo-grecques.” *Revue Numismatique* 16, 6–41.
- Baratte, F. 2002. *East and west: A Central Asian silver hoard from the Parthian era*. London: Melisende.
- Behrendt, K. 2003. *The Buddhist architecture of Gandhāra*. Leiden: Brill.

- Bernard, P. 1987. “Le temple du dieu Oxus à Takht-i Sangin en Bactriane: temple du feu ou pas?” *Studia Iranica* 16.1, 103–115.
- Bolelov, S. V. 2010. “Гончарные производства Бактрии античного периода” [Pottery of Bactria of the ancient period]. In *Древние цивилизации на Среднем Востоке. Археология, история, культура. Материалы международной научной конференции, посвященной 80-летию Г.В. Шишкиной*, 26–28. Москва: Государственный музей Востока.
- . 2011. “Производственный центр эпохи эллинизма на цитадели Кампыртепа” [The Hellenistic production center at the citadel of Kampyrtepa]. In *Материалы Тохаристанской экспедиции*. Vol. 8, 48–79. Елец: ЕГУ им И.А. Бунина.
- . 2018. Кампыртепа — кушанская крепость на Оксе. Археологические исследования 2001–2010 гг. [*Kampyrtepa – Kushan fortress on the Oxus: Archaeological investigations 2001–2010*]. Москва: Нестор-История.
- Bopearachchi, O. 1990. “Graeco-Bactrian issues of later Indo-Greek kings.” *The Numismatic Chronicle* 150, 79–103.
- Bopearachchi, O. and K. Grigo. 2001. “Thundering Zeus revisited.” *Oriental Numismatic Society Newsletter* 169, 22–24.
- Bracey, R. 2020. “The limits of Kushan power and the limits of evidence.” In R. E. Payne and R. King (eds.), *The limits of empire in ancient Afghanistan: Rule and resistance in the Hindu Kush, circa 600 BCE–600 CE*, 113–155. Wiesbaden: Harrassowitz.
- Brancaccio, P. and L. M. Olivieri. 2019. “Regional workshops and small stūpas in the Swat Valley: An analysis of the evidence from Gumbat, Saidu Sharif, and Pānṛ.” In W. Rienjang and P. Stewart (eds.), *The geography of Gandhāran art: Proceedings of the Second International Workshop of the Gandhara Connections Project, University of Oxford, 22nd–23rd March, 2018*, 121–142. Oxford: Archaeopress.
- Briant, P. 2002. *From Cyrus to Alexander: A history of the Persian Empire*. P. T. Daniels (trans.). Winona Lake, IN: Eisenbrauns.
- . 2020. “Bactria in the Achaemenid Empire: The Achaemenid central state in Bactria (again).” In R. E. Payne and R. King (eds.), *The limits of empire in ancient Afghanistan: Rule and resistance in the Hindu Kush, circa 600 BCE–600 CE*, 21–44. Wiesbaden: Harrassowitz.
- Bronkhorst, J. 2016. *How the Brahmins won: From Alexander to the Guptas*. Leiden: Brill.
- Brosseder, U. 2015. “A study on the complexity and dynamics of interaction and exchange in Late Iron Age Eurasia.” In J. Bemmann and M. Schmauder (eds.), *Complexity of interaction along the Eurasian steppe zone in the first millennium CE*, 199–332. Bonn: Vor- und frühgeschichtliche Archäologie, Rheinische Friedrich-Wilhelms-Universität Bonn.
- Bruno, J. 2020. “Parthia.” In R. Mairs (ed.), *The Graeco-Bactrian and Indo-Greek World*, 56–77. London: Routledge.
- Colburn, H. P. 2013. “Connectivity and communication in the Achaemenid Empire.” *Journal of the Economic and Social History of the Orient* 56, 29–52.
- Coloru, O. 2021. “Frontière et passage. Les grands fleuves de l’Asie centrale et de l’Inde dans l’espace idéologique et politique du royaume gréco-bactrien (c. 246–128 av. J.-C.).” In A. Tenu and M. Yoyotte (eds.), *Le roi et le fleuve: exemples d’usages pluriels de l’espace*, 73–92. Paris: Éditions Kheops.
- Coloru, O., E. Iori and L. M. Olivieri. Forthcoming. “Swat after the Indo-Greeks. The city, the sanctuary and the economy: an archaeological overview.” In G. Lindström (ed.), *Ritual matters: Archaeology and religion in Hellenistic Central Asia: Proceedings of the second meeting of the Hellenistic Central Asia Research Network, Berlin, November 2017*, *Studia Hercynia*.
- Coningham, R. A. E. and I. Ali. 2007. *Charsadda: The British-Pakistani excavations at the Bala Hisar of Charsadda*. Oxford: Archaeopress.
- Coningham, R. A. E. and B. R. Edwards. 1997. “Space and society at Sirkap, Taxila: A reexamination of urban form and meaning.” *Ancient Pakistan* 12, 47–75.

- Cribb, J. and R. Bracey. Forthcoming. *Kushan coins and history – A type catalogue of Kushan, Kushano-Sasanian and Kidarite Hun coins based on the British Museum collection*. London: British Museum Press.
- Czuma, S. J. 1985. *Kushan sculpture: Images from early India*. Cleveland, OH: Cleveland Museum of Art.
- Dani, A. H. 1965. “Shaikhan Dheri excavation (1963 and 1964 seasons): In search of the second city of Pushkalavati.” *Ancient Pakistan* 2, 17–214.
- Dani, A. H. and F. Khan. 1974. “Kushan civilization in Pakistan.” In B. G. Gafurov, G. M. Bongard-Levin, E. A. Grantovsky, L. I. Miroshnikov, and B. Y. Stavisky (eds.), *Центральная Азия в кушанскую эпоху. Central Asia in the Kushan period. Proceedings of the international conference of the history, archaeology and culture of Central Asia in the Kushan period. Dushanbe, September 27–October 6 1968*. Vol. I, 95–106. Moscow: Издательство “Наука” Главная Редакция Восточной литературы.
- Denisov, E. P. 2007. “Датировка раннекушанского могильника кочевников Ксиров (Дангаринский район, Южный Таджикистан)” [Dating of an early Kushan nomadic burial ground of Ksirov (Danghara district, southern Tajikistan)]. *Вестник НГУ. Серия: История, филология* 6.3, 174–178.
- Di Florio, M. R., S. Lorenzoni, L. M. Olivieri, and E. Zanettin Lorenzoni. 1993. “Evidence of ancient quarrying in Lower Swat, N.W.F.P., Pakistan. A geo-archaeological study.” *Science and technology for cultural heritage* 2, 63–74.
- Drujinina, A. and G. Lindström. 2013. “Kultgefäße im Oxos-Tempel – zur Frage der Kultkontinuität im unruhigen 2. Jh. v. Chr.” In G. Lindström, S. Hansen, A. Wiczorek, and M. Tellenbach (eds.), *Zwischen Ost und West: Neue Forschungen zum antiken Zentralasien. Wissenschaftliches Kolloquium 30.9.–2.10.2009 in Mannheim*, 171–186. Mainz: Philipp von Zabern.
- Erdosy, G. 1987. “Early historic cities of northern India.” *South Asian Studies* 3.1, 1–23.
- Errington, E. 2017. *Charles Masson and the Buddhist sites of Afghanistan: Explorations, excavations, collections 1832–1835*. London: British Museum.
- Faccenna, D. 1964. “Results of the 1963 excavation campaign at Barama I (Swat – Pakistan): Preliminary report.” *East and West* 15.1/2, 7–23.
- Filigenzi, A. 2012. “Orientalised Hellenism versus Hellenised Orient: Reversing the perspective on Gandharan art.” *Ancient Civilizations from Scythia to Siberia* 18, 111–141.
- Foucher, A. 1942–1947. *La vieille route de l’Inde: de Bactres à Taxila*. 2 vols. Paris: Édition d’Art et d’Histoire.
- Frachetti, M. D., C. E. Smith, C. M. Traub, and T. Williams. 2017. “Nomadic ecology shaped the highland geography of Asia’s Silk Roads.” *Nature* 543, 193–198.
- Francfort, H.-P. 2018. “Bases de colonne campaniformes d’Asie centrale.” In S. Gondet and E. Haerinck (eds.), *L’Orient et son jardin. Hommage à Rémy Boucharlat*, 167–178. Leuven: Peeters.
- Francfort, H.-P. and O. Lecomte. 2002. “Irrigation et société en Asie centrale des origines à l’époque achéménide.” *Annales. Histoire, Sciences Sociales* 57.3, 625–663.
- Fussman, G. 2001. “L’inscription de Rabatak, la Bactriane et les Kouchans.” In P. Leriche, C. Pidaev, M. Gelin, K. Abdoullaev, and V. Fourniau (eds.), *La Bactriane au carrefour des routes et des civilisations de l’Asie centrale: Termez et les villes de Bactriane-Tokharesten. Actes du Colloque de Termez 1997*, 251–291. Paris: Maisonneuve et Larose.
- . 2015. “Kushan power and the expansion of Buddhism beyond the Soleiman mountains.” In H. Falk (ed.), *Kushan histories: Literary sources and selected papers from a symposium at Berlin, December 5th to 7th, 2013*, 153–202. Bremen: Hemen.
- Gardin, J.-C. 1998. *Prospectes archéologiques en Bactriane orientale (1974–1978)*. Vol. 3, *Description des sites et notes de synthèse*. Paris: Éditions Recherche sur les Civilisations.
- Gardin, J.-C. and P. Gentelle. 1979. “L’exploitation du sol en Bactriane antique.” *Bulletin de l’École française d’Extrême-Orient* 66.1, 1–29.

- Ghirshman, R. 1946. *Begram: recherches archeologiques et historiques sur les Kouchans*. Paris: G. Van Oest, Éditions d'art et d'histoire.
- Ghosh, A. 1944. "Taxila (Sirkap)." *Ancient India* 4, 41–84.
- Golab, L. W. 1951. "A study of irrigation in East Turkestan." *Anthropos* 46.1/2, 187–199.
- Gorbunova, N. 1993. "Traditional movements of nomadic pastoralists and the role of seasonal migrations in the formation of ancient trade routes in Central Asia." *Silk Road Art and Archaeology* 3, 1–10.
- Grenet, F., J. Lee, P. Martinez, and F. Ory. 2007. "The Sasanian relief at Rag-i Bibi (Northern Afghanistan)." In J. Cribb and G. Hermann (eds.), *After Alexander: Central Asia before Islam*, 243–267. Oxford: Oxford University Press.
- Gullini, G. 1962. "Udegram." In D. Faccenna and G. Gullini (eds.), *Reports on the campaigns 1956–1958 in Swat (Pakistan). Mingora. Site of Butkara I. Udegram*. Rome: ISMEO.
- Gupta, V. K. 2014. "Early settlement of Mathura: An archeological perspective." *NMML Occasional Paper. History and Society. New Series* 41, 1–37.
- Hansen, V. 2012. *The Silk Road: A new history*. Oxford: Oxford University Press.
- Härtel, H. 1993. *Excavations at Sonkh: 2500 years of a town in Mathura district*. Berlin: Reimer.
- . 2007. "The Pre-Kuṣāṇa and early Kuṣāṇa levels at Sonkh." In D. M. Srinivasan (ed.), *On the cusp of an era: Art in the pre-Kuṣāṇa world*, 319–350. Leiden: Brill.
- Henkelman, W. F. M. 2017. "Imperial signature and imperial paradigm: Achaemenid administrative structure and system across and beyond the Iranian plateau." In B. Jacobs, W. F. M. Henkelman, and M. W. Stolper (eds.), *Die Verwaltung im Achämenidenreich: Imperiale Muster und Strukturen | Administration in the Achaemenid Empire: Tracing the imperial signature*, 45–256. Harrassowitz: Wiesbaden.
- . 2018. "Bactrians in Persepolis – Persians in Bactria." In J. Lhiullier and N. Boroffka (eds.), *A millennium of history: The Iron Age in southern Central Asia (2nd and 1st millennia BC): Proceedings of the conference held in Berlin (June 23–25, 2014): Dedicated to the memory of Viktor Ivanovich Sarianidi*, 223–255. Berlin: Reimer.
- Henkelman, W. F. M. and M. L. Folmer. 2016. "Your tally is full! On wooden credit records in and after the Achaemenid Empire." In K. Kleber and R. Pirngruber (eds.), *Silver, money and credit: A tribute to Robartus J. van der Spek on the occasion of his 65th birthday on 18th September 2014*, 133–239. Leiden: Nederlands Instituut voor het Nabije Oosten.
- Hickman, J. 2012. "Bactrian gold: Jewelry workshop traditions at Tillya Tepe." In J. Aruz and E. Valtz Fino (eds.), *Afghanistan: Forging civilizations along the Silk Road*, 78–87. New York: Metropolitan Museum of Art.
- Høisæter, T. L. 2017. "Migrants or monks: The problems of a migration scenario in first to fourth century Caḍota by the Niya river." *Distant Worlds Journal* 3, 80–93.
- Iwai, S. 2020. "Buddhist temples in Tukhāristān and their relationships with Gandhāran traditions." In W. Rienjang and P. Stewart (eds.), *The global connections of Gandhāran art. Proceedings of the Third International Workshop of the Gandhāra Connections Project, University of Oxford, 18th–19th March, 2019*, 135–155. Oxford: Archaeopress.
- Klimburg-Salter, D. E. 1999. "From an art historical perspective: Problems of chronology in the Kuṣāṇa Period." In D. E. Klimburg-Salter and M. Alram (eds.), *Coins, art and chronology: Essays on the pre-Islamic history of the Indo-Iranian borderlands*. Vol. 1, 3–18. Vienna: Verlag der Österreichischen Akademie der Wissenschaften.
- Lam, R. 2013. "Kuṣāṇa emperors and Indian Buddhism: Political, economic and cultural factors responsible for the spread of Buddhism through Eurasia." *South Asia: Journal of South Asian Studies* 36.3, 438–448.
- Leriche, P. 2007. "Bactria, land of a thousand cities." In J. Cribb and G. Hermann (eds.), *After Alexander: Central Asia before Islam*, 121–153. Oxford: Oxford University Press.
- . 2010. "L'Antienne Termez dans l'Antiquité." *Проблемы истории, филологии, культуры* 27.1, 153–190.

- Lhuillier, J. and N. Boroffka, eds. 2018. *A millennium of history: The Iron Age in southern Central Asia (2nd and 1st millennia BC): Proceedings of the conference held in Berlin (June 23–25, 2014); dedicated to the memory of Viktor Ivanovich Sarianidi*. Berlin: Dietrich Reimer.
- Lin, M. 1996. “Kharosthi bibliography: The collections from China (1897–1993).” *Central Asiatic Journal* 40, 188–220.
- Lindström, G. 2016. “Der Oxos-Tempel. Räumliche Aspekte und Kultkontinuität im Spiegel der Votivpraxis.” In S. Hansen, D. Neumann, and T. Vachta (eds.), *Raum, Gabe und Erinnerung. Weihgaben und Heiligtümer in prähistorischen und antiken Gesellschaften*, 281–310. Berlin: Edition Topoi.
- . 2020. “Southern Tajikistan.” In R. Mairs (ed.), *The Graeco-Bactrian and Indo-Greek world*, 286–312. London: Routledge.
- Litvinskii, V. A. 2010. Храм Окса в Бактрии (Южный Таджикистан). Vol. 3, Искусство, художественное ремесло, музыкальные инструменты. [*The Temple of the Oxus in Bactria*. Vol. 3, *Art, fine art, musical instruments*]. Москва: Восточная Литература.
- Litvinskii, V. A. and A. V. Sedov. 1983. Тепаи-Шах. Культура и связи кушанской Бактрии [*Тепай-Шах. Culture and connections of Kushan Bactria*]. Москва: Наука.
- Litvinskii, V. A. and A. V. Sedov. 1984. Культы и ритуалы кушанской Бактрии [*Cults and rituals of Kushan Bactria*]. Москва: Наука.
- Lo Muzio, C. 2018. “On the relationship between Gandhāran toilet-trays and the early Buddhist art of northern India.” In W. Rienjang and P. Stewart (eds.), *Problems of chronology in Gandhāran Art: Proceedings of the First International Workshop of the Gandhāra Connections Project, University of Oxford, 23rd–24th May, 2017*, 123–134. Oxford: Archaeopress.
- Lorenzoni, S. and E. Zanettin Lorenzoni. 1994. “A Geo-archaeological study of the Buddhist Gandharan remains in the Lower Swat Valley (NW frontier province – Pakistan). Activities and inhabited centers in connection with the building of sacred areas.” *Science and Technology for Cultural Heritage* 3, 35–47.
- Lyonnet, B. 1997. *Prospections archéologiques en Bactriane orientale (1974–1978)*. Vol. 2, *Céramique et Peuplement du Chalcolithique à la Conquête Arabe*. Mémoires de la Mission archéologique française en Asie centrale. Paris: Éditions Recherche sur les Civilisations.
- . 2018. “Antique Samarkand or Afrasiab II and III. Differentiation, chronology and interpretation.” *Ancient Civilizations from Scythia to Siberia* 24.1/2, 420–439.
- Lyonnet, B. and N. A. Dubova, eds. 2020. *The world of the Oxus Civilization*. London: Routledge.
- Mairs, R. 2014. *The Hellenistic Far East: Archaeology, language, and identity in Greek Central Asia*. Oakley, CA: University of California Press.
- Mairs, R. and C. Fischer-Bovert. Forthcoming. “Reassessing Hellenistic settlement policies: The Seleucid Far East and Ptolemaic Red Sea basin, Egypt and Nubia.” In S. von Reden and C. Fischer-Bovert (eds.), *Comparing the Ptolemaic and Seleucid empires*.
- Male, B. and A. Viaro. 1982. *Revolutionary Afghanistan*. London: Croom Helm.
- Mani, B. R. 1987. *The Kushan civilization: Studies in urban development and material culture*. Delhi: B. R. Publishing.
- Maritan, L., R. Piovesan, M. C. Dalconi, J. Rius, A. Crespi, O. Vallcorba, L. Casas, M. Vidale, and L. M. Olivieri. 2018. “Looking Like Gold: Chlorite and Talc Transformation in the Golden Slip Ware Production (Swat Valley, North-Western Pakistan).” *Minerals* 8.5, 200.
- Maritan, L., L. Nodari, L. M. Olivieri and M. Vidale. 2020. “Shades of black: Production technology of the black slip ware from Barikot, north-western Pakistan.” *Journal of Cultural Heritage* 43, 342–355.
- Marquis, P. 2016. “The site of Mes ’Aynak.” In M. Tisucká, L. Stančo, D. Stefanović, L. Novák, and R. Frečer (eds.), *Afghanistan. Rescued treasures of Buddhism*, 50–59. Prague: National Museum.
- Marshall, J. 1951. *Taxila: An illustrated account of archaeological excavations*. Vol. 2, *Minor antiquities*. Cambridge: Cambridge University Press.

- Martínez Ferreras, V., A. Angourakis, A. Hein, J. M. Gurt Esparraguera, L. M. Sverchkov, and S. Sánchez del Corral. 2018. "Pottery in Hellenistic tradition from ancient Bactria: The Kurganzol Fortress (Uzbekistan, Central Asia)." *Journal of Archaeological Science: Reports* 21, 1044–1054.
- Martínez-Sève, L. 2010. "Pouvoir et religion dans la Bactriane hellénistique: Recherches sur la politique religieuse des rois séleucides et gréco-bactriens." *Chiron* 40, 1–27.
- . 2014. "The spatial organization of Ai Khanoum, a Greek city in Afghanistan." *American Journal of Archaeology* 118.2, 267–283.
- . 2020. "Afghan Bactria." In R. Mairs (ed.), *The Graeco-Bactrian and Indo-Greek world*, 217–248. London: Routledge.
- Meunié, J. 1959. "Qol-i-Nâder, une petite fondation bouddhique au Kapiça (1939)." In J. Hackin, J. Carl, and J. Meunié, *Diverses recherches archéologiques en Afghanistan (1933–1940)*, 115–127. Paris: Presses universitaires de France.
- Minardi, M. 2018. "The Oxus route toward the south." *Ancient Civilizations from Scythia to Siberia* 24, 87–154.
- Morris, L. 2020. "Roman objects in the Begram hoard and the memory of Greek rule in Kushan Central Asia." In R. Mairs (ed.), *The Graeco-Bactrian and Indo-Greek World*, 580–592. London: Routledge.
- . 2021. "The Begram hoard and its context." PhD diss., Ludwig-Maximilians-Universität München.
- Mukhamedjanov, A. R. 1994. "Economy and social system in Central Asia in the Kushan Age." In J. Harmatta, B. N. Puri, and G. F. Etemudi (eds.), *History of civilizations of Central Asia*. Vol. 2, 256–282. Paris: UNESCO Publishing.
- Mukhamedzhanov, A. 1975. "К истории ирригации в кушанскую эпоху" [Concerning the history of irrigation in the Kushan period]. In B. G. Gafurov, G. M. Bongard-Levin, E. A. Grantovsky, L. I. Miroshnikov, and B. Y. Stavisky (eds.), *Центральная Азия в кушанскую эпоху. Central Asia in the Kushan Period. Proceedings of the International Conference of the History, Archaeology and Culture of Central Asia in the Kushan Period. Dushanbe, September 27–October 6 1968*. Vol. 2, 278–281. Москва: Издательство "Наука" Главная Редакция Восточной литературы.
- Neelis, J. E. 2011. *Early Buddhist transmission and trade networks: Mobility and exchange within and beyond the northwestern borderlands of South Asia*. Leiden: Brill.
- Neelis, J. E. 2013. "Polyvalent perceptions of the Uttarāpatha in history: Archaeological evidence, epigraphic references and literary demarcations." In S. Ghosh, S. Ray Bandopadhyaya, S. Basu Majumdar, and S. Pal (eds.), *Revisiting early India: Essays in honour of D. C. Sircar*, 13–25. Kolkata: R. N. Bhattacharya.
- Negus Cleary, M. 2018. "Social complexity and political capitals in ancient Eurasia." *Oxford Handbooks Online*. <https://doi.org/10.1093/oxfordhb/9780199935413.013.19>.
- Noori, N. A., L. M. Olivieri, and E. Iori. 2019. "Fashion ware in Mes Aynak, Logar: Chronology and comparison (with an appendix on a single specimen of tulip-bowl from Site MA-100)." *Afghanistan* 2.1, 91–114.
- Olivieri, L. M. 2020. "Gandhāra and north-western India." In R. Mairs (ed.), *The Graeco-Bactrian and Indo-Greek world*, 386–415. London: Routledge.
- . Forthcoming. "Double-crop pocket zones and empires: The case of Swat." In M. Dwivedi, L. Fabian, K. Leese-Messing, L. Morris, and E. J. S. Weaverdyck (eds.), *Economies of the edge: Frontier zone processes at regional, imperial, and global scales (300 BCE–300 CE)*. Heidelberg: Heidelberg University Press.
- Olivieri, L. M. and E. Iori. 2020. "Early-historic data from the 2016 excavation campaigns at the urban site of Barikot, Swat (Pakistan): A shifting perspective." In L. R. Greaves and A. Hardy (eds.), *Religion, society, trade and kingship: Art and archaeology in South Asia and along*

- the Silk Road (5500 BCE–5th century CE)*. Vol. 1, 79–103. New Delhi: Dev Publishers & Distributors.
- Olivieri, L. M., F. Marzaioli, I. Passariello, E. Iori, R. Micheli, F. Terrasi, M. Vidale, and A. D’Onofrio. 2019. “A new revised chronology and cultural sequence of the Swat Valley, Khyber Pakhtunkhwa (Pakistan) in the light of current excavations at Barikot (Bir-kot-ghwandai).” *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms* 456. October, 148–156.
- Olivieri, L. M. and M. Vidale. 2006. “Archaeology and settlement history in a test area of the Swat Valley: Preliminary report on the AMSV project (1st phase).” *East and West* 56.1/3, 73–150.
- Pagel, U. 2007. “Stüpa festivals in Buddhist narrative literature.” In K. Klaus and J.-U. Hartmann (eds.), *Indica et Tibetica: Festschrift für Michael Hahn zum 65. Geburtstag von Freunden und Schülern überreicht*, 369–394. Vienna: Arbeitskreis für tibetische und buddhistische Studien Universität Wien.
- Pugachenkova, G. A. 1966. Халчаян. К проблеме художественной культуры северной бактрии [*Khalchaian. On the problem of the artistic culture of northern Bactria*]. Ташкент: ФАН.
- . 1971. Скульптура Халчаяна [*Khalchaian Sculpture*]. Москва: Искусство.
- Pugachenkova, G. A. and E. V. Rtveladze. 1978. Дальверзинтепе. Кушанский город на юге Узбекистана [*Dal’verzintepe, Kushan city in south Uzbekistan*]. Ташкент: Академия Наук Узбекской ССР.
- . 1990. Северная Бактрия-Тохаристан: Очерки истории и культуры: Древность и средневековье [*Northern Bactria-Tokharistan: Essays on history and culture: Antiquity and the Middle Ages*]. Ташкент: Издательство Фан.
- Puschnigg, G. 2020. “Merv and Margiana.” In R. Mairs (ed.), *The Graeco-Bactrian and Indo-Greek world*, 335–356. London: Routledge.
- Rapin, C. 1992. *Fouilles d’Ai Khanoum*. Vol. 8, *La Trésorerie du palais hellénistique d’Ai Khanoum. L’Apogée et la chute du royaume grec de Bactriane*. Paris: De Boccard.
- . 2007. “Nomads and the shaping of Central Asia.” In J. Cribb and G. Hermann (eds.), *After Alexander: Central Asia before Islam*, 29–72. Oxford: Oxford University Press.
- Ray, H. P. 2010. “Introduction.” In H. P. Ray (ed.), *Sanghol and the archaeology of Punjab*, 1–19. New Delhi: Aryan Books International.
- Rouse, L. M. 2020. “Silent partners: Archaeological insights on mobility, interaction and civilization in Central Asia’s past.” *Central Asian Survey* 39.3, 398–419.
- Rtveladze, E. V. 2012. Великий индийский путь: Из истории важнейших торговых дорог Евразии [*The Great Indian Road: From the history of the most important trade routes of Eurasia*]. Санкт-Петербург: Нестор-История.
- Sachs, A. J. and H. Hunger. 1988. *Astronomical Diaries and related texts from Babylonia*. Vol. 1, *Diaries from 652 BC to 262 BC*. Vienna: Verlag der Österreichischen Akademie der Wissenschaften.
- Schlumberger, D. and P. Bernard. 1965. “Ai Khanoum.” *Bulletin de correspondance hellénique* 89, 590–657.
- Seland, E. H. 2010. *Ports and political power in the Periplus: Complex societies and maritime trade on the Indian Ocean in the first century AD*. Oxford: Archaeopress.
- Shah, M. A. 2012. “Early historic archaeology in Kashmir: An appraisal of the Kushan period.” *Bulletin of the Deccan College Research Institute* 72/73, 213–224.
- Sherkova, T. A. 1991. Египет и Кушанское царство (торговые и культурные контакты) [*Egypt and the Kushan Kingdom (trade and cultural contacts)*]. Москва: Наука.
- Sims-Williams, N. 2007. *Bactrian documents from northern Afghanistan*. Vol. 2, *Letters and Buddhist Texts*. London: The Nour Foundation.
- . 2012. *Bactrian documents from northern Afghanistan*. Revised ed. Vol. 1, *Legal and economic documents*. London: The Nour Foundation.

- Skinner, M. C. 2017. "Marks of empire: Extracting a narrative from the corpus of Kuṣāṇa inscriptions." PhD diss., University of Washington.
- Smith, M. L. 2006. "The archaeology of South Asian cities." *Journal of Archaeological Research* 14.2, 97–142.
- . 2018. "Urbanism and the middle class: Co-emergent phenomena in the world's first cities." *Journal of Anthropological Research* 74.3, 299–326.
- Stančo, L. 2018. "New data on the Iron Age in the Sherabad district, South Uzbekistan." In J. Lhullier and N. Boroffka (2018), 171–188.
- . 2019. "The oasis in time and space: Dynamics of the settlement pattern." In Stančo and Tušlová (2019), 353–386.
- . 2020. "Southern Uzbekistan." In R. Mairs (ed.), *The Graeco-Bactrian and Indo-Greek world*, 249–285. London: Routledge.
- Stančo, L. and P. Tušlová, eds. 2019. *Sherabad Oasis. Tracing historical landscape in Southern Uzbekistan*. Prague: Charles University Karolinum Press.
- Stark, S. 2016. "'Hellenism' at the fringes: On the relationship between Bactria and western Sogdiana (Bukhara oasis)." In История и археология Турана. Vol. 3, 134–150. Самарканд: Институт археологии АН РУз.
- . 2020. "Central Asia and the Steppe." In R. Mairs (ed.), *The Graeco-Bactrian and Indo-Greek world*, 78–105. London: Routledge.
- . Forthcoming. "Between desert and oasis: Border markets and their place in economic networks in southwestern Central Asia." In M. Dwivedi, L. Fabian, K. Leese-Messing, L. Morris, and E. J. S. Weaverdyck (eds.), *Economies of the edge: Frontier zone processes at regional, imperial, and global scales (300 BCE–300 CE)*. Heidelberg: Heidelberg University Press.
- Staviskij, B. J. 1986. *La Bactriane sous les Kushans: Problèmes d'histoire et de culture*. Paris: Maisonneuve.
- Stewart, P. 2020. "Roman sarcophagi and Gandhāran sculpture." In W. Rienjang and P. Stewart (eds.), *The global connections of Gandhāran Art. Proceedings of the Third International Workshop of the Gandhāra Connections Project, University of Oxford, 18th–19th March, 2019*, 50–85. Oxford: Archaeopress.
- Strauch, I., ed. 2012. *Foreign sailors on Socotra: The inscriptions and drawings from the cave Hoq*. Bremen: Hemen.
- Stride, S. 2005. "Géographie archéologique de la province du Surkhan Darya (Ouzbékistan du sud/Bactriane du nord)." PhD diss., Université Paris 1 Panthéon-Sorbonne.
- . 2007. "Regions and territories in southern Central Asia: What the Surkhan Darya province tells us about Bactria." In J. Cribb and G. Hermann (eds.), *After Alexander: Central Asia before Islam*, 99–117. Oxford: Oxford University Press.
- Stride, S., B. Rondelli, and S. Mantellini. 2009. "Canals versus horses: Political power in the oasis of Samarkand." *World Archaeology* 41.1, 73–87.
- Sverchkov, L. M. 2005a. "Archaeological monuments of Boysun district." In История и традиционная культура Байсуна. Труды Байсунской научной экспедиции. Vol. 2, 10–20. Ташкент: Институт искусствознания Академии Художеств Узбекистана Фонд поддержки культуры и искусства «Байсун».
- . 2009. "A history of research on ancient mining in Uzbekistan." *Archäologische Mitteilungen aus Iran und Turan* 41, 141–164.
- Taddei, M. 2004. "Imported artefacts from Bīr-koṭ-ghwaṇḍai." In *Bīr-koṭ-ghwaṇḍai Interim Reports*, 9–24.
- Thackston, W. M., trans. 2002. *The Baburnama. Memoirs of Babur, prince and emperor*. New York, NY: The Modern Library.
- Tsantini, E., V. M. Ferreras, E. A. Gil, J. M. G. I. Esparraguera, and S. Pidaev. 2016. "Pottery production in the Buddhist communities in Central Asia: The Kushan-Sassanian pottery workshop of Kara Tepe (Termez, Uzbekistan)." *Archaeometry* 58.1, 35–56.

- Tucci, G. 1977. "On Swāt. The Dards and connected problems." *East and West* 27.1/4 Istituto Italiano per l'Africa e l'Oriente, 9–103.
- Vaissière, É. 2005. *Sogdian traders: A history*. J. Ward (trans.). Leiden: Brill.
- Watson, B. 1993. *Records of the Grand Historian: Han dynasty II*. Revised ed. New York, NY: Columbia University Press.
- Wu, X. 2018. "Exploiting the virgin land: Kyzyltepa and the effects of the Achaemenid Persian Empire on its Central Asian frontier." In J. Lhuillier and N. Boroffka (2018), 189–214.
- . 2020. "Central Asia in the Achaemenid period." In R. Mairs (ed.), *The Graeco-Bactrian and Indo-Greek world*, 595–618. London: Routledge.
- Yang, J. 2009. "Alexander the Great and the emergence of the Silk Road." *The Silk Road* 6.2, 15–22.
- Zin, M. 2018. "Buddhist art's late bloomer: the genius and influence of Gandhāra." In W. Rienjang and P. Stewart (eds.), *Problems of chronology in Gandhāran art: Proceedings of the First International Workshop of the Gandhāra Connections Project, University of Oxford, 23rd–24th May, 2017*, 103–122. Oxford: Archaeopress.

Mamta Dwivedi

14 Political, Corporate, and Ritual Economic Processes of Early Historic South Asia

I Introduction

This chapter explains the economic profile of early South Asia by framing production, consumption, and distribution within their sociopolitical contexts. Here, I emphasize the importance of the plurality of social-political and religious agencies, discuss the interaction between various actors, and explore various strategies of interaction as the stimulants of both economic changes and the development of networks.

Interaction through the coordination and counterbalancing of the economic impacts of various actors led to economic change and development in the period between 300 BCE and 300 CE. Broadly, economic development is visible in the processes of production and connectivity. An increase in production (and possibly productivity) is indicated by reliance on specialized methods of irrigation that increased production, especially of commercial agricultural goods; the presence of a greater variety of specialized crafting associations; the volume of ceramics found in excavation; and intensive monetization of various regions. Indices for increased connectivity of early historic South Asia are the increased number and greater size of urban settlements; development of ports alongside their regional hinterland and satellite settlements; and more intense use of particular corridors and highways due to the intensive commercial and social travel by both inland and sea routes.

Owing to regional diversity in terms of physical geography, the nature of polities, and social norms, the changes just outlined were neither uniform nor occurred at the same pace throughout the subcontinent. Similarly, the indices of economic changes differ in intensity as well as extent. For example, the history and development of cities and their satellite settlements in the northern alluvial plain differed from that in parts of the Deccan plateau and the Western Ghats. Similarly, the monetary practices of the northern and western regions were different from those in the economies of the south in terms of the intensity of circulation of locally produced coins.

While great regional difference was undeniable, we must also be mindful of the diversity of source material available to us. At times, the sources allow deep insights into specific economic processes and developments, while they remain silent on many issues. It is, therefore, impossible to work out a general narrative of the economy of early historic India as a whole. This is not a problem of the quantity of source material, which is rich and abundant. We have both indigenous and for-

eign literary accounts, epigraphic records, and numismatic and material remains.¹ However, the sources present particular challenges in terms of their composition and how they may be brought to bear on the larger picture. First, most of the literary sources available to us are normative, narrative, and canonical in nature. They are composite texts, and their compilation dates span centuries. Second, the *Arthaśāstra*, which is almost indispensable for gaining insights into economic and administrative practices, develops a state-driven scenario that is idealized and likely informed by the observation of a localized center with a relatively strong political and economic integration. Third, archaeological excavations have long been guided by textual studies. Finding urban centers mentioned in the texts was their main purpose, be this the search for Roman *emporia* along the western and eastern coasts, sites of Buddhist significance, or cities mentioned in the *kāvya* literature, the *Mahābhārata* and the *Rāmāyaṇa*.² Many sites, moreover, have experienced continuous occupation. Horizontal excavation and broad surveys have been rare, limiting the study of urban settlements and their function within the regions. Additionally, and related to the previous, is the limitation of the numismatic record. Coin finds are usually connected to sites through surface finds of hoards or in *stūpa* deposits, but rarely in stratigraphic contexts. This limits the chance of studying their role in wider economic contexts and developments. These limitations prevent us from developing a general model of processes in more than their broadest outlines.

However, sketching aspects of economic processes in the past need not require neat, flawless pictures. Therefore, this chapter is an attempt to understand economic behavior in various contextual scenarios without flattening regional particularities or silencing gaps in our knowledge. I shall first identify how the interaction of different social, religious, and political actors created favorable conditions for economic development in early India. Here, I identify three categories of catalysts at the social, religious, and political level: ethno-social stimulants and private associations; the rise of monastic religion; and imperial aspirations of various local polities. I shall then discuss the most important indices of economic change and how they might be related to what I have identified as the catalysts of change. This is followed by a section about changes in different sectors, such as the production and distribution of agricultural and artisanal goods; the greater connectivity of routes and urban settlements; and last but not least, an increase in elite and sub-elite consumption visible in the circulation of particular goods. In the final section, I discuss distribution and markets and the role of different actors facilitating the movement of people and goods, which shaped the connectivity in early India.

¹ For the discussion of sources, see Dwivedi, vol. 1, ch. 10.A; von Reden, vol. 1, ch. 10.B.

² For a discussion on beginning of archaeological and antiquarian studies in India, see Dwivedi, vol. 1, ch. 15.

II Stimulants of the Economy

There are various political and social stimuli that shape and characterize the economy. In the context of our region and time, there are political and social actors who operated within various institutions to reach their sociopolitical goals. This section identifies such political, social, and religious institutions and their role as catalysts of economic change and development, and most importantly, of the establishment of coordinated networks of transport and communication.

II.1 Ethnosocial Stimulants and Private Associations

The ethnosocial structure of society characterized the economic profile of early South Asia, and can be explained by two examples: first, the prevalence of dedicated labor groups in the socioritual organization of the society, which appear to be more prominent in the alluvial regions of the northern plains; and second, the formation and functioning of professional associations. These characteristics were embedded in two essential institutions of early India, private ownership of land and private entrepreneurship.

II.1.1 Occupational Groups and Labor Regimes

A particular feature of Indic society was its stratification into four socioritual groups, called the *varṇas*.³ In normative texts, these are also occupational groups with certain recommendations and restrictions for each social group. Even though there are various instances suggesting individual flexibility, a large part of physical labor in agricultural and domestic context was provided by the Śūdras (the lowest social classes). Even though the presence of institutionalized slavery in ancient India is a debated topic, we find mentions of people being reduced to the state of *dāsa*, which has ambiguous connotation of either being a paid servant or a slave. The evidence indicates the use of a large number of *dāsas* as laborers mainly in the context of royal palaces and monasteries.⁴ Surprisingly, we do not have evidence for the use of *dāsas* as agricultural labor. The *Arthaśāstra* recommends keeping agriculture free from the use of forced labor.⁵ Rather, it envisions two types of pro-

³ The four groups are Brāhmaṇa (teachers and priests), Kṣatriya (rulers and soldiers), Vaiśya (merchants, businessmen and agriculturists), Śūdras (craftsmen and servant groups).

⁴ For a discussion, see Dwivedi, ch. 5, III, this volume.

⁵ Forced labor, punishment, over-taxation, and animal herds are considered bad for the agriculture by Kauṭilya, see *Kauṭīliya Arthaśāstra (KA)* 6. 1. 10. However, labor of slaves and men paying their fines through manual labor are to be used during sowing of the fields, see *KA* 2. 24. 2.

ducers, small landowners working their own fields and tenants working on private or large royal holdings. Private land owners are typically organized in households and till their land with the help of seasonal wage labor.⁶ Land belonging to the king (*sītā*), by contrast, is farmed in a system of sharecropping;⁷ tenancies could be cancelled in case the tenants failed to cultivate and could be transferred to another who was willing to cultivate.⁸ Sharecropping was perhaps not altogether absent in nonstate contexts either, as we have epigraphical evidence for rich absentee landlords and monasteries as beneficiaries of agricultural land which they hardly cultivated themselves. According to the *Arthaśāstra*, moreover, the state created incentives for the expansion of agriculture by offering tax exemptions, rebates, and even loans to farmers willing to bring virgin land under cultivation.⁹ From the third century BCE onward there is a noticeable increase in the compilation of legal treatises (*dharmaśāstras*) defining terms of ownership and division of private property, which may indicate the increasing importance of private ownership in this period.¹⁰

II.1.2 Professional Associations and Corporate Bodies

The second feature is the prevalence of professional associations and corporate bodies, often called guilds (*śreṇi* and *negama/nigama*).¹¹ We learn of different types of associations in a wide range of occupational contexts ranging from flower merchants to weavers, ivory carvers, traders, and even mercenaries.¹² Economic security of both the members of the associations and their clients was perhaps the main reason for the formation of these guilds. Corporations and associations of any kind and size were of great economic consequences, as they provided security for their members against individual loss and misfortune, and allowed them to share various kinds of risks.¹³ The importance of associations can be seen in the enormous role they played in long-distance trade and travel, and the fact that they survived political change. Moreover, many associations were wealthy institutions using their as-

⁶ For more on the constitution of an agrarian household, see Dwivedi, ch. 5, II, this volume.

⁷ We find reference to *ardhasitika*, which is differently translated as ‘tiller tenants’ and/or ‘sharecroppers’ for half the share of the produce. There are other tenants too who get to keep one-fourth or one-fifth of the share depending on the type of crop and land. See KA 3. 11. 23; 2. 24. 16–18.

⁸ KA 2. 1. 10.

⁹ KA 2. 2. 30; 2. 1. 86; 3. 9. 33. See also Mital 1995, 84–85.

¹⁰ For a discussion on laws, see Dwivedi, ch. 10, IV, this volume.

¹¹ For a detailed discussion on corporate bodies, see Dwivedi, ch. 5, V.2, this volume.

¹² For examples of epigraphic references to guilds, see Mirashi 1981, pt. 1, 95–100; Thakur 1987, 73. For mercenary guilds or corporate troops (*bhṛtabala* and *śreṇībala*), KA 7. 8. 27; 9. 2. 1, 4. For the economic role of armies, see Dwivedi, ch. 5, IX, this volume.

¹³ The guilds may have assumed the liabilities for the deposit of raw material or cash in case of death. Being a part of a guild also enabled the members to accept deposits, see KA 4. 1. 1–4.

sets for moneylending, which influenced the development of credit and banking.¹⁴ The economic potential of these corporate bodies can also be seen when one looks at monetary donations as ‘perpetual endowments’ (*akṣayanivi*) made to them, with an agreement that a percent of profit shall be donated to a dedicated monastery every month (also below, II.2.1).

Regarding the internal functioning of guilds, we have little information. The *śreṣṭhi* was probably the head of the association, but the term can also have the connotation of rich merchant, financier, and banker.¹⁵ The size of corporate organizations also varied. Though there were profession-based organizations within villages, it also seems possible that settlements and even cities formed parts of a corporate body with administrative functions.¹⁶ Seals and coins bearing the term *nigama/negama/nekama* have been found at various sites. These have been interpreted as closed currency systems or even insignia of corporate or civic bodies.¹⁷

II.2 Monastic Institutions as Financial Magnates

The emergence of an elaborate ritual and social network associated with the rise of monastic Buddhism was an important socioeconomic phenomenon. A large number of Buddhist sites situated along the inland trade routes, riverine ports, and other urban settlements exhibit the commercial connections and coordination of mercantile networks. Buddhist monasteries acted as an economic stimulant in two fundamental ways: as repositories of wealth and credit institutions, and as centers of urban innovations.

II.2.1 Rise of Monasteries as Repositories of Wealth and Credit Institutions

From the second century BCE onward, Buddhist monasteries had become recipients of *dāna*, donations for merit, in the form of goods and money. Apart from individuals making donations, commissioning sculptures, and constructing cave dwellings for the monks, there were large monetary deposits to assure the monasteries had a

¹⁴ The head of a guild was called *śreṣṭhi*, which also has the connotation of banker in Sanskrit. There are references to guilds or the heads of the guilds is found commonly in the literary sources. Various *dharmasāstras* and the *Kauṭilya Arthaśāstra* establish the rate of interest at which the loans are to be given. See Mishra 1992, 53–58; Evers 2017, 167–168.

¹⁵ There are variants to the term *śreṣṭhin* (Skt.), such as *seṭṭhi* (Prakrit), and *sreṭhi* (Gāndhārī). A Gāndhārī birch bark manuscript from Afghanistan, dated between 1–100 CE, refers to *sreṭhiputra*. Baums and Glass 2002, search word “sreṭhi.” See more about *seṭṭhi* as a local economic elite in Dwivedi, ch. 5, IV, this volume.

¹⁶ The reference here is to the *nigama* type of corporate bodies, Thakur 1987.

¹⁷ Thakur 1987; Ray 2010.

sustained income. First, kings seem to have made donations of tax income from certain villages and reallocated customs collected at ports. Then, from the first century onward, there were also ‘perpetual endowments’ (*akṣayanivī*) that associations or guilds received on behalf of a monastery with an agreement for paying a certain portion of their profits to the monastery at regular intervals.¹⁸

The close associations among Buddhist monasteries, merchant groups, and guilds has been emphasized frequently. There are numerous references to monks and merchants travelling together by land and sea.¹⁹ The close connection between associations and monasteries is perhaps also a reason for monasteries developing into credit institutions. Schopen has explained the development of formula for written credit notes and contracts in Buddhist contexts in much detail. He has shown that monasteries, at least of the *Mūlasarvastivādi* tradition, accounted for their wealth by separating what would be stored in the inner treasury or depository (*koṣṭhikā*), with a portion kept aside for the maintenance of monastery and for lending.²⁰ The *Mūlasarvastivāda-vinaya*, citing the Buddha, also recommends lending at interest and the fixing of the loan in writing to avoid situations of nonpayment. A written contract should be drawn up that included the date of the agreement, the lender and the borrower, the “property” lent out, and the interest to be paid. The contract should be sealed and witnessed:

The Blessed One said: “Taking a pledge (*ādhibandhaka*) of twice the value (*dviguṇa*), and writing out a contract (*likhita*) that has a seal and is witnessed (*sākṣimat*), the perpetuity is to be placed. In the contract the year, the month, the day, the name of the Elder of the Community (*saṃghasthavira*), the Provost of the monastery (*upadhivārika*), the borrower, the property, and the interest (*vṛddhi*) should be recorded.”²¹

Possibly, monasteries adopted written contractual forms from Greek models, but they also adapted them to their own tradition of contracting transactions orally.²² Yet by adopting the written form for formulaic credit notes and contracts in their daily business, monastic communities greatly contributed to, or even initiated, greater security in credit transactions, and most likely greater volumes of them.²³

II.2.2 Monasteries as Centers of Technological Innovation and Dissemination

As wealthy participants in growing economies, monasteries participated in technological innovations, both in a narrower and wider sense, and both actively and pas-

¹⁸ See Dwivedi, ch. 5, VII.2, this volume.

¹⁹ A Chinese pilgrim, Faxian, visited India in 399 CE and took a mercantile ship on his way back to China. He reports having taken a ship from Tamralipti to Sri Lanka and from Sri Lanka to China through Southeast Asia, Sen 2006, 25–26.

²⁰ Schopen 2004, 48–51.

²¹ *The Vinayavibhanga* of the *Mūlasarvāsrivāda-vinaya* vide Schopen 2004, 49.

²² See also sec. II.3.2 for the Greek influence on Indic practices.

²³ Schopen 2004, 45–90.

sively. A large number of monumental remains of Buddhist institutions show their use of new building materials and artistic styles. Monastic complexes consisted of *stūpas* (apsidal shrines consisting of relics of the Buddha), *caityas* (prayer halls), and *vihāra* (residence complex for monks and nuns). Most important is the evidence for the use of burnt bricks in the construction of the buildings and the advanced masonry in the often elaborate architectural structures. They were embellished with carvings and sculptures depicting life of the Buddha and different Bodhisattvas (potential Buddhas).²⁴ The importance of Buddhist architecture can be taken from the fact that no other institution or organization in the early historic period has left such conspicuous and elaborate monumental remains. Most of what is studied as early historic art comes from monastic complexes.

There is, moreover, a notable involvement of Buddhist monasteries in hydraulic engineering. Evidence of monastic waterworks is mainly of two kinds: aqueduct channels within monastic complexes, and tanks for water storage. A particularly close relationship between Buddhist monastic sites and irrigated agriculture and horticulture has been found in the area around Sanchi.²⁵ The development of irrigated agriculture may have been related to the key role Buddhist organizations played in the commercial farming and trade of cotton in the western Deccan.²⁶

As centers of education, monasteries also participated in the dissemination of written culture and writing materials. From the first century onward, a large number of Buddhist manuscripts on birch bark shows that writing was an important and desirable skill that was encouraged and spread by monasteries.²⁷ By issuing written credit notes and contracts in their dealings, they also disseminated the use of literacy for new purposes.²⁸

II.3 Political Stimulants: Imperial Aspirations of States

The changes and development in the political economy of early India was marked by two phenomena: the emergence of regional imperializing states, and the steady intervention and influences of political powers from the northwestern regions of the subcontinent. Both shaped the fiscal institutions, monetary profile, and development of religious institutions in the subcontinent. Local and external political processes were not mutually exclusive, but rather cumulative in nature.

²⁴ See also Dwivedi, ch. 5, VII; Morris, ch. 13, IV.3, this volume.

²⁵ For a detailed discussion on involvement of Buddhist monastic centers with development in hydraulic infrastructure, see Dwivedi, ch. 10, VI.1, this volume. Also see Shaw 2007; 2018.

²⁶ Brancaccio 2018.

²⁷ Skilling 2008, 61.

²⁸ Schopen 2004, 45–90.

II.3.1 The Impact of the Mauryan Dynasty

The Indo-Gangetic plains of the subcontinent experienced the earliest of the expansionist states, where the earliest of the territorial polities called *janapada*, were merged to form sixteen 'greater' territorial polities (*mahājanapada*) during the sixth and fifth centuries BCE. The sixteen *mahājanapadas* were monarchical in nature. Around the fourth century BCE, one of the *mahājanapadas*, Magadha, had emerged as the dominant political center of northern India under the Nanda dynasty usurped by the Maurya dynasty at the end of the fourth century BCE. The founder of the Maurya dynasty, Chandragupta Maurya, had unified the north under his political supremacy and established the western boundary of his empire under the famous Treaty of Indus (ca. 303 BCE) with Seleukos.²⁹ Under his successors, especially his grandson Aśoka, a large part of the subcontinent was brought under Mauryan rule. The pan-Indian presence of Aśokan edicts, except in the deep south, is indicative not just of the spread of his moral teaching, but also of the consolidation of networks of communication that were necessary for the spread of an imperial ideology. Arguably, the possibility of establishing a functional network of administration and resource appropriation was also the background of the *Arthaśāstra*. The establishment of various offices responsible for the upkeep of channels of communication, the gathering of relevant information about resources within the domain, and the maintenance of records are also known from various epigraphic sources.³⁰

The Mauryan political system is usually regarded as the first empire in South Asia. Some scholars regard the imperial experience as a stimulus for state formation in the Deccan and deep south. This is a questionable approach that posits a hierarchical model of state formation and political evolution leading to derivative state structures.³¹ However, from an economic perspective, the growth of urbanism, monetization, and spread of pottery from the third and second centuries BCE onward shows the enormous economic dynamics set in motion by the greater connectivity of the subcontinent in the course of the Mauryan period.

II.3.2 Influences from the Northwest

The northwestern region has been considered a crossroad, leading to the presence of mutual sociopolitical influences from different cultures including Greek, Iranian, Central Asian, and Indian. Leaving Indo-Buddhist influences in Central Asia and Iran aside, scholars have emphasized Hellenistic influences above all in northwestern India in different spheres, ranging from cultural and political to monetary and

²⁹ Von Reden, vol. 1, ch. 1, 25.

³⁰ For an overview of the fiscal system, see Dwivedi, ch. 10, II, this volume.

³¹ Dwivedi, vol. 1, ch. 3; ch. 15.

technological. Hellenistic influence is quite noticeable in various sculptural representations in Buddhist art in the northwest. Under the western polities, like the Indo-Greeks, Scythians, and subsequently also the Kuṣāṇas, the Buddhist monastic religion continued to flourish. Some scholars attribute this to the continued practice of royal patronage under most of the political powers active in northwest India, while others argue for the role of local elites who patronized Buddhism, contributing to the rise of monasteries as centers of wealth.³² Politically, a large degree of imperial coevolution has been emphasized, leading to the growth of diplomacy, routes of connections, and defense structures that both secured borders and relationships between the Hellenistic and Indian polities.³³

The northwestern region also experienced a complex monetary scenario where the Indic monetary denomination, *kārṣāpaṇa*, and the Greek coinage cocirculated.³⁴ Greek coins spread as far as Barygaza, where their circulation was still attested in the first century CE.³⁵ The northwest emerged as a multilingual region where bilingual and biscriptual coins circulated for several centuries. The practice of placing portraits of rulers on coins became widespread in northern India with the expansion of the Indo-Greek kings into the northwestern regions. Such iconography was clearly used a political statement in the rivalries between the Śakas and Sātavahānas, for example when Gautamīputra Sātkaṛṇi counterstruck Nahāpaṇa's coin after defeating Nahāpaṇa in the early first century CE. Moreover, the standard of the gold *dināras* introduced into the subcontinent by the Kuṣāṇas continued to be used by polities even long after the decline of the Kuṣāṇas.

As indicated above, the practice of written debt notes and contracts is sometimes thought to have resulted from Greek influence in the northwestern regions, as did more standardized methods of written recordkeeping. There is no direct evidence for this influence, but the fact that such tools are first attested in the northwestern regions, while oral contracts and oaths remained more widespread in the south, might suggest that cultural interaction was a fertile breeding ground for their local development.

III Indices of Economic Change

In this section I will look, in more detail, at specific forms and indices of economic development, as can be seen in an increase in agricultural and craft production,

³² Fussman 2015. See also Morris, ch. 4, IV.2; ch. 13, III.2; this volume.

³³ Apart from the numerous accounts of a more colonial kind, see the nuances brought forward by Kosmin 2014, 31–78.

³⁴ See also Dwivedi, ch. 10, III, this volume; Morris, ch. 9, II.3, this volume.

³⁵ *Periplus Maris Erythraei* (PME) 47. Memories of Greek presence in the region remained strong, according to this passage.

expansion of settlements, greater connectivity between regions, and complex processes of monetization in the subcontinent.

III.1 Agricultural Development: Hydrological Advancements and Regional Strategies

In early historic South Asia, a greater variety of grain crops was cultivated than in any contemporary world region. This is owed to the long tradition of local domestication of wild plants and their adoption from other regions since the third and second millennia BCE.³⁶ Many vegetables and fruits were domesticated still during the early historic phase.³⁷ Many crops, moreover, were cultivated in year-round agricultural cycles, or underwent ‘double cropping,’ referring to the cultivation of both winter and summer crops. Rice, millet, mustard, sesame, cotton, hemp, and some pulses formed the main crops of the summer cultivation cycle irrigated by the monsoon rain from July to August. Winter crops included wheat, barley, flax, safflower, and a variety of pulses, which were watered by the winter rainfall in the northwest, river irrigation, residual soil moisture, and artificial water reservoirs (‘tanks’) in other regions.³⁸ As a year-round activity in the alluvial plains – Indo-Gangetic region and Narmada, Tapti, Mahanadi, Godavari, Kaveri, and Krishna river valleys – agriculture must have absorbed a large part of the available workforce. Middle- and long-distance transfers of agricultural produce and subsistence goods probably drove the thriving use of routes and road networks.

The expansion of hydraulic infrastructure suggests much agrarian development from the second century BCE onward. Given the very different environmental and topographical features of the subcontinent, technologies differed among regions. The northern plains saw more canal irrigation dependent on the perennial rivers. In the Deccan, ‘tanks’ became more common. In Sri Lanka, reservoirs were constructed to create artificial cascades in some regions.³⁹ In areas not inundated by perennial rivers, it was the diversification of crops and usage of drought-resistant varieties that intensified agricultural production.⁴⁰

Commercial agriculture also flourished in this period, perhaps as a response to the rising demand for pepper, cotton, nard, and some other products outside the subcontinent. By the first century CE, they were marketed and exported in massive

36 Murphy and Fuller 2017, 6.

37 Murphy and Fuller (2017) refer to tree crops such as mango, jackfruit, citric fruits etc., along with a variety of cucurbitaceous vegetables being grown in the subcontinent.

38 Petrie and Bates 2017, 89; Murphy and Fuller 2017.

39 For a discussion on the development of hydraulic infrastructure and role of different actors in different regions, see Dwivedi, ch. 10, VI.1, this volume.

40 For a bibliography on the issues of agricultural intensification through various techniques, Kingwell-Banham 2019, 6487–6488.

quantities to the cities and harbors along the coasts of the Arabian Sea and the Mediterranean, as is well-known from the *Periplus Maris Erythraei* and other sources. It is interesting to note, however, that each of these products has its own methods and ecological niches of production. For example, spices were grown above all in the highlands and mountainous areas of the Malabar region dependent on seasonal rainfall. The traditional knowledge of foraging combined with swidden agriculture ensured the production and processing of spices before they were ready for transportation.⁴¹ If we can believe the author of the *Periplus*, pepper was grown most abundantly in an area called Kottanarike, probably identical with Tamil Kuttam or Kuttanātu, located in the wetlands on the foothills of the Western Ghats.⁴² Cotton, another important commercial crop, was produced in the western Deccan in the water-retentive black soil, *regur*. The allied industries related to processing cotton and weaving also thrived alongside the increase of its cultivation. Nard, or spikenard, was another plant-based commodity exported to the Mediterranean.⁴³ Though it grew in the Himalayan mountains of north India, it was called “Gangetic nard” in Graeco-Roman sources because it was available at the riverine ports along River Ganga first, and then transported to other coastal ports in the Western Ghats. We must also consider the commercial cultivation of coconut trees for the production of coir, which is required for the building of ships in the stitched-boat tradition.⁴⁴ These boats were particularly noteworthy to foreign observers and were most closely associated with long-distance trade. Chakravarti relates the donation of 32,000 coconut saplings to the monastic community at Nasik for the commercial investment in the production of coir in the first century CE.⁴⁵ The great variety of production centers shows the great connectivity of the Indian subcontinent, both in terms of infrastructure and communication relevant for concentrating these products in export harbors.

III.2 Craft Production and Artisanal Goods

Archaeological remains from the third century BCE onward show a substantial increase in a large variety of manufactured goods, particularly relief carvings and sculpture, beads, glass, and above all, pottery. There was a great variety of regionally produced pottery, broadly categorized into three types. First, ‘glazed ware,’ including northern black polished ware (NBPW), black slipped ware (BSW), and russet coated painted ware (RCP). Second, ‘grey ware,’ variants of which include a variety of rouletted ware (RW) and moldware. Third, ‘red ware,’ including the red

⁴¹ Morrison and Lycett 2013, 132–133.

⁴² *PME* 53 with De Romanis 2020, 88–89, for a discussion of the location of Kottanarike.

⁴³ Dalby 2000, 86.

⁴⁴ Ray 2003, 59–60 for a discussion.

⁴⁵ Chakravarti 2017, 324–325.

and black ware (RBW) variants.⁴⁶ The red wares and the RBW go back to the Chalcolithic period and NBPW has been dated to ca. the sixth century BCE. Yet many regional varieties have been found from the third century BCE onward.

While the presence of a greater variety of pottery is indicative of increasing economic complexity, it is also an indicator of other economic factors. First, we can identify the movement of fine, polished luxury tableware from the north to the southern regions. NBPW is first found in the middle Ganga valley, but from the third century BCE onward it was also produced in the lower Ganga valley. NBPW was also exported to Sri Lanka and port sites of Wari-Bateshwar in present-day Bangladesh before it moved on to ports of Thailand.⁴⁷ RW shows a similar increase in the extent of its distribution. The epicenter of its production was the lower Ganga valley and the present Gujarat region. From the third century BCE it is found together with NBPW at various sites in southern and central Thailand, in Oman, and many other sites along the Persian Gulf and the Red Sea.⁴⁸ The second notable feature is the imitation of certain pottery types in southern regions. In Tamil Nadu, coarse red and black wares mainly associated with storage are identified as locally produced imitations of the northern varieties. The practice of imitation, including the use of locally available raw materials, shows that there were not just functional but also stylistic takeovers and adaptations.⁴⁹ There was not only an increased demand for pottery for regular use as storage containers, but this demand was also increasingly supplied by local craftsmen.

The production of glass beads is another industry of interest, associated with the hinterlands of coastal regions.⁵⁰ It is argued that glass ingots were imported, melted, and crafted into glass beads in local workshops that used the furnace-winding technique as the most common and simplest method of beadmaking.⁵¹ More than 35 centers of production have been identified within the subcontinent. The most important centers of glass-bead production were Ahichchatra and Kaushambi in the north, Arikamedu and Karaikadu in the south, and Kolhapur and Nevasa in the Deccan.⁵² Noteworthy is the mention of raw glass as an item of import at the port of Barygaza (Bharuch) and Muziris (Pattanam) in the *Periplus*.⁵³ Certain sites,

46 See Reddy 2015; Tripathi and Singh 2018; Cherian and Menon 2014, 88–95; Lefrancq and Hawkes 2020.

47 Jahan 2012, 209–10.

48 For observations on regional centers of production and long-distance transportation, see Pavan and Schenk 2012; Reddy 2015; Rai et al. 2014.

49 Smith 1999, 117–118.

50 Also, Evers 2017, 168–170 for a discussion and further reference.

51 The furnace-winding method involves the production of glass beads by twisting the glass around a metal rod, and the beads produced by this method are the wound-bead type (Kanungo 2004, 129).

52 Kanungo 2004.

53 *PME* 48–49, 56 with Casson 1989, 22–23.

like Arikamedu, may have been production centers for custom-made glass products for Southeast Asian and Chinese markets.⁵⁴

Sculpting and masonry also seem to have experienced a surge from the third century BCE onward. This was connected in large degree to the rise of monastic Buddhism. Visual representations of religious narratives on stone reliefs, friezes, and sculptures were media of storytelling in early Buddhist contexts and developed in close association with monastic settlements. Examples come from various sites at Gandhāra, Sanchi (Madhya Pradesh), Bharhut (Madhya Pradesh), Amaravati (Andhra Pradesh), Nagarjunakonda (Andhra Pradesh), Kanaganahalli/Sannati (Karnataka), as well as the rock-cut caves in Maharashtra and hundreds of other sites across the subcontinent.⁵⁵ Yet the increase in masonry and sculpture was not just related to representations of Buddhist deities. Many of the sites, such as Mathura, exhibit Hindu, Jaina, and Buddhist religious arts in conjunction.⁵⁶ The pan-Indic phenomenon is indicative of networks of knowledge and communication, as well as the mobility of artisans skilled in their craft. The development of construction work and sculpture is also connected with the development of settlement and urbanization to which we turn next.

III.3 Development of Cities, Ports, and Hinterland

The development of urban centers can be seen as an increase in the productive capacity of the immediate hinterlands of settlements, as well as their connectivity with more distant centers of production. The focus here is the growth of cities as centers of consumption and redistribution, and questions of physical connectivity are discussed in the next section.

Archaeological, epigraphic, and literary sources offer combined evidence for the growth of urbanism throughout the subcontinent. Yet cities grew for different reasons. Pātaliputa, Taxila, and Madurai are examples of fortified administrative centers. Korkai, Bharuch, Pattanam, and Arikamedu grew as nodes of long-distance trade networks. While others, such as Sanchi, Varanasi, and Sarnath, experienced growth as religious centers.

Most of the cities in the northern plains had a long history of continued occupation and saw steady expansion from the first millennium BCE onward.⁵⁷ In the early historic period, there is no evidence of royal city foundations and colonization as is known from Hellenistic Asia.⁵⁸ Royal patronage and fiscal privilege do

⁵⁴ Borell 2010, 137.

⁵⁵ For a discussion and bibliography, see Dwivedi, vol. 1, ch. 10.A, 433–435. See also Morris, ch. 13, IV.3, this volume.

⁵⁶ Singh 2004.

⁵⁷ Chattopadhyaya 2003, 50–55.

⁵⁸ Kosmin 2014, 46.

not seem to account for the prosperity of these cities. However, in the western Deccan a change in settlement patterns is visible around the second and first centuries BCE. There was an increase in the number of settlements and also a change in the nature of material remains. During this period, market centers and cities along trade routes in the western Deccan emerged,⁵⁹ and we also know about a few Sātāvāhana rulers who founded cities.⁶⁰ In the eastern Deccan and further south, settlement culture is identified with the megalithic phase starting from about 1000 BCE, which continued till 300 CE.⁶¹ In the early centuries CE, however, inscribed sherds, iron tools and weapons, gold ornaments, and processed grain from both burial and settlement zones indicate greater connectivity of the settlements with regional as well as distant sites.⁶² Yet the sites remained small. Those classified as large settlements were about five ha in extent, capable of supporting a population of about 1,000.⁶³

By the early historic period, most of the important cities had well-connected satellite settlements. The urban center was not marked by a productive hinterland, but by being a part of other well-connected clusters of site. For example, Mathura has been identified as a 'settlement locality' with a series of urban sites forming an urban microregion.⁶⁴ Varanasi, Sanchi, Anuradhapura, Tirunelveli, and Tungabhadra valley also exhibit connected satellite settlements that formed an urban cluster.⁶⁵ It is believed that this clustering of sites and their connectivity allowed the emergence and sustenance of villages with specialized craftsmen and servicemen. There were villages of ivory carvers (*dantakāgrāma*), centers for textile production, and for the maintenance and upkeep of a monastery.⁶⁶ References to such settlements are found quite often in literary sources, and it would not be wrong to conclude that such specialized settlements survived and operated when functioning as a cluster for their mutual needs. Specialized corporate and professional associations also operated within these regions. The phenomenon of clustering of sites goes beyond what the archetypical urban zones of the north and the western Deccan. Even the settlements of the megalithic sites show clustering in southern re-

⁵⁹ Ray 2006a, 116–117.

⁶⁰ For example, the foundation of Vijayapūri (Nagarjunkonda) is credited to Vijaya Sātakarṇi, Navanagara was probably founded by Pulumāvi, and Vaijayanti (modern Vanavasi in Karnataka) was founded by Cuṭukulānanda Sātakarṇi. Mirashi 1981, pt. 1, 121.

⁶¹ The megalithic phase is marked by the iron-using communities who raised monuments of stones that were often of sepulchral nature.

⁶² For further references, see Dwivedi, vol. 1, ch. 10.A, 447–448.

⁶³ Ray 2006a, 114–115.

⁶⁴ Chattopadhyaya 2003, 68–69.

⁶⁵ Rea 1904; Coningham et al. 1999; Shaw and Sutcliffe 2003; Basant 2012; Bauer 2015.

⁶⁶ See Dwivedi, ch. 5, VII, this volume. For 'slave' settlements with primary function of taking care of monasteries, see Schopen 1994.

gions. In a study of settlements around iron ore zones in Tamil Nadu, about 70 sites were found within a distance of up to twenty km.⁶⁷

The late first and early second centuries CE saw a great increase in coastal sites and pottery all along the Bay of Bengal and the Arabian Sea.⁶⁸ Many of the coastal sites are identified as port cities that must also be understood in their regional context. Inland cities, such as Pāṭaliputra, Mathura, Madurai, Varanasi, Anuradhapura, and others, are all situated along navigable rivers with connectivity to the coastal zone areas by fluvial routes.⁶⁹ South Asia has four coastal zones that were connected to the subcontinent: the western coast of India, with centers in modern-day Gujarat and Maharashtra; the eastern coasts opening into the Bay of Bengal; the Malabar coast and the south of Tamil Nadu, and closely connected to the latter; the coastal ports of Sri Lanka. In earlier scholarship, the development of larger ports along these coasts was explained by their role in Roman trade. However, with Begley's study of regional pottery styles and the growth of Arikamedu, the theory of Indian coastal ports as standalone Roman emporia was overhauled. Begley was able to contextualize the port of Arikamedu within a series of interconnected settlements along the Gingee River.⁷⁰ Following her pioneering work, other port sites were studied with an emphasis on their regional contexts and fluvial connection to the hinterlands. Most of the important ancient ports were located at the mouth of river estuaries rather than on the coast directly. The best examples are Barbarikon on the Indus River, Barygaza (Bharukaccha) in the estuary of the Narmada River, Muziris (Pattanam) at the Periyar River, Poompuhar at the Kaveri Delta, Tamralipti at the mouth of the Ganga River, Godavaya at the delta of Walawe Ganga, among many others.⁷¹ The location of ports and harbors on riverine routes makes them part of a history of growing connectivity.

III.4 Routes and Connectivity

Ethno-archaeological approaches and Indic literary sources have long referred to the traditional routes traversed through time immemorial. However, it is only in the early historic period that we find references to established routes. Long-distance travel within early South Asia went along large and smaller inland routes, rivers, and cabotage along coastlines. Together, they formed a complex network of highways and arterial roadways.⁷²

⁶⁷ The author further explains that the sites appearing in the vicinity of iron ore are only 40 percent, rest are farther and yet have yielded iron objects. For a detailed discussion, see Moorti 1994, 16, 108; Ray 2006a, 114–116.

⁶⁸ Ray 2006b; 2018.

⁶⁹ See Dwivedi, vol. 1, ch. 3, map 1.

⁷⁰ Begley 1983.

⁷¹ Deloche 1983; 1994, 5–128.

⁷² Dwivedi, vol. 1, ch. 3, map 1.

Despite the undeniably local origins of routes and roads, much imperial effort was devoted to improving roads for the movement of armies, people, and tributes. The second Major Rock Edict of Aśoka announces that “on the roads trees were planted, and wells were caused to be dug for the use of cattle and men.”⁷³ The seventh pillar edict mentions wells and rest houses built in short intervals.⁷⁴ Moreover, royal roads (*basilikai hodoi*) were a notable feature that Greek authors observed when writing about India. Strabo, based on earlier Hellenistic geography and ethnography, reports a royal road of 10,000 *stadia* that ran from the northern regions to Pataliputra.⁷⁵ Pliny gives the length of a route from Peucolatis on the bank of the Kabul River via Taxila to the mouth of the Ganga by measuring the distances from station to station.⁷⁶ Strabo mentions magistrates who built roads and set up pillars at distances of 10 *stadia*.⁷⁷ The equipping of such roads with supply stations and distance markers may have been modeled on the Achaemenid royal road system, or was simply a typical imperial strategy. In any case, well-equipped, publicly supervised roads embedded in clustered settlements and cities were indispensable means of drawing together people, revenue, and armies in an ecological context where large stretches of territory were unsuitable for urbanization and travel.

Routes filled a large variety of functions – they played a role in administration and trade, but also formed semiautonomous regional centers of communication and exchange, and in some places were clusters of religious and cultural activity.⁷⁸

III.5 Monetization

The first coins, called the punch-marked coins (*kārṣāpaṇa*) in the northern parts of South Asia, are dated to the sixth century BCE, and minted in both silver and copper variations. Each punched symbol seems to have signified the authorization of the coins by different bodies. From about 300 BCE there was a much greater variety, and far greater volumes, of coinage.⁷⁹ From the second century BCE onward, coin legends became common. Uninscribed *kārṣāpaṇa* and inscribed coins circulated together, suggesting that they were mutually exchangeable, or that different coin systems operated side by side.

Various numismatic developments throw light on greater degrees of monetary connectivity from the third century BCE onward. Most regional coins of *kārṣāpaṇa* standard were minted in copper from deposits in the Aravalli Hills, which spread

⁷³ Rock Edict (RE) 2, trans. Hultsch 1925.

⁷⁴ RE 7; Neelis 2011, 188–9 for the debatable translation of ‘rest houses.’

⁷⁵ Strabo *Geography* (Strab.) 15. 1. 11.

⁷⁶ Such distances were measured by so-called bematists who measured routes by counting steps.

⁷⁷ Strab. 15. 1. 50.

⁷⁸ Fussman 1987–1988, 66–68; Thapar 2003, 196; Neelis 2013, 14.

⁷⁹ See also Dwivedi, ch.10, III.1; Morris, ch. 9, II.3, this volume.

into the mineral-rich plateaus of central India and the modern state of Bengal.⁸⁰ The Indo-Greeks, by contrast, minted coins in silver that may have been acquired from more distant sources.⁸¹ The Sātavāhanas, furthermore, issued their coins in lead, along with potin and copper. It is possible that the lead for these coins was not only mined locally, but also imported. The *Periplus* mentions lead and copper imports in bulk at Barygaza (Bharuch).⁸²

Greek *drachms* and Indic/Graeco-Indian *kārṣāpaṇa* started to circulate together from the time of Indo-Greek presence in the northern region, as we said above. The use of bilingual and biscriptual coin legends, moreover, is indicative of monetary zones in which multiethnic and multilingual communities lived and interacted. There were also stylistic changes, such as the use of a king's portraits on the coins as a result of interaction and conflict with the Greek in the northwestern region. At the same time, regional political confederacies (*janapadas* of the Yaudheyas, Ārjunāyanas, Kuṇinda, and others), and monarchies (Mitras, Pāñcāla, Daśārṇa, Śibis, Sātavāhanas) issued and counter-struck coins to establish their own political identities, suggesting a greater interest in self-definition vis-à-vis others.⁸³

The southern parts of the subcontinent also experienced a great influx of non-regional coins. Examples are the northern punch-marked coins that spread further south from the second century BCE onward, and Roman silver *denarii* and gold *aurei* entering the southern subcontinent in some quantity from the first century CE onward. Whether the nonlocal coins functioned as media of exchange has been debated.⁸⁴ While they certainly acted as stores of value, their use as currency is uncertain. The extra-monetary functions of these coins might be emphasized by their being found in *stūpa* deposits and other ritual contexts.⁸⁵ It is important to note that in the subcontinent other items still functioned as money, while not all coin-like objects had monetary function.⁸⁶

III.6 Elitism and the Rise of Middling Occupational Groups in Urban Spaces

The administrative posts of the Mauryan state created economic opportunities for a growing 'middling group' in the ancient context.⁸⁷ Epigraphic sources, too, hint at

⁸⁰ Shrivastva 1999, 174–177.

⁸¹ It was long thought that there were few or no silver resources in India, making most silver items, including coins, foreign imports. Yet recent studies of Dariba and Agucha in the Aravalli Hills of Rajasthan have revealed that there were mines yielding argentiferous lead suitable for the extraction of silver (Craddock 2014, 1088).

⁸² *PME* 49, 56, 60.

⁸³ See also Bhandare 2006; Dwivedi, vol. 1, ch. 10.A, 452–456; ch. 10, III, this volume.

⁸⁴ Cobb 2018, 250–271 for a summary of evidence and discussions.

⁸⁵ Dwivedi, vol. 1, ch. 10.A, 453–458.

⁸⁶ For a discussion on this issue, Dwivedi, vol. 1, ch. 10.A, 456–458.

⁸⁷ Smith 2018.

an elaborate administrative apparatus that hired a number of officers employed as skilled workers and in managerial positions at various levels. The presence of a complex and multitier bureaucratic machinery under the Mauryas can also be gleaned from the fragments of the *Indica* of Megasthenes, the Macedonian ambassador to the court of Candragupta Maurya.⁸⁸ Epigraphic sources relating to the Sātavāhanas, King Khāravēla, and other unattributed polities provide evidence for similar occupational specializations in other parts of the subcontinent.⁸⁹ In the *Arthaśāstra*, officers are recommended to be paid regular salaries that created a ranked society depending on the resources at the disposal of officials. The highest officials were those closest to the king's office and received 48,000 *paṇas* a month.⁹⁰ Successive salaries were halved with each lower office. The lowest monetary compensation was 1¼ *paṇa* monthly, along with a ration and some share in produce depending on the nature of work.⁹¹ The pay scale of the *Arthaśāstra* does not perhaps reflect real salaries, but the idea of status depending on occupation and the scale of income might not have developed in a political vacuum.

Occupation in the royal administrative hierarchy was perhaps the most important means of attaining, or confirming, social status. Yet there were other means of expressing that one was in a high social position. Monetary donations and sponsorship of art for Buddhist monastic communities are among the most conspicuous. They are evidence not only for the spending capacity of particular occupational groups, but also for the significance attached to the display of the financial means that an occupation entailed. The importance of occupation and spending capacity is clear from the large number of donative records by individuals who identify themselves by their professions, such as merchants, bankers, caravan leaders, and goldsmiths, to name but a few.

The growing degree of social mobility in urban contexts is also evident from some literary sources.⁹² We find compilations of treatises or guidebooks on how to train oneself as a successful member of the urban elite. A text like the *Kāmasūtra* of Vātsyāyana, for example, provides a 'cultural grammar' expressing the social expectations and ideals that a successful urban dweller was to fulfill.⁹³ This included personal grooming and proper adornment with luxury items.

In this context, the growing circulation of luxury tableware is noteworthy. The expansion of demands for the specially glazed NBPW in the Ganga valley is attribut-

88 Thapar (2013, 119–172) discusses the complexity of administrative machinery under the Mauryas.

89 Mirashi 1981, pt. 1, 119–128; Kant 2000, 63–64; Sastri 1925, respectively.

90 *KA* 5. 3. 3; for a note of caution using these figures at face value, Chattopadhyaya 2003, 218.

91 The highest paid offices are of the sacrificial priest, the preceptor, the minister, the chaplain, the commander-in-chief, the crown prince, the king's mother, and the crowned queen (*KA* 2. 24. 28–29).

92 Kaul 2011.

93 Pollock 1985. On the *Kāmasūtra*, see Dwivedi, vol. 1, ch. 10.A, 431–433.

ed to the Mauryan period;⁹⁴ Roman glass tableware found in the Pattanam excavations is dated to the early centuries CE;⁹⁵ and the red-on-golden and red-on-red slipped wares start to occur so frequently in the Swat Valley during the third century CE that Olivieri has called “fashion ware.”⁹⁶ The movement of these luxury items was made possible by complex networks.

IV Networks and Movement of People and Goods

“Pull towards the coast” is a phrase used by Chakravarti to describe the phenomena of inland settlements experiencing greater connectivity with coastal regions.⁹⁷ Chakravarti’s notion is based on the observation of the rise of numerous port cities in coastal regions from the first century CE onward. Moreover, Ghosh has explained this phenomenon by contextualizing the port cities in their hinterland. She suggests that the growth of hinterland in immediate areas as centers of production sustained the port cities as centers of trade. Apart from the immediate hinterland and their local production centers, the ports also received supplies from more distant regions, which she identifies as discontinuous hinterlands. An example of the former is Barygaza (Bharuch) at the mouth of the river Narmada with production centers for beads, cotton, and gemstones. In contrast, the port of Barbarikon at the mouth of River Indus was a port city serving as a terminus for transit trade without a significant production center. Barbarikon, rather, had an extended and perhaps discontinued hinterland from where goods like Chinese pelts, indigo, nard, lapis lazuli, and a few others were exported.⁹⁸ Understanding how people and goods moved through the hinterlands is thus essential to understanding the functioning of port cities.

IV.1 Caravan Groups and Cooperatives As Movers

The state maintained roads as well as inland and coastal ports,⁹⁹ but unlike in Han China, we are not aware of any restrictions on the use of roadways by private travelers.¹⁰⁰ While the state was involved in the transport of certain goods, the majority of

94 Rai et al. 2014.

95 Cherian 2011.

96 Olivieri 2017.

97 Originally, the phrase was used by Chakravarti (2011) in context of early medieval economic processes. However, in his other writings he has observed and explained the factors and contexts of the “pull” even in the early historical times. See also Chakravarti 2017; 2020.

98 Ghosh 2014.

99 For development of infrastructure, see Dwivedi, ch. 10, VI, this volume.

100 In China, certain lanes were strictly reserved for the emperor, Leese-Messing, ch. 11, VI.2, this volume.

transport activities can be attributed to private individuals, merchants, and trading organizations. Retail and reselling did not earn great revenues for the state, but toll taxes (*vartanī*) and escort charges (*ātivāhika*) are mentioned in the *Arthaśāstra* as important sources for state income.¹⁰¹ The importance attributed to privately organized transport becomes clearer with the prevalence of references to caravans in the *jātaka* texts. Caravans of merchants moved seasonally.¹⁰² Monks had rock-cut caves dedicated to their seasonal halts during the monsoon season.

The leader of the caravan, *sārvavāha*, was responsible for arranging the security of the caravans, ensuring the availability of fodder for animals, and keeping track of navigation and the route of transport.¹⁰³ *Sārvavāhas* are often described as leading a large number of wagons from the eastern regions to the western limits (*pubbāntaparānta* in Prākṛt).¹⁰⁴ There were trails of as many as 500 bullock carts loaded with commercial products, frequently composed of shared cargos. Shared cargos are a common phenomenon in antiquity when people preferred to move in bigger caravans, as this reduced the risks involved in traveling long distances. Early historic pottery remains have been found with graffiti marks and inscriptions that have been identified as post-fire markings distinguished from a potter's marks. These markings in the form of symbols and names were likely marks of ownership for easy identification of the merchandise in a composite cargo.¹⁰⁵

Alongside ox-drawn carts, animal portage must have formed an important part of the caravan trade.¹⁰⁶ Though ancient sources say little on the subject, comparative studies and references in the travel accounts of later periods suggest that long-distance transport involved a differentiated system of animal (and human) portage. The most commonly used animals were pack-oxen in the tropical parts of the subcontinent, while the dromedary performed the same role in more arid areas. Additionally, mules and donkeys took over in higher altitudes. Horses and elephants may have been used occasionally for long-distance commodity transportation, but their cost of maintenance and strength were disproportionate to the requirements of transportation.¹⁰⁷ To judge again from comparative studies, there

101 KA 2. 16. 18.

102 A long-distance traveler was expected to be away from home for months. Wives are often recommended to wait for a couple of years, in some cases as long as twelve years, before remarrying (KA 3. 4. 24–27).

103 The *jātakas* are replete with the importance of *sārvavāhas*. In many stories they are the protagonists, the 'potential Buddha' (Bodhisattva). For discussion on the *jātakas* as a source of history, see Dwivedi, vol. 1, ch. 10A, 433–435.

104 Chakravarti 2007b, 43.

105 Coningham et al. 1996, 89–92.

106 The *Arthaśāstra* discusses in detail the guidelines for acquisition and maintenance of porting animals and beasts of burden, including oxen, horses, donkey, camels and mules (KA 2. 6. 7; 2. 15. 50–54; 2. 29).

107 Deloche 1993, 236.

were specialized groups that raised oxen for hire. While there also were merchants traveling with their own animals, a large part of the caravan animals was provided by nomadic, semi-nomadic, and other pastoral groups specializing in the breeding and lending of animal for portage. Also, peasants in the countryside lent their animals for the transport of goods to regional markets during slack periods.¹⁰⁸

IV.2 Ceramic Evidence of Storage and Transport

In comparison to the Graeco-Roman world, where we know of large amounts of grain being transported from long-distance to large cities, South Asia experienced a more regional and multifocal distribution of resources. Notably, there are hardly any recommendations for concentrating all in-kind taxes in a single core. The *Arthaśāstra* recommends to the ‘superintendent of storehouses’ (*koṣṭhādhyakṣa*) to ensure building regional storehouses (*koṣṭhāgāra*) and warehouses (*bhaṇḍāgāra*) of different goods. Regional storehouses allowed for better management during times of natural calamities and food shortages. A seal from the Bengal region dated to the period of our concern corroborates the presence of such warehouses.¹⁰⁹

The large number of ceramic finds in archaeological contexts are not just material evidence for large-scale craft production, but also for the importance of storage facilities. Storage facilities are often identified through the concentrations of pottery at a higher-than-normal density. One of the most discussed sets of ceramic studies comes from the site of Pattanam (Kerala), possibly Muziris. A very large number of Indian pottery (99 percent of all finds), together with Roman amphorae and Parthian torpedo jars (less than one percent of the finds), have been interpreted as the storage site near a littoral port.¹¹⁰

Smaller assemblages of foreign ceramics have been taken to be the storage containers of travelers for personal consumption. The discoveries of Mediterranean pottery in India and that of Indian potteries in the Arabian Gulf and the Red Sea areas represent diaspora communities for whom commodities from their respective place of origin were transported. The presence of Mediterranean diaspora communities along the Malabar coast was identified by the presence of foreign pottery by Tomber and that of Indians in the Arabian Gulf by Reddy and Pavan and Schenk.¹¹¹

IV.3 Markets and Their Operation

Markets were important nodes in widespread networks of exchange. The market system in early India can be structured into various levels, starting from local vil-

¹⁰⁸ Deloche 1993, 226–254.

¹⁰⁹ Sircar 1965, 82–83.

¹¹⁰ For a discussion on the pottery finds at Pattanam, see Cherian 2015.

¹¹¹ Tomber 2007; 2009; Reddy 2016; Pavan and Schenk 2012. For a brief discussion on developments in the study of early historic potteries see Dwivedi, vol. 1, ch. 10.A, 448–451.

lage-level markets (*āpaṇa*), market centers in cities (*nagara/pura*), and port cities (*velākula*, *pattana*, and *paṇyapuṭabhedana*), as well as monastic markets and seasonal fairs.¹¹² There were also transactions, such as gateway sales, that did not take place in a marketplace, but were nevertheless part of the market system.¹¹³ Unfortunately, evidence for the location of markets is rare. However, we can discern the structure and functioning of the market in certain scenarios. I will discuss the role of the state in organizing markets, especially in urban contexts, the role of non-urban markets, and some aspects of the organization of private trade.

IV.3.1 City Markets and the Role of the State

Greek visitors observed that cities did not have just a single and central marketplace.¹¹⁴ Market streets (*āpaṇa-rathyā* and *āpaṇa-vīthi*) are prominent features of cities in many narrative texts in the Hindu, Buddhist, and Jaina traditions.¹¹⁵ We also learn of private residences with ‘interior shops’ (*antarāpaṇa*), which were both sites of exchange and workshops.¹¹⁶ Shops for particular products were concentrated in certain parts of the city with streets named after the commodity.¹¹⁷

Normative texts tend to emphasize state regulation of marketing sites. Dedicated spaces for market exchange and quarters for merchants within the city walls are important parts of city planning in the *Arthaśāstra*.¹¹⁸ The state’s role in organizing spaces of exchange was clearly not just for the sake of facilitating exchange, but for easy taxation, the regulation and surveillances of merchants, and checks on fraudulent trading practices as well. Transactions (*kṛaya-vikṛaya*) are one of the main sources of tax income for the state in the *Arthaśāstra*. Other than the ‘director of trade’ (*paṇyādhyakṣa*), two other officials, ‘director of tolls and customs’ (*śulkādhyakṣa*) and ‘superintendent of the marketplace’ (*samsthādhyakṣa*) influenced the operations of markets.¹¹⁹ Megasthenes also mentions the office of city commissioner (*astynomos*), regulating market exchange in India.¹²⁰

112 Chakravarti 2001, 24–25.

113 For example, the workshops attached to the residence may not have required items to be brought to the markets and rather the produce was sold at the center of production, as discussed below. Additionally, items bought with agreement for a deferred payment may not have taken place at a public marketplace.

114 Strab. 15. 1. 65.

115 Schlingloff 2013, 11–14.

116 For discussion of terminology, see Schlingloff 2013, 14, n. 10.

117 Thapar 2003, 146. An example is that of the independent goldsmiths and other artisans mentioned in the *KA* (2. 13. 2), whose workshops (*āveśana*) are located in a cluster. Olivelle (2013, 537) notes that the market street (*viśikhā*) could refer to ‘gold dealers’ street.

118 *KA*. 2. 4. 9. Schlingloff (2013) shows how various city plans found in archaeological excavation in the northern region were similar to the descriptions in the *KA*.

119 *KA* 2. 6 with Chakravarti 2019, 122–124.

120 Strab. 15. 1. 50–52.

As merchants are seen with suspicion in the *Arthaśāstra*, it was the state's obligation to repress malpractices – *kaṇṭakaśodhana* literally meaning 'Removal of Thorns' as the title of an entire book in the *Arthaśāstra*.¹²¹ The list of malpractice for which the merchants were supposed to be punished includes selling commodities lower in weight and number than agreed; misrepresenting the quality of articles; overpricing to attain profits higher than permitted; adulteration of food and medicinal products; cartelization; and hoarding that affected the prices of commodities.¹²² There are also indications of official price regulations in the city markets. According to the *Manusmṛiti*, state officials were supposed to fix the prices of imported commodities by taking into account various expenses of traders – place of production, place of sale, period of storage, and likely profit. Such prices were to be fixed every five or fifteen days by the king publicly.¹²³ The *Arthaśāstra*, in turn, allows local merchants to add no more than a five percent margin, while visiting or nonlocal merchants (*āgantunām*) were allowed ten percent. To ensure normalcy of prices, officers would restrict the sale of a commodity in one location when there was a glut of a particular commodity. Olivelle suggests that market interventions were aimed at maintaining price stability, controlling wide fluctuations, and eliminating price gouging.¹²⁴

The state was also supposed to prevent price manipulation. Cartels are a well-recognized problem in the *Arthaśāstra*, as the members of a cartel, no matter how small, were subject to fines of the highest order (1,000 *paṇas*).¹²⁵ Nonlocal merchants, however, were given some protection from being sued by the state in certain monetary matters.¹²⁶ This was perhaps a measure for encouraging traveling merchants who were not familiar with local laws or did not have the support of a guild.

The *Arthaśāstra* also mentions supervision of seafaring vessels, and ferries at river mouths and across natural and artificial lakes.¹²⁷ The *Periplus* refers to local fishermen in the king's service guiding seagoing vessels through the narrow delta by the port of Barygaza and up the river to the city.¹²⁸ At Pattanam, remains of a platform made of lateritic rubble and lime with brick lining at the water level have been interpreted as an indicator of a wharf. It was perhaps a ferry site from where the boats might have transferred cargos from the ships moored offshore.¹²⁹

The *Arthaśāstra* and other normative texts thus suggest a great amount of state intervention in the organization and regulation of markets. Scholars emphasize that

121 KA Book 4.

122 KA 2. 12. 32; 2. 21. 13; 4. 2. 22; *The Manusmṛiti (MS)* 8. 398–400.

123 MS 8. 401–402.

124 Olivelle (2013, 46) on KA 2. 16. 1–3; 4. 2. 33.

125 KA 4. 2. 21 with Mehta and Hawk 2018, 12.

126 KA 2. 16.

127 KA 2. 28. 1.

128 *PME* 44.

129 Gurukkal 2016, 183.

state intervention aimed to protect consumers.¹³⁰ Indeed, these texts convey a great amount of moral sentiment that did not just serve the interest of the state, but also its subjects. We cannot tell how much these texts were based on, or fed back into, real markets. Yet even if there were urban markets strongly influenced by state control, they were only part of a wider network of marketing facilities.

IV.3.2 Markets Outside Cities and Private Players in Market Spaces

Religious places of gathering and ceremonial celebrations, such as fairs, played an important role in early India. Ray emphasizes that Buddhist, Hindu, and Jain pilgrim centers emerged as market spaces even before the monuments and temples that survive today were constructed.¹³¹ The physical spaces around religious centers provided geographical anchors for marketing processes by acting as nodes of exchange and spatial contexts for the provision of credit facilities and knowledge exchange. Ceremonies and religious festivals were important occasions for trade and exchange. Abbott refers to the long tradition of the connection between ceremonial gatherings and market exchange, whereby religious institutions regulated market spaces as well as the moral codes guiding the behavior in market exchange.¹³² Some markets may have been open throughout the year for pilgrims, but others would have varied in size and scale according to season and the demand for certain commodities during festivals for donative and ritual purposes.¹³³

Merchants and mercantile organizations worked in cooperation with monastic communities. The Buddhist sites along inland routes, including the rock-cut caves found in the difficult terrain of the Western Ghats, provided shelter for long-distance travelers such as monks, pilgrims, and merchants alike.¹³⁴ Literary sources commonly mention monks and merchants traveling together, and it is possible that cave shelters were also used by merchants during their travels. Moreover, a Buddhist text expresses moral concerns relating to the practice of monks asking merchants to smuggle their items through the customs check to avoid being taxed.¹³⁵

Long-distance traders supplied both urban and monastic centers with large amounts of goods. It is difficult to ascertain whether there was a hierarchical organization of merchants. Yet many sources give glimpses that allow us to speculate a system in which a variety of merchants cooperated and functioned in coordination. The *Arthaśāstra* recommends providing dedicated spaces for associations and for-

130 Goyal, Goyal, and Goyal 2013; Mehta and Hawk 2018.

131 Ray 2015, 288.

132 Abbott 2010, 80–81.

133 For a brief discussion on pilgrim travels, see Dwivedi, vol. 1, ch. 15, 661–662.

134 For evidence and discussion on connections between the Buddhist sites and trade routes, see Ray 1986; Neelis 2011.

135 The discussion on disputes is preserved in the *Mūlasarvastivāda-vinaya*, see Pagel 2017, 106.

eign merchants along the city walls in certain parts of the city,¹³⁶ which could have provided storage spaces for traveling traders and intercity suppliers. Big merchants (*śreṣṭhis/setṭhis*) and associations of traders (*śreṇis*), owned warehouses within the cities where traveling merchants from other cities and from frontiers may have stored their commodities. An example comes from the *Akataññū-jātaka*, which describes Anāthapindaka, a rich *setṭhi* in the city of Śrāvasti, having agreed to offer warehouses for 500 cartloads of goods to be stored and sold by the agents of another merchant from a border region (*paccantavāsiko setṭhi*).¹³⁷ The *Arthaśāstra* implies that merchants used agents to carry out their long-distance travels and transactions.¹³⁸ One type of retailer was a paid laborer who handed over the proceeds of the sale, and in return earned a commission or one-tenth of the profit.¹³⁹ The other type of retailer (*pratikreṭṭ*) bid for the right to sell goods by auction. It is suggested that such auctions were held in the case of imported and wholesale goods. Retailers in this case were no longer agents working for a wage, but entrepreneurs who calculated their own profit.¹⁴⁰ A more detailed understanding of the functioning of markets, however, depends on further research on this topic.

V Conclusion

The economic processes in early South Asia are characterized by a plurality of economic actors operating across diverse landscapes and within a range of political and social institutions and organizational forms. Economic power never truly remained the domain of one actor – cities, elites, kings, monasteries, corporate bodies, nor the state. The functioning and development of various levels of the economy must be regarded as driven by the combination of institutional factors. The cooperation between monastic religious bodies, merchants, and mercantile corporations has been emphasized throughout this chapter. There was also a highly dynamic relationship between state institutions and the institutions of corporate bodies. Even though the prescriptive text of the *Arthaśāstra* envisions strict regulation of markets and merchants, it also shows that there was a capacity for negotiation. The recommendation by law books to respect the norms and laws of the guilds (*śreṇidharma*), and the nonsalaried position of merchant/banker at the royal court (*rājaśreṣṭhi*) are further indications of a particular balance between state institutions

136 KA 2. 4. 16.

137 Cowell 1977, story no. 90.

138 The KA mentions agents (*vaiyāvṛtyakara*) through whom commercial transactions could be carried out; KA 2. 5. 18; 3. 12. 25–31.

139 KA 3. 12. 25–30; 3. 13. 27–28; 4. 2. 32. See also Gopal 2001, 932–933.

140 KA 2. 21. 8, 13. with notes by Olivelle 2013, 555.

and professional corporations.¹⁴¹ Rulers also supported Buddhist monks financially while, in return, seeking their support. Important examples include the endeavors of Aśoka to build his imperial power on the establishment of *dhammaghoṣa* (the call of *dhamma*) and on missions to distant places to spread his faith. Additionally, dedications of shares in revenue from land and ports, and the grants of productive land by the ruling dynasties in the post-Mauryan period strengthened the economic power of the monasteries.¹⁴²

Economic development in early India must therefore be sought in changing structures of various organizations and institutions, as well as their joint political and ideological influence. The growth of cities and agrarian hinterlands was not so much a consequence of state development, but of many local factors as well. The emergence of corporate bodies and new degrees of imperial and interimperial connectivity was related not solely, but importantly, to the expansion of Buddhist monasticism. There were changing economic geographies responding to new levels of regional and interregional demand, yet the coordination of supply was driven by neither market forces nor state intervention, but by interlocking structures that were of apolitical and sub-political nature. At the current state of our knowledge, however, it would be premature to mold these dynamics into more specific models of economic change. The relationship between the state and other organizational forms, and the unique combination of localized and long-distance communication of state and nonstate actors calls for further analysis. There was a unique combination of religious and economic incentives, and a diversity of landscapes that, if developed effectively, had the potential for an increase in productivity at a scale and speed probably unusual for many ancient contexts. More archaeological, numismatic, and epigraphic research is needed to understand the economic patterns of the subcontinent and their effects at different temporal and geographic scales.

References

- Abbott, D. R. 2010. "The rise and demise of marketplace exchange among the prehistoric Hohokam of Arizona." In C. P. Garraty and B. L. Stark (eds.), *Archaeological approaches to market exchange in ancient societies*, 61–83. Boulder, CO: University Press of Colorado.
- Basant, P. K. 2012. *The city and the country in early India: A study of Malwa*. New Delhi: Primus Books.
- Bauer, A. M. 2015. *Before Vijayanagara: Prehistoric landscapes and politics in the Tungabhadra Basin*. New Delhi: Manohar and American Institute of Indian Studies.
- Baums, S. and A. Glass. 2002. "A Dictionary of Gāndhārī." gandhari.org.
- Begley, V. 1983. "Arikamedu reconsidered." *American Journal of Archaeology* 87.4, 461–468.

141 For more on state and law, see Dwivedi, ch. 10, II, IV, this volume. For a discussion on the position of *rājaśreṣṭhi*, see Chakravarti 2007a; Dwivedi, ch. 4, IV, this volume.

142 Dwivedi, ch. 5, VIII.2, this volume.

- Bhandare, S. 2006. "Numismatics and history: The Maurya-Gupta interlude in the Gangetic plain." In P. Olivelle (ed.), *Between the empires: Society in India 300 BCE to 400 CE*, 67–112. Oxford: Oxford University Press.
- Borell, B. 2010. "Trade and glass vessels along the maritime Silk Road." In B. Zorn and A. Hilgner (eds.), *Glass along the Silk Road from 200 BC to AD 1000, 127–142*. Mainz: Verlag des Römisch-Germanischen Zentralmuseums.
- Brancaccio, P. 2018. "The Silk Road and the Cotton Road: Buddhist art and practice between Central Asia and the Western Deccan." In B. Gentino and L. Caterina (eds.), *Via della Seta: Percorsi, immagini e cultura materiale*. Vol. 2, 59–73. Roma: Scienza e Lettera Editore.
- Casson, L. 1989. *The Periplus Maris Erythraei: Text with introduction, translation and commentary*. Princeton, NJ: Princeton University Press.
- Chakravarti, R. 2001. "Introduction." In R. Chakravarti (ed.), *Trade in early India*, 1–101. New Delhi: Oxford University Press.
- . 2007a. "Rājaśreṣṭhī." In *Trade and traders in Early Indian society*, 102–112. New Delhi: Manohar.
- . 2007b. *Trade and traders in early Indian society*. New Delhi: Manohar.
- . 2011. "The pull towards the coast: Politics and polity in India (c. 600–1300 CE)." *Proceedings of the Indian History Congress 72*, 22–42.
- . 2017. "Examining the hinterland and foreland of the port of Muziris in the wider perspective of the subcontinent's long-distance networks." In K. S. Mathew (ed.), *Imperial Rome, Indian Ocean regions and Muziris: New perspectives on maritime trade*, 307–338. London: Routledge.
- . 2019. "Merchants and state society: Some case studies from early historic period and the 'threshold times' (ca. 600 BC to AD 700)." *Studies in People's History* 6.2, 119–133.
- . 2020. "The coast vis-à-vis the subcontinent: Interlocking and distinctiveness." In *The pull towards the coast and other essays: The Indian Ocean history and the subcontinent before 1500 CE*, 75–92. Delhi: Primus Books.
- Chattopadhyaya, B. D. 2003. *Studying early India: Archaeology, texts, and historical issues*. New Delhi: Permanent Black.
- Cherian, P. J. 2011. "Pattanam archaeological site: The wharf context and the maritime exchanges." In M. Staniforth (ed.), *The 2011 Asia-Pacific Regional Conference on Underwater Cultural Heritage Proceedings*. Manila: Museum of Underwater Archaeology Collection.
- Cherian, P. J. 2015. "Pattanam represents the ancient urban Periyar river valley culture: 9th season excavation report (2014–15)." *Heritage: Journal of Multidisciplinary Studies in Archaeology* 3, 739–759.
- Cherian, P. J. and J. Menon. 2014. *Unearthing Pattanam. Histories, cultures, crossings*. New Delhi: National Museum of India; Kerala Council for Historical Research.
- Cobb, M. A. 2018. *Rome and the Indian Ocean trade from Augustus to the early third century CE*. Leiden: Brill.
- Coningham, R. A. E., F. R. Allchin, C. Batt, and P. Cheetham. 1999. *Anuradhapura: the British-Sri Lankan excavations at Anuradhapura Salagha Watta 2*. Vol. 1. Oxford: Archaeopress.
- Coningham, R. A. E., F. R. Allchin, C. M. Batt, and D. Lucy. 1996. "Passage to India? Anuradhapura and the early use of the Brahmi script." *Cambridge Archaeological Journal* 6.1, 73–97.
- Cowell, E. B., ed. 1977. *The Jātaka, or stories of the Buddha's former births*. 6 vols. Oxford: Clarendon Press.
- Craddock, P. 2014. "Production of silver across the ancient world." *ISIJ International* 54.5, 1085–1092.
- Dalby, A. 2000. *Dangerous tastes: The story of spices*. Berkeley, CA: University of California Press.
- De Romanis, F. 2020. *The Indo-Roman pepper trade and the Muziris papyrus*. Oxford: Oxford University Press.

- Deloche, J. 1983. "Geographical considerations in the localisation of ancient sea-ports of India." *The Indian Economic & Social History Review* 20.4, 439–448.
- . 1993. *Transport and communications in India prior to steam locomotion*. J. Walker (trans.). Vol. 1, *Land transport*. Delhi: Oxford University Press.
- . 1994. *Transport and communications in India prior to steam locomotion*. J. Walker (trans.). Vol. 2, *Water transport*. Delhi: Oxford University Press.
- Evers, K. G. 2017. *Worlds apart trading together: The organisation of long-distance trade between Rome and India in antiquity*. Oxford: Archaeopress.
- Fussman, G. 1987–1988. "Central and provincial administration in ancient India: The problem of the Mauryan Empire." *Indian Historical Review* 14.1/2, 43–72.
- . 2015. "Kushan power and the expansion of Buddhism beyond the Soleiman mountains." In H. Falk (ed.), *Kushan histories: Literary sources and selected papers from a symposium at Berlin, December 5th to 7th, 2013*, 153–202. Bremen: Hempen.
- Ghosh, S. 2014. "Barbarikon in the maritime trade network of early India." In R. Mukherjee (ed.), *Vanguards of globalization: Port cities from the classical to the modern*, 59–74. New Delhi: Primus Books.
- Gopal, L. 2001. "Agriculture, industry and trade: 600 BC–AD 300." In G. C. Pande (ed.), *History of science, philosophy and culture in Indian civilization*. Vol. 1.2. *The dawn and development in Indian civilization: Life, thought and culture in India (from c. 600 BC to c. AD 300)*, 912–945. New Delhi: Centre for Studies in Civilizations.
- Goyal, P., M. Goyal and S. Goyal. 2013. "Consumer protection law in ancient India." *Journal of Human Values* 19.2, 147–157.
- Gurukkal, R. 2016. *Rethinking classical Indo-Roman trade: Political economy of Eastern Mediterranean exchange relations*. New Delhi: Oxford University Press.
- Hultzsch, E., ed. 1925. *Corpus inscriptionum indicarum*. Vol. 1, *Inscriptions of Aśoka*. New Delhi: Director General, Archaeological Survey of India.
- Jahan, S. H. 2012. "Maritime trade between Thailand and Bengal." *Journal of Fine Arts, Chiang Mai University* 3.2, 205–228.
- Kant, S. 2000. *The Hathīgumphā inscription of Khāravela and the Bhabru edict of Aśoka: a critical study*. 2nd ed. New Delhi: D. K. Printworld.
- Kanungo, A. K. 2004. "Glass beads in ancient India and furnace-wound beads at Purdalpur: An ethnoarchaeological approach." *Asian Perspectives* 43.1, 123–150.
- Kaul, S. 2011. *Imagining the urban: Sanskrit and the city in early India*. London: Seagull.
- Kingwell-Banham, E. 2019. "Dry, rainfed or irrigated? Reevaluating the role and development of rice agriculture in Iron Age-Early Historic South India using archaeobotanical approaches." *Archaeological and Anthropological Sciences* 11.12, 6485–6500.
- Kosmin, P. J. 2014. *The land of the elephant kings: Space, territory, and ideology in the Seleucid Empire*. Cambridge, MA: Harvard University Press.
- Lefrancq, C. and J. D. Hawkes. 2020. "Accepting variations and embracing uncertainty: Creating a regional pottery typology in South Asian Archaeology." *Open Archaeology* 6, 269–328.
- Mehta, P. S. and B. E. Hawk. 2018. "Economic regulations, competition, and consumer protection in Ancient India." *The Antitrust Bulletin* 63.3, 316–329.
- Mirashi, V. V. 1981. *The history and inscriptions of the Sātāvāhanas and the Western Kshatrapas*. Bombay: Maharashtra State Board for Literature and Culture.
- Mishra, A. K. 1992. *Trading communities in Ancient India: From earliest times to 300 AD* Delhi: Anamika Prakashan.
- Mital, S. N. 1995. "Taxation in Kauṭīliya Arthaśāstra." *Annals of the Bhandarkar Oriental Research Institute* 76.1/4, 69–87.
- Moorti, U. S. 1994. *Megalithic culture of South India: Socioeconomic perspectives*. Varanasi: Ganga Kaveri Publishing House.

- Morrison, K. D. and M. T. Lycett. 2013. "Forest products in a wider world: Early historic connections across southern India." In S. A. Abraham, P. Gullapalli, T. P. Raczek, and U. Z. Rizvi (eds.), *Connections and complexity: New approaches to the archaeology of South Asia*, 127–142. Walnut Creek, CA: Left Coast Press.
- Murphy, C. and D. Q. Fuller. 2017. "The agriculture of early India." *Oxford research encyclopedia of environmental science*, 1–36. Oxford: Oxford University Press.
- Neelis, J. E. 2011. *Early Buddhist transmission and trade networks: Mobility and exchange within and beyond the northwestern borderlands of South Asia*. Leiden: Brill.
- Neelis, J. E. 2013. "Polyvalent perceptions of the Uttarāpatha in history: Archaeological evidence, epigraphic references and literary demarcations." In S. Ghosh, S. Ray Bandopadhyaya, S. Basu Majumdar, and S. Pal (eds.), *Revisiting early India: Essays in honour of D. C. Sircar*, 13–25. Kolkata: R. N. Bhattacharya.
- Olivelle, P., trans. 2013. *King, governance, and law in ancient India: Kauṭilya's Arthaśāstra: A new annotated translation*. Oxford: Oxford University Press.
- Olivieri, L. M. 2017. "A note on the swat 'fashion ware': Its origin and diffusion." *Ancient Pakistan* 28, 105–117.
- Pagel, U. 2017. "Nothing to declare: Status, power and religious aspiration in the policies of taxation in ancient India." *Medieval Worlds* 6, 101–117.
- Pavan, A. and H. Schenk. 2012. "Crossing the Indian Ocean before the *Periplus*: A comparison of pottery assemblages at the sites of Sumhuram (Oman) and Tissamaharama (Sri Lanka)." *Arabian Archaeology and Epigraphy* 23.2, 191–202.
- Petrie, C. A. and J. Bates. 2017. "'Multi-cropping', intercropping and adaptation to variable environments in Indus South Asia." *Journal of World Prehistory* 30.2, 81–130.
- Pollock, S. 1985. "The theory of practice and the practice of theory in Indian intellectual history." *Journal of the American Oriental Society* 105.3, 499–519.
- Rai, S. S., G. K. Rai, A. C. Pandey, and U. C. Chattopadhyaya. 2014. "Geochemical studies of the ancient Indian glazed ware." *Current Science* 106.3, 428–434.
- Ray, H. P. 1986. *Monastery and guild: Commerce under the Sātavāhanas*. Delhi: Oxford University Press.
- . 2003. *The archaeology of seafaring in ancient South Asia*. Cambridge: Cambridge University Press.
- . 2006a. "Inscribed pots, emerging identities: The social milieu of trade." In P. Olivelle (ed.), *Between the empires: Society in India 300 BCE to 400 CE*, 113–144. Oxford: Oxford University Press.
- . 2006b. "The archaeology of Bengal: Trading networks, cultural identities." *Journal of the Economic and Social History of the Orient* 49.1, 68–95.
- . 2010. "Coins, seals and sealings at Sanghol." In H. P. Ray (ed.), *Sanghol and the archaeology of Punjab*, 166–183. New Delhi: Aryan Books International.
- . 2015. "Trading partners across the Indian Ocean: The making of maritime communities." In B. Z. Kedar and M. E. Wiesner-Hanks (eds.), *Expanding webs of exchange and conflict, 500 CE–1500 CE*. Vol. 5, 287–308.
- . 2018. "Ethnographies of sailing: From the Red Sea to the Bay of Bengal in antiquity." In M. A. Cobb (ed.), *The Indian Ocean Trade in antiquity: Political, cultural and economic impacts*, 73–94. London: Routledge.
- Rea, A. 1904. "An account of excavation conducted during the year 1903–04." *Annual Report of Archaeological Survey of India* 1, 18–25.
- Reddy, A. L. 2015. "Sourcing Indian ceramics in Arabia: Actual imports and local imitations." *Proceedings of the Seminar for Arabian Studies* 45, 253–271.
- . 2016. "Archaeology of Indo-Gulf relations in the early historic period: The ceramic evidence." In H. P. Ray (ed.), *Bridging the Gulf: Maritime cultural heritage of the western Indian Ocean*, 53–78. New Delhi: Manohar.

- Sastri, H. 1925. "Brahmi inscription on a wooden pillar from Kirari." *Epigraphia Indica* 18, 152–157.
- Schlingloff, D. 2013. *Fortified cities of ancient India: A comparative study*. London: Anthem.
- Schopen, G. 1994. "The monastic ownership of servants or slaves: Local and legal factors in the redactional history of two Vinayas." *Journal of Buddhist Studies* 17.2, 145–175.
- . 2004. *Buddhist monks and business matters: still more papers on monastic Buddhism in India*. Honolulu, HI: University of Hawai'i Press.
- Sen, T. 2006. "The travel records of Chinese pilgrims Faxian, Xuanzang, and Yijing: Sources for cross-cultural encounters between ancient China and ancient India." *Education about Asia* 11.3, 24–33.
- Shaw, J. 2007. *Buddhist landscapes in central India: Sanchi Hill and archaeologies of religious and social change, c. third century BC to fifth century AD*. London: British Association for South Asian Studies.
- . 2018. "Early Indian Buddhism, water and rice: Collective response to socioecological stress: Relevance for global environmental discourse and Anthropocene studies." In Y. Zhuang and M. Altaweel (eds.), *Water societies and technologies from the past and present*, 223–255. London: UCL Press.
- Shaw, J. and J. V. Sutcliffe. 2003. "Water management, patronage networks and religious change: New evidence from the Sanchi Dam complex and counterparts in Gujarat and Sri Lanka." *South Asian Studies* 19, 73–104.
- Shrivastva, R. 1999. "Mining of copper in Ancient India." *Indian Journal of History of Science* 34.3, 173–180.
- Singh, U. 2004. "Cults and shrines in early historical Mathura (c. 200 BC–AD 200)." *World Archaeology* 36.3, 378–398.
- Sircar, D. C., ed. 1965. *Select inscriptions bearing on Indian history and civilization*. 2nd ed. Vol. 1, *From the sixth century BC to the sixth century AD*. Calcutta: University of Calcutta.
- Skilling, P. 2008. "Redaction, recitation, and writing: Transmission of the Buddha's teaching in India in the early period." In S. C. Berkwitz, J. Schober, and C. Brown (eds.), *Buddhist manuscript culture: Knowledge, ritual, and art*, 53–75. London: Routledge.
- Smith, M. L. 1999. "The role of ordinary goods in premodern exchange." *Journal of Archaeological Method and Theory* 6.2, 109–135.
- . 2018. "Urbanism and the middle class: Co-emergent phenomena in the world's first cities." *Journal of Anthropological Research* 74.3, 299–326.
- Thakur, V. K. 1987. "Role of guilds in ancient Indian urban administration (c. 200 BC–c. AD 600): A numismatic study." *Journal of the Numismatic Society of India* 49, 70–76.
- Thapar, R. 2003. *The Penguin history of early India: From the origins to AD 1300*. London: Penguin Books.
- . 2013. *Aśoka and the decline of the Mauryas*. 3rd ed. New Delhi: Oxford University Press.
- Tomber, R. 2007. "Rome and Mesopotamia: Importers into India in the first millennium AD." *Antiquity* 81, 972–988.
- . 2009. "Beyond Western India: The evidence from imported amphorae." In R. Tomber, L. Blue, and S. A. Abraham (eds.), *Migration, trade and peoples. Part 1: Indian ocean commerce and the archaeology of western India*, 42–57. London: The British Academy.
- Tripathi, V. and P. Singh. 2018. "Analysing the black polished pottery of proto-historic-early historic India." *Current Science* 114.11, 2373–2380.

Kathrin Leese-Messing

15 Structures and Dynamics of the Early Imperial Chinese Economy

I Introduction

I.1 Positioning the Early Imperial Economy

In order to broadly situate the early imperial economy within the course of Chinese economic history and in relation to economies of other regions, a couple of its defining features may be introduced as a start. The early imperial economy was, like that of the preceding Warring States period, a largely agrarian economy. Nevertheless, it developed several new features that distinguished it from its predecessors. With its increasing monetization of the fiscal system, the legalization of private land purchases, and the extension of wage labor markets, it featured what economic historians commonly point to as fundamental stimuli for market exchange. Accordingly, symptoms of growing private markets can be easily discerned in different kinds of Han sources. However, and unsurprisingly, the early imperial era was also determined by some fundamental features that characterized all ancient economies.¹ Above all, the absence of modern transport and information facilities put extensive transregional integration of markets out of reach. In early imperial China, scarcity of large-scale private trading organizations may be seen as a further factor in favor of localized or regionalized supply structures. Yet state institutions, acting on an expressed awareness of supply and demand imbalances from an imperial perspective, stepped in both as producers and distributors, often on a massive and long-distance scale. How effective these state involvements were, and what broader, long-term economic consequences resulted from them, is still a matter of debate and ongoing research.

I.2 Models, Key Terms, and Metanarratives

Model building is still in its infancy in the field of ancient Chinese economic history. Certainly, some metanarratives have left their mark on many accounts.² But more

¹ For instance, Bang 2009, 102.

² A depiction of increasing concentration of landholding and the exploitation of petty farmers particularly during Later Han times is one influential example of such narratives. On this, see below in this section.

Note: I would like to thank Armin Selbitschka for valuable comments on an earlier draft of this chapter.

holistic models that take into account the complex dynamics of different economic sectors, regions, and actors are hard to find. In recent years, scholars have proposed various ideas and terms in order to step out of this theoretical void, especially for characterizing the fiscal regime and interpreting its role in the larger economic picture of the early imperial period.

Richard von Glahn's admirable and painstaking account in *The Economic History of China*,³ which encompasses several millennia from the Bronze Age up to the nineteenth century, has coined several influential terms in regard to the economy of the early imperial era. First and foremost, von Glahn suggests that the early imperial era witnessed a shift from a "military-physiocratic" to a "mercantilist" fiscal state. "Military-physiocratic" here describes the essential elements of the fiscal regime during the Qin period and the early decades under Han rule. In his words, this regime featured "a system of social ranking and obligations derived from military organization" fused with an "agrarian economic base." It was further characterized by a "physiocratic disdain [...] for commerce as inherently sterile."⁴ Von Glahn then recognizes a substantial break with these military-physiocratic principles in the policies instigated by Sang Hongyang 桑弘羊 (ca. 152–80 BCE) under Emperor Wu 武 (r. 141–87 BCE). With its monopolization of the lucrative iron and salt industries and a shift toward indirect, monetary (instead of a purely in-kind agricultural) taxation, von Glahn suggests that Emperor Wu's fiscal regime can be classified as "mercantilist."⁵ Though one may argue over the choice of this particular term,⁶ von Glahn's portrayal of these measures as building upon rather than simply suppressing existing commercial activity has been a helpful step toward a clearer appreciation of historical change in the early imperial economy. In addition, von Glahn stresses the "command economy" approach in early imperial economic policies, which he sees as "epitomized" by the Qin state in particular, insofar as it "owned non-agricultural productive resources, managed much industrial manufacturing (using mostly unfree labor), and tightly supervised markets."⁷ Von Glahn does not restrict the use of the term "command economy" to the Qin period, however, and also associates it with the "mercantilist" policies initiated under Emperor Wu.⁸

³ Von Glahn 2016.

⁴ Von Glahn 2016, 84–85; 2020, 10–14.

⁵ Von Glahn 2016, 118, 2020, 14–17.

⁶ The term was originally coined in reference to an early modern school of economics. Von Glahn himself points to one major difference being that "in contrast to the mercantilist states of early modern Europe, which deployed state power to support and protect the privileges of the domestic merchant class, Chinese mercantilists aspired to supplanting private commerce with state-run institutions [...]" (2016, 118), or, in other words, "the Chinese mercantilists state sought not to strengthen the domestic merchant class but rather to displace it" (2020, 15). One could certainly add others, for instance with regard to the early modern mercantilists' central advocacy of a positive balance of trade, which cannot by any means be imputed to Sang Hongyang and his fellow policy-makers.

⁷ Von Glahn 2016, 127.

⁸ Von Glahn 2016, 120.

In his thought-provoking dissertation on state-market relations during the Qin period, Korolkov has taken up the notion of a “command economy” as a characterizing feature of the early imperial state.⁹ Through detailed analyses of excavated Qin administrative documents, he does, however, take a big step further toward a more general and dynamic model by linking the notion to the phenomenon of imperial growth. He argues that a command economy system – which he sees as a characteristic feature not only of the Qin regime but of “many other imperial states” – tends to increasingly rely on “decentralized, commercial procurement schemes” along with its massive territorial expansion.¹⁰ With the sheer size of the empire making it impossible to manage transaction costs on the basis of a “centralized” command economy, increasing reliance on market procurement led imperial rulers toward measures that enabled them not only to control and tax markets, but also to make them more efficient. According to Korolkov, since a “redistributive command economy” such as that of the pre-imperial Qin state already invested heavily into such infrastructural, legal, and standardization measures, its established structures also exerted “a positive, powerful spillover effect upon the private markets.” Taking their first start during Qin times, these trends came to characterize economic developments under Former Han rule, several aspects of which will be discussed below.

Even though many things are still tentative with regard to the Qin and Former Han times, economic structures and developments of the Later (i.e., Eastern) Han period are even more difficult to fathom – let alone model – given the current state of research. The social and economic history of this period is partly entrenched in one particular metanarrative of increasing large-scale land holdings and an accordingly increase in the exploitation of petty farmers as tenants.¹¹ While it would certainly be wrong to discard this view altogether, a turn to a slightly more critical and differentiated reconsideration seems in order. After all, the evidence for a sharp trend toward concentration of landownership, social inequality, and exploitative tenancy as characteristic phenomena of the Later Han period is not as overwhelming as the persistence of this narrative may suggest. Many transmitted Later Han warnings of landownership concentration, and large-scale landowners and other wealthy people forcing peasants into debt and exploitative dependence relationships, have striking parallels in Former Han texts, even in those from the early decades of Han rule.¹² The imperial advisor Chao Cuo’s 晁錯 (d. 154 BCE) critical

⁹ Korolkov 2020.

¹⁰ For this and the subsequent quotations, see Korolkov 2020, 621–622.

¹¹ See, for instance, Nishijima 1986, 558–559; Hsu 1980, 55–56. Accordingly, von Glahn identifies the period after Emperor Wu and especially the Later Han period as the early phase of a longer era characterized by a “magnate society and the estate economy” (2016, title of ch. 4).

¹² Some archaeological evidence from the early Han period (such as a list of what seem to be surprisingly small landholdings on a seed loan roster as well as figures of servants, both from the Fenghuangshan tombs) has been interpreted in a similar way, i.e., as evidence for “growing concentration of landownership” and a “sharp polarization between rich and poor,” for a time period as early as the 160s–150s BCE. For this, von Glahn 2016, 108–112, with several references to

memorial from as early as 178 BCE is an obvious and well-known example of this type.¹³ Furthermore, the “almost wholly anecdotal”¹⁴ evidence on this matter has not been sufficiently corroborated by archaeological and epigraphic evidence. Even though individual pieces of evidence (such a landowner’s inscription from ca. 108 CE) suggest that Later Han landowners accumulated landed property partly by possessory loans (with the individual tenants’ households apparently remaining independent economic units), this neither mandates that this was a general characteristic of the Later Han era, nor must it be restricted to this particular period.¹⁵ Furthermore, there is some clear epigraphic evidence that indicates the contrary, i.e., the persistence of rural communities that consisted of independent farming households.¹⁶ Future research will show whether the existing narratives can be either verified, refuted, or specified – for instance, with regard to regional disparities. What is more, the results will then have to be put in a broader economic picture. This is not an easy task, since the uncertainties regarding the Later Han economy are even more striking when it comes to economic sectors beyond agriculture. Scholarly opinions range from the conviction of starkly declining urbanism and commercial activities because of antimercantile, pro-landowner policies, to flourishing commercial activities due to an ongoing retreat of restrictive government intervention.¹⁷ Here, too, a more conscious focus on potential regional varieties and their changes over time might sharpen our perspective on larger-scale processes and structures, before a step toward more holistic and dynamic models of the Later Han economy can be taken.

1.3 Basic Characteristics

Men and women working in the fields and on the production of grains such as millet, wheat, barley, and rice were the backbone of the Qin and Han empires’ economic functioning overall and their fiscal systems in particular. The farming population mostly included free peasants, tenants, and hired workers, but could also comprise slaves, conscripts, and convicts. Starting from the centuries before the imperial period, the surpluses these farmers produced provided an essential precondition for population growth, increased labor division, specialization in handicrafts, urbanization, and trade on local, regional, and supraregional scales. For the Former

additional research literature, in which scholars have provided a variety of differing interpretations of the excavated material.

¹³ *Hanshu* 24A.1132–1133, trans. Hsu 1980, 162.

¹⁴ Von Glahn 2016, 138.

¹⁵ On this inscription from Sichuan, see Xie 1974; Yamada 1993, 202–207; and the helpful summary in von Glahn 2016, 139.

¹⁶ Von Glahn 2016, 138, based on Ning 1982; Yamada 1993, 391–403.

¹⁷ See further sec. II below.

Han capital of Chang'an, transmitted registration figures report a population of roughly 250,000 inhabitants in 2 CE with regard to the city proper and 680,000 inhabitants when including its surrounding counties.¹⁸ Apart from the capital, some of the pre-imperial urban centers in the east as well as newly developed metropolises like Chengdu in the Sichuan Basin and the so-called 'tomb towns' in Guanzhong likewise were highly populous cities.¹⁹

The early Chinese empires furthermore witnessed a fairly high level of monetization. When the Qin united the former 'Warring States' under imperial rule in 221 BCE, the economies of all these polities had already undergone monetization processes, though at varying levels. Under Qin and especially Han rule, the use of coined money underwent a further dramatic increase in terms of circulating coin volume as well as sectoral and social distribution. In-coin transactions became prevalent in all kinds of economic activities, including taxation, private trade, lending activities, and payment of both state officials' salaries and private laborers' wages.²⁰ The accelerating monetization went hand in hand with a decrease in the importance of state redistribution and the growth of private markets. The awareness of these massive social and economic shifts has found a pointed expression in the Former Han historian Sima Qian's 司馬遷 (145 or 135–ca. 87 BCE) depiction of his own times, in which he equates particular amounts of in-kind and monetary wealth with the formerly decisive aristocratic ranks, suggesting the wealthy, including the nouveaux riches, to be the "untitled nobility" of the new age.²¹

Most likely, the sophisticated legal systems of this period also strongly affected economic activity. Excavated collections of imperial law, which seems to have reached a high level of standardization across imperial space, include fairly detailed regulations on private property rights, inheritance, and the alienability of certain goods, including the newly legalized purchase of land. Whereas some regulations are likely to have suppressed certain market dynamics, there are also many indications the legal system lowered transaction costs in many regards. Ongoing and future research in this field bears potential for generating a more thorough under-

18 *Hanshu* 28A.1543 gives the registered population of the area that included Chang'an proper and eleven counties in its environs as 195,702 households and 682,468 individuals. Among these, it is not quite clear how many people from the surrounding counties were actually living in rural living contexts. Chang'an proper alone reportedly had 80,800 registered households and 246,200 individuals. Certain groups of people that were not counted in (such as potentially slaves, most likely conscripts, and certainly other unregistered, 'illegal' city dwellers) would have to be added to these figures, even though it is impossible to tell their numbers. Brennan and Hsing 2010, 204, n. 72.

19 For instance, the registered population of Maoling 茂陵, the tomb town of Emperor Wu's mausoleum, reportedly comprised 277,277 people. See *Hanshu* 28A.1547.

20 On monetization, see further Leese-Messing, ch. 11, III, this volume.

21 See his "Memoirs of Money Makers," *Shiji* 129, trans. Watson 1993, 433–454; Nienhauser 2019, 261–307. On this chapter, see also Leese-Messing, vol. 1, ch. 12.A, 502–505.

standing of the impact of the early imperial legal system on economic transactions and long-term processes.²²

The question about the impact of law is closely connected with yet another, more general aspect that lies at the heart of many studies and models of the early imperial economy: the role of the state. There are good reasons for this emphasis. We know that the Qin and Han Empires maintained fairly extensive bureaucracies by ancient standards. And we also know that in contrast to the Roman Empire, the Qin and Han governments were very reluctant to entrust essential matters such as household registration and tax collection to people other than state agents. Their fiscal regime largely relied on a ‘wage contract’ system, in which tax collection was part of the defined duties of local officials who were paid a monthly salary by the state.²³ The state also had a strong hold on people’s labor by means of a system of both conscript and convict laborers, which was a key element of what has been described as a ‘command economy,’ especially with regard to the Qin Empire.

1.4 Source Biases

To a considerable extent, the emphasis on state activity also results from the nature of the available source material. Transmitted ancient texts, the dynastic histories above all, have an inherent focus on events and structures in which state activity – the central government most prominently – played a major role. These sources suggest a high level of state interference in economic matters, such as the central government’s introduction and long-lasting maintenance of a state monopoly on coinage, or public construction projects using up to tens of thousands of laborers conscripted by the state from the populace.²⁴ While these sources are not generally silent on other actors – remarks on ‘traders,’ ‘wealthy people,’ and ‘local magnates,’ for instance, abound in the transmitted texts – they most typically lack concrete information about how these people gained their wealth; how they organized liquidity, trade, and labor; and what roles social networks or other organizations played in the handling of these tasks.²⁵ It is beyond doubt that private actors, including members of both elite circles and people that might have formed something like a ‘middling class,’ must have been an essential driving force of the early imperial economy as consumers, business managers, network-builders, and financiers. But

²² For the impact of law on economic processes, see Leese-Messing, ch. 11, IV, this volume. For English translations and studies of major excavated collections of Qin and Han legal texts, see Hulsewé 1985; Barbieri-Low and Yates 2015; Lau and Staack 2016.

²³ On tax collection, see Leese-Messing, ch. 11, II, this volume.

²⁴ On the transmitted texts and their value for economic history, see Leese-Messing, vol. 1, ch. 12.A.

²⁵ Sima Qian’s depiction of ‘money markers,’ i.e. entrepreneurs and other people “whose goods increased,” in *Shiji* 129 is a well-known exception.

their involvement in essential economic activities is often only hinted at by our sources, which do not provide much concrete detail about either how processes functioned, or which background structures affected their economic behavior.

The huge number of ancient bamboo and wooden manuscripts that have been excavated during the last hundred years are justifiably credited with having revolutionized our way of thinking about early imperial history and economic history in particular.²⁶ Nevertheless, they share the most general bias associated with the long-known transmitted texts: They, too, largely evolved from contexts of state activity. Most of them are documents of state administration, and generally speaking, they support rather than subvert the impression that the state had its finger in every pie. The difference lies in the fact that most of them were produced in local – and particularly local frontier – contexts. They are not reflecting court debates, but rather local government institutions' practical dealings with the common population and private markets. As such, they offer glimpses not only into how central government policies were implemented on the ground, but also into the deviations from transmitted ideals, local peculiarities, and practical obstacles and failures that occurred. While confirming that state interference in local economic practices was indeed pervasive, they also indicate that its long-term outcome did not always correspond to initial goals. Leading us away from the overgeneralizing question of whether or not the state was a driving force of the early imperial economy, they push us toward the question of how specific elements of state activity may have intentionally and unintentionally served to further the development of certain economic changes, including the development of private markets and large-scale monetization. They also let us turn to the question of what role frontier zones may have played in the economic tides of the period, both with regard to the internal imperial economy and with regard to external exchange.

In addition to the source biases in the textual evidence, archaeological research has its own challenges. One problem is the interpretation of existing archaeological material. As a relic of long-standing scholarly traditions, Chinese archaeological findings are still too readily or even forcibly interpreted on the basis of transmitted text passages that seem to facilitate a classification and broader understanding of certain findings, but which in fact exclude other potential interpretations that the objects and their archaeological context would alternatively suggest by themselves. Another point concerns the bias created by disciplinary preferences. Archaeology in China is still characterized by a strong focus on elite tombs. This is understandable given the enormous finds coming from them on a regular basis. But for economic history in particular, this also goes along with a disproportionate underexposure of research beyond elite consumption patterns. Settlement archaeology is one

²⁶ On excavated texts and their contribution as evidence for economic history, see Ma, vol. 1, ch. 12.B.

of these underexplored fields with high, but largely hidden, potential of bringing to light many hitherto unknown or unclear aspects of economic life in early imperial China.²⁷

II The Dynamic Interplay of State Activity and Private Markets

There was no ‘either-or’ in the question about the economic impact of state activity and of private markets on the early imperial economy. It would be a misleading oversimplification to assume, as some historical narratives about ancient China seem to do, that phases of high state activity were necessarily correlated with low private market activity (since that activity was suppressed), and that these phases alternated with phases of withdrawn state activity and flourishing (intervention-free) markets. Rather, it was a dynamic interlocking of the two that brought about large-scale economic change. Many attempts at interfering in economic activities by the state in a so-called ‘dirigiste’ manner ultimately subserved the development of private markets and large-scale monetization. And looking from the opposite direction, many of the most interventionist measures that early imperial governments undertook would have been unthinkable without prior development of certain private market structures.

The current state of Sinological research is still far from providing a comprehensive picture of these dynamic interplays. Important new insights have recently been gained, however, with regard to our understanding of state-market reciprocation in certain spheres and during particular times. One example is Korolkov’s research on labor market developments during the early phase of the imperial era. A key element of the Qin regime’s ‘command economy’ was its reliance on direct labor mobilization. In the process of trying to reduce operational costs that had been increasing along with imperial growth, the Qin government started to make labor exploitation more flexible by allowing their unfree labor force to engage in private economic activities whenever their labor was not needed for state activities. Local governments could let them work as wage laborers in the private labor market, making them pay monetary fees in replacement of their labor obligations. They allowed private individuals to lease state convicts or, conversely, to sell their private slaves to be integrated into the convict labor force in times of high state demand. By this mechanism, local government agencies of the Qin regime’s ‘command economy’ came to play a considerable role in supplying and invigorating the private

²⁷ For a detailed discussion of the major biases involved in Chinese archaeological research, see Selbitschka 2018c.

labor market, thus building upon and further extending market-oriented developments.²⁸

The state's demand for and reliance on unfree labor decreased considerably during the Han period. It remained an important part of the system, however, for instance with regard to the use of hard-labor convicts in mining and construction.²⁹ In any case, the impact of the 'command economy' labor regime and its piecemeal monetization went far beyond Qin rule. The state's approach to labor, which included a rationalized, impersonal assignment of monetary values to people's labor times, provided "a conceptual and institutional framework for construing labor power as a tradable commodity."³⁰ This framework, along with the state's efforts at curbing forms of directly dependent labor such as private slavery and debt bondage, was likely conducive to the development of the private wage-labor market.³¹

As for interventionist state policies that relied on the functioning of preexisting private market structures, some of Emperor Wu's interventionist measures for state finance and socioeconomic control may serve as illustrative examples. For instance, the monopolies on iron and salt would not have been profitable for the state without previous, flourishing private commerce in these product sectors.³² Before Emperor Wu's time, salt and iron production had developed into highly lucrative businesses for private entrepreneurs. These actors had been building up structures of large-scale production – including the technology of blast furnaces that lent itself to mass production of iron – and the extensive markets for decades.³³ Without these preconditions, it is hard to imagine how Emperor Wu could have succeeded in his empire-wide establishment of iron and salt agencies that were soon to provide a major portion of the imperial budget, and to the financing of his expansionist wars in

28 Korolkov 2020, 410–411, 596–600. Nevertheless, the early imperial state and its judicial system remained skeptical about private wage laborers and migrant workers in particular, often associating them with criminal activities. See Korolkov 2020, 599–600; Ma 2017a.

29 On the use of convicts during the Han period, see Barbieri-Low 2007, 227–245. The excavations of two enormous Han-era graveyards that contained the bodies of 10,000 and 13,000 convict laborers, respectively, may serve as an illustrative indication of the latter's lasting importance. One of them was found next to the tomb complex of Emperor Jing 景 of the Former Han (r. 156–141 BCE), the other one was discovered near the Later Han capital of Luoyang and was in use approximately from 86 to 170 CE (Barbieri-Low 2007, 238).

30 Korolkov 2020, 424–425.

31 Korolkov stresses that other than the two factors mentioned above, state-driven demand for labor itself does not appear to have been an essential driver of the private labor market, as is indicated by the differences in wage dynamics between the fields of substitute labor on the one hand and general wages on the other. On the development of the private wage labor market during the Han period, see Shi 2014; 2012; Ma 2017a. Monetization processes are another good example for dynamic interplays between the activities of private markets and the state, on which see Leese-Messing, ch. 11, III, this volume.

32 On the salt monopsony and iron monopoly, see Leese-Messing, ch. 11, II.3.5, this volume.

33 On the technology of iron production during early imperial times, see further Leese-Messing, ch. 11, VII.2, this volume.

particular. Furthermore, certain Former Han policies of market and price regulation sought to build upon (rather than suppress) an existing system of private markets.³⁴

The question of the role of the state and private markets is more difficult to answer with regard to the remaining decades of the Former Han period after Emperor Wu's long rule, and even more so with regard to the Later Han period.³⁵ Generally, both are most commonly interpreted as periods of decreasing central state power. But views diverge on the degree of this decline and on the question of how it affected economic developments. Even with regard to major economic policies, many uncertainties remain. Some of Emperor Wu's interventionist measures were curtailed or given up, though in many cases, such as some commercial taxes, it is not clear for how long they remained in effect. As yet, it is hard to perceive a scholarly consensus on the long-term consequences that either Emperor Wu's measures or their partial withdrawal had on the development of the Han Empire's economy. One likely and potentially far-reaching development was that after the state and its monopolies had deprived private entrepreneurs of some of their most profitable business, investment into agriculture – including the purchase of land in particular – tended to increase.³⁶ Different opinions are to be found, however, on the question of whether this trend, along with other alleged effects of certain policies and events (such as Wang Mang's 王莽 interregnum, 9–23 CE, which included a failed currency reform), resulted in the long-term debilitation of commercial activities in general.

Different scholars offer strongly divergent pictures of the world of commerce during Later Han times. Some interpret the Later Han period as an era of an “increasingly emaciated urban and commercial economy” and a “withering of the money economy,” partly involving large-scale drainage of Han gold to Central Asia, while others suggest not a contraction, but a “reorientation of commercial activity away from major urban centers to local markets.”³⁷ Yet another view suggests that a “retreat of stringent state controls over production, distribution, marketing, and consumption” in fact invigorated private commercial activities during the Later Han

34 See sec. IV.2 below.

35 One of the issues behind this problem is that some of the most prominent and enlightening historical sources for the economy of the Former Han period (such as the economic chapters of the *Shiji* and *Hanshu*, and the *Yantie lun*) have no Later Han equivalents. The standard dynastic history of the Later Han dynasty (the *Hou Hanshu*) furthermore has a more complex textual history than its predecessors, with the time gap between events and compilation being much larger. Information on economic activities and trends of the period are, therefore, much more scattered over many different sources and contexts, and more difficult to interpret.

36 Von Glahn 2016, 152–153.

37 Von Glahn 2016, 153, referencing Yamada 2000, 133–135, 143–222 for the former view, and Tada 1965; Shigechika 1990, and Kamiya 1994 for the latter view. Kamiya further suggests that flourishing rural markets of the Later Han period were at the same time strictly controlled by state officials. One reason for some scholars to think that the importance of urban markets decreased is that there are some indications for several major cities to have decreased in size and population over the course of the Han period. On this point, see further sec. III.3 below.

period.³⁸ According to this view, one striking symptom of the state's loosening grip on the empire's economy was that "commercial advertising" featuring "aggressive marketing techniques" evolved as a new phenomenon in Later Han commercial activity. Here, the Later Han period is interpreted as a time in which "as the state fell apart, the market flourished." These examples offer a small glimpse into the enormous variety of views. Future research still has a long way to go to solve these major problems of interpretation in order to draw a more coherent picture of the Later Han economic world and its relation to state activity.

III Consumption as a Driving Force

III.1 The Role of State Demand

III.1.1 State Demand and the Invigoration of Major Economic Processes

There were three basic means by which early imperial state institutions could acquire goods: By forcing their subjects to provide them (i.e., taxation), by producing them themselves (e.g., in state-owned workshops), and by purchasing them via market structures. The latter could invigorate private markets for certain products in a very direct way. But indirectly, the other two, and taxation in particular, also bore this potential.

Tax grain was one of the three major supporting legs of the state's fiscal budget. It was needed to provide the in-kind portions of state functionaries' salaries, to feed convicts, conscript laborers, and soldiers, and to build up stocks for famine relief. The way in which grain was levied had important economic implications on its own. By all appearances, the early imperial 'land tax' came to be collected as a fixed input tax. The size and officially determined quality grade of a piece of land determined the annual tax to be paid. For the state, this meant a more predictable income, while for the landowner, it made investment into their land more attractive than in the case of a variable output tax. On the other hand, this form of levy lay the risk of crop failure on the taxpayers' shoulders. In years of bad or even just mediocre yields, this must have had devastating ramifications especially for small independent farming households that were unable to build up reserves. This made them vulnerable to loss of property or loss of independence as farmers, and likely to the need to turn toward other, nonagricultural means to make their living.³⁹

³⁸ For these and the subsequent quotations, see Barbieri-Low 2007, 152. The hypothesis of declining commercial activity during Later Han times had already been put into question by Ebrey 1986b, 612.

³⁹ See also Leese-Messing, ch. 6, V.1, and ch. 11, II.2.1, this volume.

In general, the Han state lived off an imperial tax base that was considerably broader than during Qin times, especially in a geographic sense. This also meant that long-distance transport of grain rose in importance. But even for the Qin era, new evidence suggests that the scale of grain transport across the empire was much larger than scholars had presumed.⁴⁰ In order to make this possible, huge construction projects to improve riverine navigability – by the construction of canals, for instance – were undertaken during both Qin and Han times.⁴¹ Both the scale of these imperial projects, some of which demanded tens of thousands of workers, and the length of transport routes they rendered possible, certainly outdid pre-imperial predecessors. After these preconditions had been laid, the whole system of collection, transport, and storage across the empire demanded sophisticated logistics, including people who managed transport and storage, but also the production of vehicles such as ships for riverine transport, and of storage facilities. We know from many textual documents that the logistical tasks were undertaken by central and local state officials on the basis of statutes of imperial law.⁴² We know much less about the aspect of production, for instance the people and networks involved in building ships or vast granaries, and their economic relationships with state institutions. In any case, it is obvious that the rising demand in long-distance grain transport must have stimulated certain manufacturing branches, including shipbuilding, wood production in general, and carpentry.

The other two main forms of taxation also bore some central economic implications. One of them is forced labor. Some of its impact on private markets has already been mentioned above. The other is in-coin taxation. The first steps taken to monetize the fiscal system were introduced under Qin rule, and strongly expanded during Han times. By demanding more in-coin taxes such as a poll tax, the Han state forced their taxpayers to engage in some form of commercial transaction to earn coined money. The most obvious means for a farming household to achieve this would have been either to sell part of their produce, be it crops, processed foodstuffs, textiles, or anything else they had been able to produce beyond their subsistence needs, or to sell their labor. This change in the state's fiscal demands was one of the most crucial factors in the process of accelerating monetization and commercial activity across the whole social spectrum.⁴³

Beyond taxing the population, state institutions both engaged in massive production themselves and regularly purchased a range of goods on the market. Large-scale production in state-owned workshops is well documented in the textual and archaeological record for military weapons and luxury products such as lacquer-

⁴⁰ On this point, further see sec. IV.4 below.

⁴¹ On these infrastructural investments, see Leese-Messing, ch. 11, VI, this volume, and Leese-Messing, vol. 1, ch. 12.A, 505–508.

⁴² On this, see also sec. IV.4 below.

⁴³ On the monetization of the fiscal system, see further Leese-Messing, ch. 11, II, this volume.

ware, bronze items, and luxury textiles. All of the latter played an important role in court consumption and imperial gift-giving, which sustained networks both inside the empire and across its borders.⁴⁴ In many cases, it remains unclear in which ways and to what extent state production of particular items or the acquisition of raw materials was supplemented by purchases from private markets. But from as early as Qin times on, it is obvious that state institutions did purchase certain goods on the private market. In increasing amounts and ranges, they bought products both to meet the local needs of the agency (such as food or clothes for convicts) and for further upward distribution. The latter concerned, for example, local tribute goods that were demanded by central authorities and that local agencies were not always capable of producing or collecting themselves.⁴⁵

One branch in which both state production and purchases played an important role was textile production. The state had a high demand for textiles because it needed to provide clothing for both its convicts and conscripted servicemen as well as for luxury textiles such as silk and exquisite embroidery, which were consumed at court and used as intra-imperial gifts and diplomatic exports.⁴⁶ Quite certainly, these demands made the state both the largest producer and the largest buyer in the textile market. Evidence from the Qin period shows that even then local productivity often did not meet local governments' demands, so that they needed to import textiles from other regions, thereby stimulating trade above a local level.⁴⁷ But again, we have hardly any evidence for the production and even less on the retail structures or trading networks that lay behind these regular state purchases. What we can be quite sure about on the basis of textual evidence is that the majority of primary textile producers were women. But even with regard to those women who worked for state-owned textile production centers that reportedly employed thousands of female workers, it is unclear whether they mostly worked in small workshops or factory-like production facilities, or whether they were rather working for state institutions from home, in a kind of domestic putting-out system.⁴⁸ We know

44 For the example of imperial lacquer products, their production, and distribution, see Leese-Messing, vol. 1, ch. 12.C.

45 In the case of Qin-era Qianling, for instance, the local government bought large amounts of bird feathers for local arrow production and for tribute payments to the center. Korolkov 2020, 590–591.

46 High officials (ranked at “fully 2,000 bushels”) reportedly could be awarded gifts in cash and silk that amounted to 115,000 coins (Nylan 2015b, 125, n. 55). For the massive export of silk as diplomatic gifts to the Xiongnu, see for instance Yü 1967, 47–48.

47 Korolkov 2020, 613.

48 Barbieri-Low briefly mentions that “it cannot be determined whether production was centralized in large factory-like buildings, or whether the weaving and embroidery were farmed out to women working in their own homes” (2007, 110). Domestic putting-out systems are commonly discussed in the context of European cloth production from the fifteenth century onward, but have also been proposed for textile production in ancient India. For the latter, see Baishya 1997. Some text passages indicate, however, that a state workshop for brocade production in Shu (Sichuan) may have taken the form of a walled industrial village (Wagner 2001, 38; Shu jin shihua bianxie zu

even less about how and with the help of which networks women sold their privately produced cloth or clothing.

The traditionalist ideals for women, which came to be promulgated especially from the late Former Han period onward, confined their activities to their roles as wives, mothers, and daughters-in-law within their conjugal households. Their economic role was supposed to be limited to weaving simple, unembroidered clothes for their household's subsistence needs, sealed off from any commercial activity. The insistent promulgation of these ideals is, however, best seen as a reaction to a historical reality in which women's economic activities and household roles were in fact quite different – a reality in which many women played a considerable role in making money for their households as industrial workers and traders. Several texts from the Former Han period, including historical accounts and mathematical handbooks, clearly indicate a great interest in quantifying and maximizing the productivity of female work – which they typically associate with textile production.⁴⁹ Certainly, these textiles were not only produced for state consumption, but also for expanding private markets.⁵⁰ Nevertheless, with the state most likely being the largest cloth consumer, its demand for textiles must be taken into account as a strong promoter of the textile market in general and of large-scale female employment in particular (including its exploitative potentials), in both state-run and private production units.

III.2 Elite and Middling Groups' Consumption

III.2.1 Elite Consumption

The role of both imperial and local elites in the early imperial economy was largely marked by their high capacity to consume and the dynamics of consumption that occurred between different elite subgroups, i.e., between elite circles of differing wealth, between central and local elites, or between large-scale mercantile and predominantly landowning elite members. One factor that chiefly defined the consumer behavior of the imperial elite was the increased role that sheer wealth played in the formation of the new elites that came to supersede the old aristocracy in the

1979, 13–14, 83–85). And there seem to have existed government-owned textile workshops in Chang'an. For summaries of what we know about textile production facilities from transmitted texts, see Barbieri-Low 2001, 61–65, 87–89. Different forms of labor management and according facilities may, of course, have existed side by side. They may also have been subject to regional varieties.

⁴⁹ Chin 2014, 24, 193–199.

⁵⁰ Han texts sometimes refer to people of relatively low social status consuming silk products and present this as a recent phenomenon. See, for instance, the two quotes presented in the following section.

course of the late pre-imperial and beginning imperial era. Extended private property rights and increased opportunities for social mobility during the early imperial period contributed to more diverse elite circles and a more dynamic role of conspicuous consumption. Accordingly, early imperial texts clearly testify to the important role of various emulation processes as they frequently point toward competitive consumption among different elite groups that ultimately also percolated into lower strata's consumer behavior. Consumption patterns of imperial and local elites are treated in more detail in another chapter in this volume.⁵¹ The following section therefore focuses on consumption below these higher elite circles.

III.2.2 Middling Groups' Consumption

Whereas the consumption of imperial as well as local elites has often been treated in scholarship, the potential economic role of intermediate socioeconomic groups as consumers has not yet been extensively and systematically taken into account.⁵² Since shifts in these broader social layers are likely to have had a particularly wide-ranging and dynamic influence on demand patterns, it is on these intermediate groups that this section shall focus. What one would be looking for in this regard is an expanded group or class of people whose economic means ranged far below those of the higher central and local elites, but who nevertheless had a capacity for consumption observably above subsistence level.⁵³

Transmitted texts occasionally refer to a layer of 'middling families' (*zhong jia* 中家) situated between so-called 'great families' (*da jia* 大家) and 'poor families' (*pin jia* 貧家), with the latter term indicating that the differentiation also was made on economic grounds. Some scholars have tried to offer estimated quantifications for the wealth of these groups, but the evidence appears too scattered and the parameters too diverse as to allow for any meaningful conclusions. The suggestion that "perhaps half of the total population" of the Han Empire belonged to "middle-income families" possessing "100 *mu* of land, moveable assets worth 5,000 to 15,000 coins, and perhaps one or two slaves as well," with their total wealth valuing at 20,000–40,000 coins (in contrast to less than 5,000 coins in the case of poor

⁵¹ Leese-Messing, ch. 6, II and III, this volume.

⁵² One of the most explicit statements about the relevance of a rising 'middling class' in ancient China are found in Smith 2018, 310–311, even though her short excursus on ancient China – including pre-imperial times – are written with a very broad brush and have to be taken with caution.

⁵³ Questions of definition and demarcation, especially between 'intermediary' and 'elite' groups, are necessarily provoked by this approach, and so are problems of scale and quantification. Neither of these can be adequately resolved at this point. It appears, nevertheless, worthwhile to consider both textual and archaeological evidence that bears the potential of getting us a little closer to the economic phenomena in question.

families) can hardly be attested by the available evidence.⁵⁴ Neither would it be very plausible, considering that such figures – 50 percent of the population owning 4 to 8 times as much as those living around a subsistence level, which would be most of the remaining 50 percent – would be highly unusual for an ancient society. A recent estimate for ancient Roman society, for instance, suggests that its ‘middling’ sector, defined by “a real income of between 2.4 and 10 times ‘bare bones’ subsistence” may have constituted 6–12 percent of the total population, while most of the rest (around 90 percent) would have been living “close to subsistence level.”⁵⁵

Searching for qualitative rather than quantitative information, a purposeful reading of transmitted texts of the Han period quickly reveals that consumer behavior among those of relatively low social rank and limited economic means was indeed a topic of vigorous debate. The *Discourses on Salt and Iron* (*Yantie lun* 鹽鐵論) from the first century BCE, for instance, provides many illustrative indications thereof, such as the following statement by the so-called ‘worthies’:

The common people use fancy goblets, painted trays, tabourets and mats, and well seamed and doubled garments. The serving wenches sport colored silk dresses and satin sandals, the plebeian has hulled rice and meat on his fare. Every ward (*li* 里)⁵⁶ has its customs, every clique has its sacrificial ground.⁵⁷ Spirited races [take place] on country highways and football games in beggars’ alleys. Too few are those who grasp the plough and clutch the shuttle and personally engage in farming and weaving and too numerous those who squeeze their waists and studiously paint their faces with white powder and black pencil. Paupers play the part of opulence and the destitute boast extravagantly, with gay coats without lining, silk breeches over hemp cloth underwear, elaborate funeral corteges for the dead, while the living are not properly fed, patrimonies are wasted to provide sumptuous funerals, dowries by the cartloads for marrying daughters. The rich strive to surpass one another, the poor, to catch up with the rich, the former depleting their substance, the latter incurring debts.

常民文杯畫案，机席緝钱，婢妾衣紵履絲，匹庶稗飯肉食，里有俗，黨有場，康莊馳逐，窮巷蹣跚，秉耒抱舌，躬耕身織者寡，聚要斂容、傅白黛青者眾。無而為有，貧而強夸，文表無裏，紵芑泉裝，生不養，死厚送，葬死殫家，遣女滿車，富者欲過，貧者欲及，富者空減，貧者稱貸。⁵⁸

54 Cf. von Glahn 2016, 136, with reference to Watanabe 1986, 20–21, 26; Ōkushi 1985, 1188.

55 Scheidel and Friesen 2009, 84–85.

56 Gale translates *li* as ‘village.’ I changed it to ‘ward’ because *li* was used in the context of both rural and urban administrative units. On the ambiguity of *li*, see also sec. III.3 below.

57 The sentence contains several difficult-to-translate terms. *Su* 俗 (translated above as ‘custom’) could possibly also mean ‘style’ or ‘fashion’ (which was Gale’s choice). *Chang* 場 has a broad range of meanings, including ‘sacrificial ground’ (as in my translation above), ‘threshing ground,’ ‘garden,’ and even ‘market’ or ‘market stall.’ It is hard to decide what is meant here. Neither is it clear what exactly is meant by *dang* 黨 (clique, faction, kinship group?) in this context. In any case, Gale’s translation of the latter part (“factions in every association”) does not seem comprehensible.

58 *Yantie lun jiaozhu* 28.334–335, trans. Gale 1967, 203 (with modifications).

One has to be cautious not to over-interpret ancient Chinese sources when they speak of the ‘common people’ (here: *chang min* 常民). In many contexts, ‘common people’ could simply mean ‘people without aristocratic rank,’ and these were not necessarily poor. This passage, however, quite clearly also refers to people characterized by distinctly limited economic means, who yet engaged in consumption-based competition. It also mentions many fields of consumption in which these people engaged, such as furniture, clothing, food, leisure games, makeup, dowries, and funerals. It further associates this consumptive trend with people’s decreasing interest in farming and weaving activities, the so-called ‘root occupations’ (*ben ye* 本業). This, again, indirectly associates these consumption patterns with people (newly) engaging in the ‘branch occupations’ (*mo ye* 末業) such as trade and craft. Finally, the passage also links these consumption habits with the phenomenon of poor people incurring debts.

Filtering out the critical stance from this depiction, the basic picture it conveys is of a society in which groups of people with fairly limited economic means contributed to a thriving world of commerce. If it is true, as the ‘worthies’ seem to imply, that the extent of this phenomenon – which certainly was not entirely new – was increasing during the Former Han period, the markets for the goods in question must have been expanding. The perception of a strongly expanding consumption of ‘bulk luxuries,’ for instance, can be clearly recognized in their following statement about social shifts in the consumption of textiles:

In olden times, commoners only wore silk once they were elderly, while all the rest just wore just hemp. [...] Patterned silks and fine textiles were not sold in the marketplace. But nowadays, the rich wear lavishly embroidered silk-gauze, while those of middling [wealth] wear plain silk and brocades. The common people cover themselves in clothes suited for imperial consorts and concubines.

古者，庶人耄老而後衣絲，其餘則麻枲而已 [...] 文繒薄織，不粥於市。今富者縵繡羅紈，中者素緋冰錦。常民而被后妃之服。⁵⁹

Certainly, one must be careful about the idealization that is typically at play in such comparisons between the grim present and an allegedly much better past. It is nevertheless to be assumed that the experience of a real – recent or ongoing – change in consumption habits did play a crucial part in provoking such statements. Expanding markets of textiles and other products would have created potential for new economic niches that could employ an increasing number of specialized producers and customized goods that suited both the demands and the spending capacity of middling socioeconomic actors. Some of the archaeological evidence for customizable, modular craft products – a certain form of ‘production-on-stock’⁶⁰ –

⁵⁹ *Yantie lun jiaozhu* 29.350.

⁶⁰ For a discussion of production-on-stock practices in the context of the production of ancient Roman sarcophagi, see Russell 2013, 293–307.

may be interpreted as an illustrative indicator of this. As a particularly impressive example, rear walls of many stone offering halls in Shandong from the Later Han period have been shown to bear versions of what seems to be a homage scene to a deceased man, the upper part of which typically shows mourning females. While the style of this scene is so similar in the different versions that they have been suggested to have likely been produced in a single workshop, the number of females portrayed in them varies from one to six. Most likely, the mourning females represent the wife and, if applicable, one to five concubines of the deceased. Barbieri-Low convincingly suggests that “the stone carvers anticipated this variable situation and prefabricated at least six versions of the homage scene” so that the patron, when placing an order, could simply “specify the number of widows, and the appropriate, already-completed stone would be pulled from the stock.”⁶¹ Assuming that the number of concubines (in addition to his wife) was at least to a certain extent related to the patron’s level of wealth and social standing, the modular widow scene could therefore be interpreted as an illustrative example of craft producers adapting to the consumption patterns of customers belonging to varying socioeconomic levels below higher elite circles.

The group of low-ranking officials may be the group of people most readily identified as an intermediate socioeconomic group, simply because we have abundant information about them from both textual and archaeological evidence. Of the approximately 130,000 officials that the Han state reportedly came to employ,⁶² the large majority must have been low-ranking state functionaries such as scribes. Their salaries set them apart from the largest mass of people, who were likely living around a subsistence level.⁶³ Yet they were far from being reckoned as ‘wealthy’ from the perspective of higher elite circles. There is ample evidence showing that this differentiation is by no means a purely ‘artificial,’ modern one. The explicit differentiation between ‘high ministers’ (*gong qing* 公卿) or ‘grand servants’ (*da chen* 大臣) on the one hand and ‘petty officials’ (*li* 吏 or *xiaoli* 小吏) on the other, for instance, commonly features in transmitted texts. A couple of tombs that could quite clearly be identified as Qin and Han scribes’ tombs are interesting indicators of funerary consumption patterns of the latter socioeconomic group. Apart from written documents (such as administrative or legal texts) and writing utensils – the combination of which have been central to the identification of the tombs as those

⁶¹ Barbieri-Low 2007, 94, 96 (with the latter page providing pictures of stone-rubbings of several Shandong versions of the homage scene).

⁶² The transmitted figure is for 5 BCE, with estimates for the Later Han period being even higher. On the figures, see Leese-Messing, vol. 1, ch. 4, 150.

⁶³ This large mass of the ancient population is hardly visible at all hitherto in the archaeological record. Not many of their tombs have been excavated, except for cases in which they were buried in state-related contexts, such as in the case of the mass graveyards of convict laborers, which have been found from Qin, Former Han, and Later Han times. For a summary of these findings, see Barbieri-Low 2007, 237–241.

of scribes – their tomb inventories typically also included items of everyday use, such as pieces of furniture, lacquer tableware, pottery, as well as distinctive funerary objects, such as figurines and miniature models of houses.⁶⁴ The majority of these items are likely to have been products of private craftsmanship, either privately purchased by the tomb owner and his family or obtained as pre- or postmortem gifts. The scribal profession entered the imperial era as a hereditary one, but non-hereditary aspirants joined officialdom in increasing numbers along with the growing imperial administrative demand.⁶⁵ It is therefore to be assumed that the larger group of low-ranking, salaried state officials in general must be taken into account as one – probably growing – group of people that supported the growth of markets for production and trade of crafts products of various kinds.

Officials are not the only group of people to be considered, however. One would have to assume, that in addition to middling farmers, a considerable number of small-scale craft producers and traders also were able to expand their businesses and turnovers to a scale that enabled them to form another growing ‘middling’ consumer group. After all, Sima Qian explicitly suggested that turning toward handicrafts or, even better, trade, bore the most promising potentials for people who wanted to “work their way up from poverty to riches” (*yong qiong qiu fu* 用貧求富).⁶⁶ Even though their role as consumers is less visible in the textual and especially the archaeological record than in the case of state functionaries, sporadic remarks, such as ones concerning female market stall keepers in Chang’an, who acted more lavishly than noble women of ancient times,⁶⁷ strongly point toward this direction.

To summarize, the scattered evidence strongly suggests that the society of early imperial China involved different kinds of socioeconomic groups with limited consumption capacities that nevertheless ranged above a subsistence level. Even taken together, these groups may have made up but a small percentage of the whole population. Their collective capacity to consume and invigorate economic processes can therefore by no means compare in scale with what has been discussed with regard to the consumerism of so-called ‘middling classes’ of the modern age. Nevertheless, it is to be assumed that the different ancient middling groups were expanding at least over decades or even over centuries in the early imperial period. This increase alone, even if moderate, would have made them an important driving force of the early imperial economy, especially with regard to the development of specialized crafts and trade, and of the urbanization processes that went along with the latter.

⁶⁴ Selbitschka 2018a, 465.

⁶⁵ On the gradual opening of the scribal profession, see Ma 2017b.

⁶⁶ *Shiji* 129.3274, trans. Watson 1993, 449 (with modification).

⁶⁷ See Ban Gu’s “Rhapsody on the Western Capital” (*Xidu fu* 西都賦) in *Wenxuan* 1.5, trans. Knechtges 1982, 105; also transmitted in *Hou Hanshu* 40A.1336.

III.3 Urban Consumption

The role of cities as places of consumption is not as clearly and directly perceptible in the historical and archaeological sources of early imperial China as it is in the case of the Roman Empire, for instance. Several factors may account for this. As for the archeological evidence, the relative underdevelopment of settlement archaeology in China, deep sediment layers, later overbuilding, and the lesser durability of typical ancient building materials – mostly wood and earth (i.e., mudbrick, wattle and daub, and rammed earth) instead of stone or concrete – have contributed to the fact that ancient Chinese cities are far less visible both to today’s tourists and to historical experts.⁶⁸ Even for cities such as Chang’an, which was among the world’s largest cities of its day and is not overbuilt by a modern city, archaeological evidence is surprisingly limited. There is not much to be seen apart from the outlines of city walls, of palace buildings,⁶⁹ of two large walled neighboring marketplaces,⁷⁰ and of an arsenal. These are supplemented by some interesting finds of objects, including remains from water conduits of the city’s drainage system,⁷¹ from central (probably state-owned) workshops,⁷² and tens of thousands of inventory labels for imperially produced products (including weapons and objects of daily use). While these may provide some interesting clues for the supply of the imperial palaces, they do not tell us much about the urban life and consumption habits of other urban residents.

Another likely factor accounting for the relative invisibility of urbanity and related consumption habits is that the idea and practice of cities as *polis*-like forms of sociopolitical organization never gained ground in early imperial China.⁷³ Probably as a result of this, early imperial elites do not seem to have centrally identified (or at least presented) themselves on the grounds of their urban lifestyle in general, nor their affiliation to a specific town or city in particular. In transmitted texts, elites are often presented in rather rural contexts, while their roles in urban life – and

⁶⁸ Pirazzoli-t’Serstevens 2010, 169, 177, 184.

⁶⁹ The palace buildings Chang’an occupied two-thirds of the space within the city walls. Pirazzoli-t’Serstevens 2010, 174, with figure 5.2 showing an outline map of Chang’an.

⁷⁰ On the evidence from Chang’an and other places on Han marketplaces, see sec. IV.2 below.

⁷¹ On the drainage system, see Nylan 2015b, 106–108.

⁷² These included 21 potters’ kilns producing funerary figurines, a workshop for minting coins, and an iron foundry. On the surprising evidence for Han iron foundries including blast furnaces to be typically located inside the town walls or just outside them, see Wagner 2001, 37–38, 64–65. On the use of blast furnace technology, see also Leese-Messing, ch. 11, VII.2, this volume.

⁷³ Autonomous city-states did exist in the Spring and Autumn period, but both their autonomy and their legal and administrative distinction of their inhabitants from the rural population dissolved when they were absorbed by larger territorial states. Lewis 2006, 150. In a study on later imperial periods, Mote (1977, 101–105) once spoke of the absence in imperial China of a “self-identifying and self-perpetuating urban elite,” which meant that “the rural component” rather than the urban component “defined the Chinese way of life.”

in urban economic life in particular – remain quite obscure. In a similar way, the representations of elite lifestyle found in tombs typically depict scenes with an obviously rural background, as well as building complexes that cannot be identified as either urban or rural.⁷⁴ It has been suggested that one of the distinctive features of the early imperial period was that it had “no distinctive urban culture defined by distinctive commodities and entertainment.”⁷⁵

While it seems as though cities were typically characterized by a clear division between a politico-administrative, residential, and economic (market) sections,⁷⁶ little is known about where exactly and under which conditions people of all kinds of socioeconomic backgrounds were living and working in the urban centers,⁷⁷ and with the help of which structures they were supplied with food and other essentials such as fuel and building materials. The estimated percentage of registered Chang’an residents (about 250,000 in 2 CE) that lived within the city walls varies widely,⁷⁸ and whether those living outside the city walls, if they existed, were living

74 Pirazzoli-t’Serstevens 2010, 180, 182; Ebrey 1986b, 642–644. For a collection of pictorial representations, see Finsterbusch 1966–2004. Not all items typically found in elite tomb contexts necessarily have to suggest a rural self-presentation only because their rural contexts. For instance, miniature models of farm animals, usually in pairs, as well as grain seeds with the explicit use for seeding were buried with the tomb occupant as an infinite supply of food for the latter in the afterworld (Selbitschka 2018b, 229–231). Being equipped with enough food would have been regarded equally important for people that lived in and/or identified with an urban lifestyle as it was for those who lived in and/or identified with a rural lifestyle.

75 Lewis 2015a, 282. In a similar vein, Pirazzoli-t’Serstevens stresses the “persistent political character” of Han towns (and their successors), which were characterized by “a noticeable lack, apart from the walled markets, of public edifices and squares or other places where people could congregate. Han Chang’an, to take but the best-known example, contained no equivalent to a forum, an amphitheatre or a theatre, no hippodromes or gymnasia or public baths” (2010, 185).

76 For this division of cities, which started during the Warring States period, see Lewis 2006, 152–153; Pirazzoli-t’Serstevens 2010, 185.

77 Texts often speak of walled residential wards with gates, but the inner structures of these remain largely unclear. The meticulous collection of information on the residential wards of Chang’an presented by Zhang 2015 is an illuminating illustration of the scarcity of evidence we have on this matter. Scholarly statements about the location, size, and structure of residential areas, wards, and individual urban residences are largely founded on guesswork and calculations from scattered, context-poor, and conflicting figures from ancient texts, including the poetic genre. Archaeological excavations at ancient Luoyang and its immediate surroundings have brought to light individual housing foundations measuring around 25 sq. m with the whole residential plots, including courtyards and alleys, measuring 70–80 sq. m (Pirazzoli-t’Serstevens 2010, 180; Zhou 2001, 122), but it is hard to draw general conclusions from these findings. Zhang himself finds it “somewhat discouraging to think how little we know about how life was lived in the Chang’an residential wards” (2015, 191). A more general notion about Chang’an, which is probably true especially in comparison to more naturally grown cities such as Rome, is that of a “city of walls” with an “orderly grid” structure (Brennan and Hsing 2010, 203). Wang 2012 further describes Chang’an as a city of very much restricted public space, while suggesting that this was considerably less the case in other cities such as the nearby and populous tomb towns and the Later Han capital, Luoyang.

78 For examples of varying estimates, see Pirazzoli-t’Serstevens 2010, 177; Zhang 2015.

in an urban surrounding or were living from agriculture is by no means clear. Neither can it be ruled out that a considerable number of city dwellers were actually commuting from the surrounding rural areas where their families were able to produce food self-sufficiently,⁷⁹ even though it is beyond doubt that at least in Chang'an and in the larger region of Guanzhong, much of the urban grain consumption relied on impersonal distribution mechanisms, including those operating on a long-distance level.⁸⁰

Furthermore, as a consequence of contemporaneous administrative terminology, textual references to city names as places of certain incidents, activities, or phenomena are often ambiguous with regard to the question if they are referring to the 'urban' part of the city proper or to the whole county, which would include the surrounding rural areas. In a Later Han critique of urbanization, for instance, we read the following assertion, which clearly shows that a reference to a city by its name could also include areas of agricultural use:

Now if you examine [the later Han capital] Luoyang, [you will find that] people living on the branch occupations count ten times as many as farmers, and idle pretenders count ten times as many as those from the branch occupations."

今察洛陽，資末業者什於農夫，虛偽游手什於末業。⁸¹

This ambivalence or lack of clear-cut discrimination between rural and urban spaces also applies to the terminology of lower administrative units: If a text speaks of a *li* 里, it is not *per se* clear if this refers to a rural 'village' or 'hamlet' (which are the most common English translations) or an urban residential 'ward.'⁸² As a matter of course, this ambivalence often makes it harder to discern the context of a certain reported event or behavior as 'rural' or 'urban.'

On the other hand, many passages in transmitted texts such as the one just quoted – in both urbanization-skeptical and urbanization-friendly contexts – typically do associate cities with trade and crafts (the so-called 'branch occupations'), vibrant marketplaces, and the pursuit of individual profit. We also know that in several large regions of the Qin and Han Empires, the network of towns and cities was quite dense. In the eastern part of the empire in the lower Yellow River valley,

⁷⁹ Household registration data for Chang'an report the urban households there to have been smaller (ca. 3 persons/household) than the average (ca. 4.5 persons/household). See Nylan 2015a, 26; Loewe 2015, 213. If these figures correspond with contemporary realities, one potential explanation would be that many urban residents were living in the cities without their families, and maybe not permanently.

⁸⁰ On the massive transport of grain to the Former Han capital area from different regions of the empire, see sec. IV.4 below.

⁸¹ *Hanshu* 49.1633, citing Wang Fu 王符 (ca. 82–167 CE).

⁸² Note that the title of the abovementioned article on residential wards (Zhang 2015) wrongly gives the Chinese character 理 instead of 里 for *li* (with only the latter meaning 'ward' or 'village' and the former having a different meaning).

a dense urban network existed as a legacy of the pre-imperial period,⁸³ whereas in the Guanzhong region in the west, the political center of the Qin and Former Han dynasties, a new network of highly populous cities was created by the state-orchestrated establishment of tomb towns around the Han capital of Chang'an.⁸⁴ The awareness of the economic importance of cities as places of interconnectivity, commerce, and also skilled nonmanual work, in contrast to rural areas, is fully evident in statements such as the following:

[That all these towns] came to be the most famous municipalities of all-under-heaven is not because someone helped them to cultivate their countryside and till their fields, but because they are situated on the intersecting routes of the five feudal states [of pre-imperial times] and sit astride the network of highways. In other words, where products abound, people will multiply; when a house is near the market, its family will get rich. Getting rich depends on methods and calculations, not on hard manual labor; profits depend on being at the right place at the right time, not on strenuous farming.

[...] 為天下名都，非有助之耕其野而田其地者也，居五諸之衝，跨街衢之路也。故物豐者民衍，宅近市者家富。富在術數，不在勞身；利在勢居，不在力耕也。⁸⁵

Many of the economic niches that rose along with increasing middling consumption could only have grown in places where a high enough number of customers either lived or at least regularly passed by. In early imperial China, only towns and cities could provide for such preconditions.⁸⁶ Only they offered systematic opportunities for being 'at the right place at the right time.'

Furthermore, in contrast to the structures and buildings of ancient cities themselves, other quasi-urban constructions are much more visible in the archaeological record. The tombs of both lowly local officials and local elites are typically found

83 The cities of the Warring States period in and around the flood plain of the Yellow River, which came to be part of larger territorial states, developed out of several hundreds of city-states of the Spring and Autumn period. Back then, they are assumed to typically have had a population of thousands up to tens of thousands of inhabitants and an average distance of about 55 to 60 miles (around 90 km) between each other. During the Warring States period, many of these came to have several tens of thousands of households, which would have meant that cities of around 100,000 inhabitants were no rare exceptions (Lewis 2006, 139, 151). Utsonomiya 1955, 112–117 identifies over twenty major Former Han cities with estimated population figures between 30,000 and 100,000 inhabitants. See also von Glahn 2016, 151, with an according map of the major cities (not showing the tomb towns, on which see the following).

84 By the early first century CE, Maoling 茂陵, the tomb town for Emperor Wu's mausoleum, had a registered population of 277,277 (i.e., even slightly higher than Chang'an itself), and the population of Changling 長陵, tomb town for the mausoleum of the Han founding emperor Gaozu 高祖 (r. 202–195 BCE), comprised 179,469 people. *Hanshu* 28A.1543–1548. For a map of showing the location of the mausoleums, see Lewis 2007, 96.

85 *Yantie lun jiaozhu* 3.41; Gale 1967, 18 (with modifications).

86 The availability of marketplaces was not confined to larger towns and cities, however, but was also true of many smaller towns. On this point, see sec. IV.2 below.

in the surroundings of the ancient towns, from where their burial mounds were often visible. The public display of their funerary culture, which also involved extensive funeral processions, was therefore also oriented toward an urban audience. So these people's lives – and, one would assume, their forms of consumption – may have been more urban-based than the relative paucity or ambiguity of evidence might suggest. In more general terms, it has been suggested that at least a city like Chang'an could be “cast as an example of a ‘parasitical’ town, insofar as, despite its inclusion of productive sites such as an iron foundry, it was populated mainly by consumers – nobles, officials, foreign princes or occasional visitors coming to pay homage, garrison troops, landowners with a town residence, and official and private slaves.”⁸⁷

Increasing urban consumption must further be considered as lying behind one specific concern that is expressed in countless passages of transmitted texts: According to these critical statements, farmers abandoned their agricultural and domestic weaving work in favor of one or the other ‘branch occupation.’ Allegedly, they did so to an extent that caused a lack of supply in basic commodities.⁸⁸ The following statements by the famous Later Han scholar Wang Fu 王符 (ca. 82–167 CE) are a typical example for the expression of this anxiety:

One man who does not plow causes all-under-heaven to suffer from the hunger [that arises] therefrom, and one woman who does not weave causes all-under-heaven to suffer from the freezing [that arises] therefrom. Now that [people] embrace vulgarity, give up on agriculture, and hastily turn towards commerce and trade, oxen, horses, and carts are jamming streets and roads, and idle cheaters are filling cities and towns. Those who are engaged in the root [occupations] count few, while those being fed on other people's expense are numerous.

一夫不耕，天下受其飢；一婦不織，天下受其寒。今舉俗舍本農，趨商賈，牛馬車輿，填塞道路，游手為巧，充盈都邑，務本者少，浮食者眾。⁸⁹

The statesman Gong Yu 貢禹 (124–44 BCE) even purported in 44 BCE that because of the lacking attractiveness of field work in contrast to the ‘branch occupations’ in terms of both finance and health, farmers did not even constitute half of the population anymore.⁹⁰ This assertion certainly sounds implausible. But the question of how these recurring concerns have to be interpreted from a larger economic perspective has not been satisfactorily addressed. Did such concerns evolve from a real and persisting problem of rural exodus leading to a lack of agricultural producers? If yes, why did the urban population's high demand for basic commodities not ultimately result in market-driven incentives for people to turn back to agricultural production? While it is likely that both contemporaneous misinterpretations of larg-

⁸⁷ Pirazzoli-t'Serstevens 2010, 185.

⁸⁸ For some examples of such warnings across the early imperial era, see Barbieri-Low 2007, 41.

⁸⁹ *Hou Hanshu* 49.1633 (translation is my own).

⁹⁰ *Hanshu* 24B.1176 and 72.3075, trans. Swann 1950, 322; Hsu 1980, 167.

er demographic processes (such as population growth)⁹¹ as well as certain social groups' propagandistic motives played a certain role in the frequent admonitions against alleged rural depopulation, they seem so persistent in early imperial sources that they cannot be rashly brushed aside.

The quote above raises yet another question in relation to indications gained from archaeological evidence on the developments of cities. Whereas the quote suggests that urbanization processes went on unhampered during the Later Han period, it has been pointed out by several scholars that, according to archaeological findings, it seems as though the size of many of the major cities in the east actually shrunk over the course of the Han period. There is no consensus on whether these developments, if they actually occurred, were related to a contraction of urban commerce at all. Other factors, such as a decreasing need for garrisons to be stationed in cities, have also been suggested.⁹² It goes without saying that with such fundamental questions open, it is hard to make any confident statement about the long-term development of urbanization and urban consumption under Han rule. Hopefully, future research, and the development of a full-fledged settlement archaeology in particular, will provide us with a clearer picture in this regard.

IV Major Supply Mechanisms

IV.1 General Contemporary Perceptions

Whereas there are still many uncertainties with regard to the supply chains that characterized individual branches of the early imperial economy, the general perceptions of economic mechanisms that contemporary writers expressed with regard to their own era offer some illuminating clues. In fact, many descriptions in transmitted works express the perception of the early imperial economic world as one in which market structures, economic incentives, the pursuit of personal economic profit, and private actors played a crucial role in the distribution of goods. The historian Sima Qian most prominently described the Han Empire in these terms, and his description of economic processes has often been credited as an anticipation of Adam Smith's idea of markets as an 'invisible hand.' It is well known that Sima Qian was a strong advocate of 'laissez-faire' economic policies and an eager critic of Emperor Wu's interventionist measures. In this regard, it is worth noting that the historian's most general perceptions were yet shared by advocates and makers of massive state involvement in economic matters. The 'grandee' (*dafu* 大夫) of the *Discourses on Salt and Iron*, commonly identified with the interventionist policy

⁹¹ Hsu 1980, 39. See also Leese-Messing, ch. 6, VII.2, this volume.

⁹² Pirazzoli-t'Serstevens 2010, 170; von Glahn 2016, 152–153, including n. 71, referencing Emura 2005, 265, and, for the latter point, Sahara 2002, 30–31.

maker Sang Hongyang, endorses the essential role of economic incentives and market structures in the empire's supply mechanisms, insisting that "without profit-seeking in the branch [occupations], the root occupations will have no outlet" 無末利，則本業無所出.⁹³ The major difference to Sima Qian's point of view lies in the grandee's positive attitude toward state activity within a system that – according to both – was considerably characterized by market structures and private actors' economic incentives.⁹⁴ The vision Sang had in mind was one of a highly connected imperial economy, in which regional scarcities are made up by transporting goods from regions that have them in abundance. While underscoring the crucial role of traders in these supply mechanisms, he also clearly acknowledges the imperfection of contemporary market structures, especially with regard to transregional market integration:

Now the supply of bamboo in Wu and Yue and the timber in Sui and Tang is more than can be used while in Ts'ao, Wei, Liang, and Song they are forced to use coffins over again for the dead. The fish of the the rivers and lakes and the globe fish of Lai and Huang are too many for local consumption, while in Zou, Lu, Zhou and Han they have only vegetable fare. The wealth of nature is not deficient, and the treasures of the mountains and the seas are indeed rich, and yet the people still remain necessitous and the available wealth is not adequate. The reason is that surplus and scarcity have not been adjusted and the wealth of the world has not been circulated.

今吳、越之竹，隋、唐之材，不可勝用，而曹、衛、梁、宋，采棺轉尸；江、湖之魚，萊、黃之鮓，不可勝食，而鄒、魯、周、韓，藜藿蔬食。天地之利無不贍，而山海之貨無不富也；然百姓匱乏，財用不足，多寡不調，而天下財不散也。⁹⁵

According to the grandee's (and Sang Hongyang's) theory, these market imperfections reflected major points that the state needed to address. In the context of his 'equitable delivery' (*junshu* 均輸) and 'balanced standard' (*pingzhun* 平準) schemes, state officials extensively engaged in buying and selling goods via the existing market structures in order to equalize supply and demand.⁹⁶ Highly pragmatic issues – above all the urgent need for the government to secure new sources of income for its wars – certainly were crucial motives in their implementation. But the plausibility of the schemes rested precisely on the general, realistic perception of an imperial economy that was likewise characterized by market structures and their obviously unsatisfactory large-scale integration.

⁹³ *Yantie lun jiaozhu* 3.43, trans. Gale 1967, 22 (with modifications).

⁹⁴ Even the grandee's opponents in the *Yantie lun* describe their contemporary economic reality as being characterized by profit-seeking and the activities of traders on marketplaces. In contrast to both Sima Qian and the 'grandee' (or Sang Hongyang), they strongly oppose both phenomena.

⁹⁵ *Yantie lun jiaozhu* 3.42f, trans. Gale 1967, 20–21 (with modifications).

⁹⁶ On these measures, see further sec. IV.2.3 below and Leese-Messing, ch. 11, II.4.2, this volume.

IV.2 The Role of Marketplaces and Market Structures

IV.2.1 Distribution, Structures, and Size of Marketplaces

Marketplaces (*shi* 市) were a common phenomenon in early imperial China. They were regularly found in administrative centers on the county level and upward, and were supervised by local officials. They were therefore not restricted to larger cities, but were typically also found in rather small towns. In addition, periodic markets appear to have taken place in many rural places.⁹⁷

Official marketplaces typically had a rectangular shape and were located on the margins of towns rather than in their centers. Some of them were enormous. The Former Han capital Chang'an featured two adjoining marketplaces in the northwestern corner of the walled city.⁹⁸ As excavations have demonstrated, the Eastern Market covered an area of 500,000 sq. m, and the Western Market an additional 250,000 sq. m. Both were individually walled and open only during restricted hours, which reflects the suspicion the government had toward the gathering of large crowds. Three of the major gates of the city walls led people from outside the city walls directly into these marketplaces. Since most of the other city-wall gates entered into palace buildings, the three marketplace gates constituted the main entrances to the city for the public.⁹⁹ In fact, marketplaces constituted the only large public spaces in early imperial Chinese cities.¹⁰⁰ Depending on their size, marketplaces were divided by crossing avenues into a certain number of rectangular sectors. These were further divided into parallel lanes with rows of market stalls grouped by merchandise type. This rigid pattern seems to have been typical for marketplaces not only in largest cities, but also in smaller towns. Pictorial evidence from a tomb near Chengdu in Sichuan suggests, however, that at least some smaller marketplaces may have had a less rigid structure, with some sellers using simple blankets for displaying their wares next to other vendors' market stands.¹⁰¹ The dividing line between these different kinds of marketplaces is not quite clear. In addition to the regular urban and rural marketplaces, texts mention particular kinds

⁹⁷ Huang 2005, 153, even suggests that every district and hamlet each had their own, largely autonomous market. This would have meant between 40,000 and 72,000 marketplaces across the Han Empire (von Glahn 2016, 153, n. 76). But the available evidence hardly lends itself to corroborate this generalizing assertion.

⁹⁸ Textual evidence suggests that the Later Han capital, Luoyang, had at least three major markets, with one located inside the city walls next to a palace complex, one east of the city walls, and one in the western part of the city, probably inside the city walls.

⁹⁹ Barbieri-Low 2007, 121–122.

¹⁰⁰ On the absence of other public spaces that were regarded as intrinsic parts of cities in many other regions of the ancient world and in the Roman Empire in particular, see Lewis 2015b; Leese-Messing, ch. 6, II, this volume.

¹⁰¹ Barbieri-Low 2007, 122–125.

of authorized marketplaces, such as military camp markets (*junshi* 軍市) and border markets (*guanshi* 關市). The latter are typically presented as concessions made to neighboring peoples, especially the Xiongnu, to satisfy their desire to trade with their Han neighbors. Little is known, however, about potential structural or administrative peculiarities of these special marketplaces.¹⁰²

At least some, and possibly most, marketplaces went beyond an exclusively mercantile function. This is particularly clear in the case of the Western Market at Chang'an, which according to archaeological findings housed both small and larger, factory-like manufacturing sites of both private and government ownership, including an official coin casting site, a large kiln site for the mass production of funerary figurines, and an iron-casting facility for the production of iron wares such as belt hooks and carriage fittings.¹⁰³

IV.2.2 The Role of State Institutions in Marketplaces

Ancient sources depict marketplaces as spaces of bustling commercial activity and liveliness. Nevertheless, it is exactly because they were so attractive to large crowds of people that they also lent themselves to a resolute display of power by the state that was unrelated to commercial activities: Marketplaces were the officially designated sites for the exhibition of executed criminals' corpses.¹⁰⁴ But also with regard to primary market activities, state actors were highly visible players in three major roles: as producers, as traders (buyers and sellers), and as overseers.

Government workshops were present in marketplaces next to private ones, and so were state-run market stalls. There is ample evidence that local government agencies of both the Qin and Han times procured goods on the market for local consumption and upward transmission. The range of products that government agencies put up for sale themselves is not quite clear, and it certainly changed over time. After the establishment of the monopolies, for instance, salt and iron products are likely to have belonged to the central wares that state agents sold in official marketplaces across the empire. During certain phases, state agencies also massively bought and sold staples such as grain and cloth in order to influence prices (see next section). By contrast, certain state-produced luxury products (e.g., exquisite

102 For some basic information on military camp markets and border markets, see Yü 1967, 94–96.

103 For these finds, see Liu 2000, 124–141; Zhongguo shehui kexueyuan kaogu yanjiusuo Hancheng dui 1994; Y. Li 1993; Zhongguo shehui kexueyuan kaogu yanjiusuo Hancheng gongzuodui 1995; Pirazzoli-t'Serstevens 2010, 175; Barbieri-Low 2007, 122. For a comparison between the urban structures for retail and manufacture in Chang'an and Rome, see Razeto 2014.

104 While this was not a common phenomenon in ancient societies, similar practices are known, for instance, from the Aztec Empire (Hirth 2020, 276). On the visible role of the state in the Chang'an marketplaces, see also Razeto 2014, 359.

lacquer tableware) may have been restricted to court consumption and redistribution through gift-giving, and thus banned from sale in the open market, but this is not entirely clear.¹⁰⁵ That local government agencies did sell some (albeit unspecified) products from state-owned workshops is indicated by the following Former Han legal statute:

For government offices that engage in handicraft work and marketplace transactions, or receive cash from [market and excise] taxes or pledges, in every case, make [cash] jars, seal them with the seal of the director or his assistant, and give each person a [portion of the] triplicate contract-tally [document]. Immediately insert the cash into the jar and submit the middle portion of the contract tally to the [county] court [to which the office is subordinate].”

官為作務、市及受租、質錢，皆為錡，封以令、丞印，而人與參辨券之。輒入錢錡中，上中辨其廷。¹⁰⁶

While being present as market players by themselves to a certain (and changing) extent, government agents took over the role of managing, supervising, controlling, and taxing other actors' market transactions. Operating from a tower in the center of the marketplace, they acted as market overseers responsible for notarizing sales contracts and for supervising the legality of transactions, which included the identification of stolen goods and of deviations from standardized measures, as well as other forms of deception. They also made sure that market stall vendors were properly registered in the merchant registers, paid their obligatory fees, and conducted accurate self-reports on their taxable revenues. Several state-enforced structures of mutual surveillance among the merchants themselves were supposed to support these controlling functions.¹⁰⁷

105 Pirazzoli-t'Serstevens refutes the idea that lacquer objects from imperial workshops – other than privately produced ones – were available on the market. She argues that if this had been the case, more objects with the characteristic imperial inscriptions would have been found in tombs across the Han Empire's core territory (2009, 39). Korolkov, however, briefly mentions state-produced lacquer objects (next to textiles) as products that were particularly suitable “for the local authorities to replenish their cash reserves by engaging in market transactions” (2020, 141). While no specific evidence for this scenario has so far come up, it can certainly not be ruled out. It is also possible that certain exquisite styles were restricted to the use at court and for redistributive mechanisms in the context of diplomatic and other gifts, while other state-produced lacquer products may have been readily sold on the market. On privately and imperially produced lacquerware and their potential means of distribution, see also Leese-Messing, vol. 1, ch. 12.C.

106 Barbieri-Low and Yates 2015, 924–925 (no. 8). The statute has a Qin precursor in the Shuihudi corpus, which demands that “for transactions involving engagement in handicraft work and government storehouses, whenever cash is received, it must be inserted into the cash jar” 為作務及官府市，受錢必輒入其錢錡中。Shuihudi Qin mu zhujian zhengli xiaozu 1990, 42–43 (slip 97), trans. Hulsewé 1985, 56 (with modifications).

107 Marketplace merchants and craftspeople of Han times were grouped in responsibility and surveillance groups of five. Additionally, each market lane had a designated ‘chief of the market lane’ (*lie zhang* 列長), who was responsible for reporting any misconduct among his fellow lane mer-

IV.2.3 The ‘Fair-Market Price’ and the Question of Market Regulation

Transmitted and excavated texts from the Qin and Han period occasionally refer to ‘fair-market prices’ (*ping jia* 平價 or *shi ping jia* 市平價). More than anything else, the use of fair-market prices was a reaction of the state to the increasing relevance of private markets in the practical dealings of local government institutions. Originally determined once a year on county level, they were applied to transactions between state agencies and private individuals. Qin documents attest application of fair-market prices in the lending and sale of government stocks to private persons, mainly in the case of foodstuffs (such as wheat, millet, peas, and beans).¹⁰⁸ Early Former Han legal statutes already attest to a wider range of transactions and commodities that demanded a ‘fair’ conversion from or to cash by government agents. Typical examples are the monetization of in-kind bestowals or rewards, the conversion of gold-denominated fines into cash, or the definition of criminal penalties in which the value of stolen goods served as a basis.¹⁰⁹ A *Hanshu* commentary further suggests that fair-market prices were not only determined for commodities, but also for human labor.¹¹⁰ We know from later decades that fair-market prices were based on median prices on the private market, which may have been the case from early on. Private market prices – i.e., prices that private sellers and private buyers agreed upon in their transactions – were meanwhile expected and tolerated to be permanently fluctuating according to changing supply and demand. This is what made the annual adjustment in government-related transactions necessary in the first place. The application of fair-market prices therefore was far from meaning a governmental interference in market prices *per se*.¹¹¹

chants. See statute no. 2 in Barbieri-Low and Yates 2015, 722–723. See also Leese-Messing, ch. 6, VII.1 and VIII.1, this volume.

108 On the evidence on ‘fair-market prices’ during the Qin period, see Korolkov 2020, 574–584.

109 ‘Fair-market prices’ are mentioned in these contexts in the following statutes from the Zhangjiahan corpus: No. 18 of the “Statutes on Robbery” (Barbieri-Low and Yates 2015, 472–473, slip no. 80, see also n. 96 on 489–490), no. 2 of the “Statutes on Food Rations and Conveyance Stations” (682–683, slip nos. 229–230), no. 3 of the “Statutes on Agriculture” (696–697, slip no. 242), no. 7 of the “Statutes in Bestowals” (768–769, slip no. 290), and nos. 7, 9, and 10 of the “Statutes on Finances” (922–927, slip nos. 427–428, 433, and 434). Statute no. 7 of the “Statute on Finances” indicates an annual adjustment for the fair-market price of gold in the tenth month, to be determined on commandery level. Whether the same frequency and timing was also used for the other commodities that were to be fairly priced is unclear. On the evidence for Qin and early Former Han ‘fair-market prices,’ see also An 2005; Wen and Cheng 2003.

110 Ru Shun’s 如淳 (fl. 189–265 CE) commentary in *Han shu* 29.1690 (under commentary no. 6, referring to a sentence on page 1689) mentions a fair-market price for human labor of 2,000 cash per person and month that was reportedly determined by a ‘statute’ (*lü* 律). The latter would suggest a long-term determination rather than a price that was adjustable according to momentary market prices, and thus, a difference to the fair-market prices of commodities, as explained in the following.

111 It is possible that certain exceptions existed to this general rule. An early Former Han legal statute mentions an “Ordinance on the Price of Horses Falsely Exceeding Fairness (or: Exceeding

Eventually, probably beginning with Emperor Wu's time, the central government did in fact introduce measures that were meant to influence prices of certain commodities, especially staples like grain and textiles, on the private market. This end was not achieved by fixing prices, however, but by government agents acting as market players themselves. Using the economic power and storage capacities of the state, they bought grain and other staples when cheap and resold them when expensive. Under Emperor Wu, Sang Hongyang had introduced such a policy under the designation 'balanced standard' (or 'fair standard,' *pingzhun* 平准), for the dual aim of moderating price fluctuations and, ideally, making profit for the state. For the time of Wang Mang's 王莽 interregnum (9–23 CE), when a similar system was enforced, it is known that 'cheap' and 'expensive' in this context were explicitly defined as deviations from the according local fair-market prices, which at that point were to be adjusted every three months.¹¹² Therefore, government agencies during these periods did indeed influence prices in private transactions. But they did so by using market principles. A critic of the 'balanced standard' policy reportedly bemoaned that Sang Hongyang "made state officials sit on marketplaces, erect stalls, sell things, and strive for profit" 令吏坐市列肆，販物求利.¹¹³ And Sima Qian, probably having exactly this scenario in mind, warned that condescending to "enter into competition with [the populace]" 與之爭 was the worst of all governmental means to deal with the latter's unchangeable desire to pursue their private interests.¹¹⁴ These quotes may illustrate how deeply the measures were entrenched in the existence and conscious acknowledgment of widespread competitive market structures.

Even though an increasing scale of state agencies' transactions with private markets is already recognizable in Qin sources, it is obvious that this development expanded during the course of the Former Han period. After all, the early decades of Han rule had also provided the first longer phase of political stability and peace after several strife-ridden centuries. These decades had created an overall economic situation that differed considerably from the one that the postwar Qin regime had

the Fair-Market Price)" (*Ma jia huo e guo ping ling* 馬賈(價)訛過平令). *Hanshu* 17.654 mentions the case of a marquis who sold a horse for 150,000 coins, which reportedly "exceeded fairness" (or possibly "exceeded the fair-market price," *guo ping* 過平) and resulted in the marquis losing his marquisate (Barbieri-Low and Yates 2015, 1134–1135, no. 10, with n. 107 on 1159). Both the ordinance and the further context of the particular horse sale are unknown, however, making it hard to see how far these examples are in fact indications of the government directly enforcing prices or price ranges for certain goods.

¹¹² *Hanshu*, 24B.1181–1182, trans. Swann 1950, 341–342. See also Korolkov 2020, 580–582. The higher frequency of adjustment in comparison to Qin and early Han times is most likely to be interpreted as a reaction to stronger price fluctuations, which again would suggest an increased level of private market activity.

¹¹³ *Shiji* 30.1442, trans. Watson 1993, 83 (with modifications).

¹¹⁴ *Shiji* 129.3253, trans. Watson 1993, 434; Nienhauser 2019, 263.

faced, and therefore invited adjusted governmental approaches. It is only in the context of this considerably expanded market structures that it made sense for the most central Han advocates of state monopolies and active price management to be, at the same time, the most enthusiastic supporters of the long-distance circulation of goods and appreciators of the crucial role of private trade.¹¹⁵ On the most general level, the evidence for the government's use of fair-market prices and even its attempts at controlling prices reveals that prices were fundamentally set by market principles rather than by the grand hand of state. Apart from the sectors in which the state established monopolies, other government measures of market regulation were aimed at stabilizing rather than fixing prices, not in order to prohibit price fluctuations based on supply and demand, but to moderate them in a way that enforced rather than undermined the functioning of market principles.

IV.3 The Role of Private Organizations

Generally, the early imperial government was characterized by a high level of suspicion and hostility toward any kind of nonstate organization above the individual household level. When looking for potential elements of supply chains, we would be searching in vain for equivalents to large-scale, nongovernmental associations such as the Roman *collegia* and *corpora navicularum*, which played a crucial role in supplying the city of Rome with grain.¹¹⁶ The lack of evidence does not prove that nothing of that sort existed, and it cannot be ruled out that future manuscript, epigraphic, or other finds will bring to light unexpected, ground-breaking evidence in this regard. But until then, we have to face the possibility that private trade organizations simply did not play the same role in ancient China as they did in the ancient Roman world or South Asia. After all, contemporary ideals and historically grown practices do not seem to have provided a very promising breeding ground for any kind of formalized, voluntary association-building that would have facilitated trust relationships necessary for such large-scale, long-term, and specialized economic enterprises.¹¹⁷

This may have pushed people toward other forms of networks all the more, which are indeed very prominent in our sources. These included both relatively

115 This, after all, is the position of the 'grandee' in the *Discourses on Salt and Iron (Yantie lun)*, who is usually identified with the interventionist policy maker Sang Hongyang. See also sec. IV.1 above. On the *Yantie lun*, see also Leese-Messing, vol. 1, ch. 12.A, 513–518.

116 Fabian and Weaverdyck, ch. 3.A, IX.1.2, this volume.

117 It cannot be completely ruled out that some forms of economic associations evade us not because they did not exist at all, but rather because they would have tended to keep a low profile exactly because of public suspicion and therefore were less likely to show up in either transmitted or excavated sources. But it is hard to believe that the silence of the sources on such organizations was not largely based on an according reality, in which such associations simply did not play a huge role or perhaps exist at all.

fixed groups based on kinship and neighborhood, as well as more open and geographically wider extensions, which could be established and strengthened through personal links between highly mobile state officials, between teachers and students, and by intermarriage. These groups were essentially sociopolitical associations, offering opportunities for political patronage and consolidating their ties by common feasts, sacrifices, mutual gift-giving, and sometimes adherence to local cults. Within a group, economic transactions including distributive actions certainly did play an important role. Wealthier group members supported poorer members by charity, expecting loyalty in return; all kinds of gifts and bribes changed hands over short and long distances; and broader inner-group fundraising was used for occasions such as individuals' long-distance trips, the erection of memorials, and funerals. Especially on a local level, these inner-group distributive mechanisms bore a considerable potential for sustaining socioeconomic stability, especially during times of economic hardship.¹¹⁸ Documents from the northwestern border areas further indicate the formation of socioeconomic diasporas made up of people that had been recruited from the same county. With regard to the labor market, for instance, they appear to have had a preference to hire each other over people from other regions of the empire.¹¹⁹

Surely, kinship ties in particular also were a good basis for running family enterprises. Some of Sima Qian's 'money makers' seem to have grounded their wealth on business structures based on kinship ties.¹²⁰ Private moneylending by wealthy people, which is often mentioned in transmitted sources, is likely to have also (although not exclusively) happened along the lines of kinship or extended networks. But all these activities appear to have worked on a primarily personal basis, and without the more institutionalized management of lineages that characterized later periods.¹²¹ In comparison to voluntary Graeco-Roman associations, the ancient Chinese network groups appear to have featured a higher degree of both socioeconomic and occupational diversity. The most important difference, however, concerns their degrees of flexibility with regard to membership: Crucial to the establishment of efficient trust networks in Graeco-Roman associations were both the easy possibility of having people (or even other associations) join the network and the contrary possibility of cutting people off from the network as an enforcement mechanism in the event of rule-breaking. Though not impossible, both were much more complicated in the case of ancient Chinese social networks, as these were based on relatively fixed kinship ties to a greater extent. As such, it is hard to assume that their struc-

118 On kinship ties, extended networks, and patron-client relationships in Han China, see Lewis 2006, 93–104, 212–234; Korolkov 2012; Ebrey 1983, 1980.

119 For examples, see; Z. Li 2003, 79–89. See also Korolkov 2020, 303.

120 *Shiji* 129.3277–3281, trans. Watson 1993, 450–453; Nienhauser 2019, 294–299.

121 For differences between early and later kinship organization, see, for instance, Ebrey 1986a and the other contributions in Ebrey and Watson 1986.

tures bore an equally high systematic potential for the coordination of their members' behavior in large-scale and long-term trading operations.

IV.4 Long-Distance Redistribution of Tax Grain during the Former Han Period

The apparent lack of large-scale private trading associations did not prevent long-distance transport of goods from occurring on a huge scale. This is especially clear in the case of the grain supply for the Former Han capital. By all appearances, central and local government institutions were the central actors in this task. In Former Han China, Chang'an and the highly populous tomb towns in its proximity relied on grain supply from different agricultural regions. These included their immediate surrounding regions in the 'area within the passes' (Guanzhong) and the regions to its south, especially the commanderies of Ba, Shu,¹²² and Hanzhong,¹²³ but also the eastern parts of the empire in the lower parts of the Yellow River valley. Provisioning Chang'an from this vast, agriculturally highly productive region, which was inhabited by the majority of the empire's population, demanded long-distance transport via the Yellow River and the Wei River, which ancient sources suggest to have been immensely facilitated by the completion of the Transport Canal (*Cao qu* 漕渠) in 126 BCE. Straight and easily navigable, it ran south of the Wei River between Chang'an and the former's conjunction with the Yellow River.¹²⁴ Figures in transmitted historical texts mention the massive scale of such transports from the east to the metropolitan region, which reportedly increased from several hundred thousand *shi* 石 during the early years of the of the Former Han period to six million *shi* (120 million liters or 120,000 cu. m) in 110 BCE.¹²⁵ Based on somewhat varying contemporary information on the average grain consumption per person (e.g., 1.5 or 3 *shi* per month), six million *shi* could approximately feed between 167,000 and 330,000 people per year.¹²⁶ Very roughly and figuratively speaking (and while taking into account the high degree of uncertainties related to all figures involved), the grain from the east could have fed the reported urban population of Chang'an proper (ca. 250,000), whereas the population of the huge tomb towns, some of which had a population that came close or even surpassed that of

¹²² Both in modern Sichuan Province.

¹²³ In the south of modern Shaanxi Province.

¹²⁴ *Shiji* 29.1410, trans. Watson 1993, 56. See further Nylan 2015b, 105, including a sketch of the course of the Transport Canal.

¹²⁵ *Shiji* 30.1418; 1441, trans. Watson 1993, 62, 83.

¹²⁶ For information on the average grain consumption per person, see, for instance, *Hanshu* 24A.1556 (1.5 *shi* per person and month); Loewe 1967, 1:94 (food rations for soldiers and their relatives, between 1.16 and 3.3 *shi* per person and month depending on age, gender, and status). For further information on rations, see Lee Kim 2016.

Chang'an, and the soldiers and officials at the northwestern frontier would have to be supplied by other, more proximate agricultural lands.¹²⁷ This means, quite unsurprisingly, that far-travelling grain from the east was only one pillar of the metropolitan and northeastern grain supply during the Former Han period. But it seems equally clear that it was a major pillar that could not easily be given up.¹²⁸ A piece of advice to the throne in the 50s BCE – which was after the major expansionist phase – still speaks of a yearly amount of 4 million *shi* (80 million liters) being transported from the east, and it was only after this that significant changes were enforced in this regard.¹²⁹

These basic considerations cast doubt on Lewis's generalizing assertion that one of the most basic features of the Han Empire's fiscal regime was its "tight spatial circumscription," with Chang'an being "provisioned largely from its own hinterland."¹³⁰ This claim is certainly applicable to the very first and last decades of the Former Han period, and with the eastern move of the capital to Luoyang, the overall supply situation was again a very different one. But for a practice of enormous logistical efforts in riverine transportation that characterized about half of the Former Han period, during which Guanzhong's urban population increased considerably, to be brushed aside as "a brief attempt under the Former Han to supplement the provisioning of the capital" does not seem quite adequate.¹³¹

The majority of the grain transported from the east is likely to have been acquired by political power, i.e., as tax grain that was collected from farmers by local government offices run by salaried officials. The latter, while keeping large portions of their collected grain for local distribution among state functionaries, rations for convicts, etc., were obliged to forward a certain amount to the capital region, where it was redistributed among different groups of people, including central officials,

127 For the newly established, highly populous urban network in Guanzhong as a "stimulation of urban demand," see Korolkov and Hein 2020, 17–19.

128 The government under Emperor Wu at one point tried to get less dependent from the cost- and time-expensive eastern grain supply by investing into a large nearby irrigation project north of the capital, but the project ultimately failed. *Shiji* 29.1410, trans. Watson 1993, 56. See also Leese-Messing, vol. 1, ch. 12.A, 506.

129 See below, last paragraph of this section.

130 Lewis 2015a, 295.

131 Lewis's claims are based on his conviction that "bulk commodities (above all grain) could not be shipped in high volume for great distances" because of an "absence of an extensive system of water transport" (2015a, 283). For sure, the system of water transport of Han times by no means compares to that of later imperial periods, when massive canal building projects made riverine transport much more effective. But Lewis's minimalist assertions are likely to be an underestimation of the capacities of the early imperial transport system. Based on excavated textual evidence, Korolkov has recently provided convincing arguments that even in Qin times, state-enforced, riverine transport of grain over large distances is likely to have been way more extensive and efficient than has often been assumed (2020, 130, n. 245, and ch. 5).

court members, convict and conscript laborers, and soldiers.¹³² Especially during times of increased government spending such as during the costly confrontations with the Xiongnu, the government sought additional sources for grain, for instance by buying it from wealthy people in exchange for honorary or official titles.¹³³ The logistics of transport and storage appear to have been firmly in the hand of salaried state officials along the transport routes, who in all these activities were meticulously instructed by imperial legal statutes.¹³⁴ Certainly, it was not only sheer political power that enforced state officials to pursue their tasks of collecting and forwarding taxes. The evidence for the important role of semipersonal correspondence between officials, which also touched upon matters such as the forwarding of accounts (including personal encouragements and apologies in the case of delays),¹³⁵ offers indications in the direction of social incentives. These seem to have played a considerable role in addition to the political power that the state could enforce upon its state functionaries through the judicial system.¹³⁶

The extent to which state institutions made use of means of transport other than their own is not clear. One case recorded in the Liye manuscripts indicates that local Qin government agencies may have leased out state-owned boats to private merchants – a private tile merchant in this case.¹³⁷ But there are no indications for such transactions having occurred the other way around. This may have changed over time, but I am not aware of there being any evidence so far for government institutions renting vehicles from private actors. A Former Han legal statute sug-

132 I am not aware of any evidence for the central government having systematically sold large parts of this fiscal grain to private business people in the capital region in order to convert it to money (as the Roman government did to the *pistōrēs*), even though this possibility cannot be ruled out. Generally, at least, Han government offices did participate in market transactions, also and particularly in the case of buying and selling grain.

133 *Shiji* 30.1419, trans. Watson 1993, 62 (sale of honorary titles for grain under Emperor Wen), *Shiji* 30.1433, trans. Watson 1993, 75 (sale of official posts for grain under Emperor Wu).

134 As, for instance, in the Qin “Statutes on Granaries” found at Shuihudi. Shuihudi Qin mu zhujian zhengli xiaozu 1990, 25–35; Hulsewé 1985, 30–46. Transmitted texts inform us about many vast granaries, especially for the Guanzhong region during Former Han times, but also near the Later Han capital Luoyang. Some of them have been excavated, documenting their stunning sizes. One complex of three granaries near Chang’an during late Former Han times alone is said to have had a capacity of 6 million *shi* (120 million liters). This was only one complex of several around the Former Han capital. For a summary of the information we have on six large granary complexes within a radius of about 160 km around Chang’an, see Nylan 2015b, 110–112.

135 See, for instance, the private Han-era letter manuscripts translated in Giele 2015, 442–443 (including an apology for not having submitted accounts on time), 454–456 (including a personal appeal to the addressee to avoid being “the last among all sections” in handling his tasks).

136 Yet the role of law should not be underestimated in this context. After all, many statutes of both Qin and Han imperial law belong to administrative law and concerning the control and sanctioning of state functionaries, with many transmitted legal cases documenting their practical enforcement.

137 Chen 2012, 72–76, tablet 8–135; Korolkov 2020, 282, 436, 603.

gests that state institutions appointed officials as ‘bailiffs of the boats’ (*chuan sefu* 船齋夫) with the task of managing and supervising state-owned boats.¹³⁸ Furthermore, transportation of state-owned goods is typically associated with the use of forced labor, i.e., of conscripts and convicts.¹³⁹

To all appearances, therefore, the long-distance redistribution of tax grain to the Former Han capital was largely an in-house undertaking that relied predominantly on agents acting in direct service to the state. In this regard, it appears quite different from the case of the city of Rome’s supply with Egyptian grain, where private commercial groups, acting as agents to the state, played a much more important role in different parts of the supply chain. Whereas in both cases, political power served as the overarching driver, in early imperial China private actors’ economic incentives played a much smaller role in the whole supply chain. This may also have had wider economic effects: the Mediterranean merchants involved in the transport of grain for state redistribution purposes combined this task with other private mercantile activities along their transport routes.¹⁴⁰ On the basis of the admittedly sketchy knowledge we have about the whole process, this kind of side effect on private trading activities can hardly be assumed for the ancient Chinese system of long-distance grain distribution.

Whereas the first (unfruitful) attempts at making the capital region less dependent on eastern grain in order to save transport costs and risks had already been undertaken earlier, it was only in the 50s BCE that a thorough shift toward a drastic reduction of large-scale grain transport from the east was enforced. Reportedly, the eastern grain came to be replaced by grain from commanderies neighboring the metropolitan region, the transport of which was supposed to reduce the necessary conscript labor force of 60,000 by half. Interestingly, the word that is used for this new (or extended) channel of grain supply is *di* 糶, which usually means ‘to buy up grain.’¹⁴¹ If this interpretation is correct, it would mean that a considerable portion of the grain supply for Chang’an during the last decades of Former Han rule was based on acquirement on the grain market rather than on taxation. But even if this was the case, the high number of conscripts indicates that transportation itself largely remained an in-house undertaking by state institutions.

138 Barbieri-Low and Yates 2015, 392–393 (no. 4).

139 For convicts associated with the transport of grain in Qin-era Qianling, see, for instance, Korolkov 2020, 282, 464–465, 511. For conscripts used in the long-distance transport of grain from the east to Guanzhong during Former Han times, see, for instance, *Hanshu* 24A.1141, trans. Swann 1950, 192. The passage quotes an advice to the throne from the 60s BCE, which mentions the use of 60,000 conscripts for the yearly transport of grain from the east to the capital region.

140 On the major supply mechanisms at play in the Roman case, see Weaverdyck, ch. 12.C, III, this volume.

141 It is, for instance, also clearly used in this sense (“grain bought up by the officials”) in *Shiji* 30.1436 and *Hanshu* 24B.1171, trans. Watson 1993, 78; Swann 1950, 300.

IV.5 Extra-Imperial Economic Relationships

The phenomena that have been sketched out in this chapter and partly described in more detail in other chapters in this volume largely concern the intra-imperial structures and dynamics of the early Chinese empires. Some of them reflect observations that have similarly been made with regard to other contemporaneous societies: increasing consumption by the state as well as by elite and middling groups, bustling cities, increased levels and wider spread of monetization, a sophisticated legal system, and increased intra-imperial connectivity.

From a more global perspective, the question is how these intra-imperial structures and dynamics affected extra-imperial economic relationships. It is well known that Chinese luxury goods such as silks and lacquerware traveled far beyond the political power of the Han imperial state.¹⁴² And different kinds of sources clearly demonstrate that central state institutions, i.e., the central government and its diplomatic delegations, played an important role in the distribution of these luxury products beyond the imperial realm in the context of foreign policy.¹⁴³ The role of other actors in long-distance movements of goods is less clear. This obscurity may be partly due to a source bias. But this is probably not the only factor that needs to be taken into account. There are several indications that the involvement of private actors (on both the trader and the consumer side) may indeed have played a lesser role in the extra-imperial economic relationships of the early Chinese empires in comparison to the Roman Empire, for instance.

As for the perspective of consumption, we do not see clear evidence of social groups other than the high elites consuming far-traveling foreign products on a large scale. Foreign products have mostly been found in high-elite tombs and indicate supply mechanisms closely tied to imperial distribution rather than private trade.¹⁴⁴ As for the intra-imperial ‘tools’ with a potential to lower transaction costs in long-distance trade, certain limitations have to be considered. Whereas by ancient standards the Qin and Han empires were characterized by sophisticated legal systems, known laws put emphasis on securing property rights, but show little focus on fields such as economic agency that would be crucial for lowering transaction costs in long-distance trade.¹⁴⁵ More generally, the central government, based on an antimercantile mindset that may have been stronger than in other ancient societies, was eager to maintain central political control over the different regions of the empire. It therefore showed little interest in facilitating large-scale private trade, a general attitude that also shaped activities of local government agencies to

142 See, for instance, Leese-Messing, vol. 1, ch. 12.C; Morris, ch. 13, V.1, this volume.

143 See Leese-Messing, ch. 6, X, this volume.

144 See Leese-Messing, ch. 6, II, this volume.

145 See Leese-Messing, ch. 11, IV, this volume.

a considerable degree.¹⁴⁶ And whereas the level of monetization increased substantially during the early imperial period, it seems to have remained below that of the Roman Empire. In combination with a relatively basic, meagerly institutionalized system of private credit, this may have borne less potential for flexible capital accumulation that would have facilitated border-crossing trade on a large scale.¹⁴⁷ Furthermore, as has been discussed in section IV.3 above, there is little evidence for formally organized private associations that facilitated economic transactions over great distances and across imperial frontiers. More informal networks, e.g. those based on kinship, certainly took over some related functions, but are unlikely to have had the durability over long distances that we see in the case of the Roman trade diasporas that operated as far as southern India. In a similar vein, indications of foreign trade diasporas inside the Qin and Han Empires is scarce.¹⁴⁸

Certainly, this does not mean that private actors did not play a role in frontier economies. Chinese and other merchants certainly conducted trade in frontier regions, and some of them became wealthy through these activities.¹⁴⁹ Some of them may also have maintained and strengthened economic relations with the inner regions of the Empire, and further research in this direction may indeed provide broader indications for corresponding underlying trade networks. Nevertheless, considering the list of various indications above, new insights so far seem unlikely to entirely disprove the impression that early imperial China was connected to a lesser degree to extra-imperial realms by private trading connections than this seems to have been the case in some other contemporaneous Afro-Eurasian empires.

V Prospects

The field of the economic history of early imperial China currently finds itself in a state of extraordinary flux. Recurrent finds of new archaeological and manuscript evidence make constant reinterpretations possible and necessary, while increased interdisciplinary work challenges traditional approaches and parameters and opens up new scholarly perspectives. In such a situation, it is often hard to see the forest for the trees. But at the same time, the scarcity of holistic models does not have to be interpreted as a defect. In fact, there are good reasons for arguing that such approaches would be premature at this point. As I hope has been shown over the course of this chapter, many fundamental questions are still unsolved and central subdisciplines underdeveloped to a degree that render general assertions on eco-

146 On anti-mercantile sentiments and the relation between state institutions and traders, see Leese-Messing, ch. 6, VII.2, this volume.

147 On monetization and credit, see Leese-Messing, ch. 11, III, this volume.

148 See Leese-Messing, ch. 6, VII.1, this volume.

149 See, for instance, 7, VI, this volume.

conomic structures and developments difficult. Furthermore, recent developments in the field of model-laden Roman economic history show that overarching models based on imperial systems that largely shaped the discipline for decades are being challenged, particularly because they tended to undervalue regional diversity in the Roman Empire's economic structures and underestimate or overgeneralize the economic role of frontiers. As economic historians of early imperial China are currently blessed with an abundance of new and understudied excavated source material, especially from frontier regions, promising opportunities for current and future research are taking shape, which focus for instance on structural characteristics of certain regional (including frontier) economies. In this process, it might also be helpful to attempt more analytical clarity by differentiating between different 'spheres,' or 'layers' and 'levels,' of economic interaction.¹⁵⁰ Rather than trying to describe 'the economy' of a certain region of the early empires, one might look into the role that different kinds of economic behavior – market exchange, redistribution, and reciprocity – played in different contexts. For instance, one could focus on transactions that involved certain kinds of goods, actors, or geographic levels – transimperial, imperial, regional, or local. In particular, it will be crucial to get a clearer picture of how the three different mechanisms intersected. One important example lies in the question of whether and how redistributive mechanisms of imperial state institutions were merged with market procurement strategies relying on local supplies.¹⁵¹ Once these building blocks are in place, moving to a more comprehensive perspective on the early imperial economy allows for attempts to model regional economic interaction that give due consideration to both imperial state structures and local variety.

References

- An Zhongyi 安忠義. 2005. "Cong 'ping jia' yi ci de ciyi kan Qin Han shiqi de ping jia zhidu" 從平價一詞的詞意看秦漢時期的平價制度 [Investigating the system of fair-market prices during the Qin and Han periods based on the meaning of the term 'fair-market price']. *Dunhuangxue jikan* 敦煌學季刊, no. 2, 343–349.
- Baishya, P. 1997. "The putting out system in ancient India." *Social Scientist* 25.7/8, 51–56.
- Bang, P. F. 2009. "Commanding and consuming the world: Empire, tribute, and trade in Roman and Chinese history." In W. Scheidel (ed.), *Rome and China: Comparative studies in ancient world empires*, 100–120. Oxford: Oxford University Press.
- Barbieri-Low, A. J. 2001. "The organization of imperial workshops during the Han dynasty." PhD diss., Princeton University.
- . 2007. *Artisans in early imperial China*. Seattle, WA: University of Washington Press.

¹⁵⁰ As proposed (in somewhat different ways) by Mattingly 2011, 138–145, and Evers 2011, who convincingly applies his clear differentiation on the evidence from the Vindolanda tablets.

¹⁵¹ Korolkov 2020 already has provided many telling examples from the Liye corpus with regard to this intersection.

- Barbieri-Low, A. J. and R. D. S. Yates. 2015. *Law, state, and society in early imperial China: A study with critical edition and translation of the legal texts from Zhangjiashan tomb no. 247*. 2 vols. Leiden: Brill.
- Brennan, T. C. and I. Hsing. 2010. "The Eternal City and the City of Eternal Peace." In M. Nylan and M. Loewe (eds.), *China's early empires: A re-appraisal*, 186–212. Cambridge: Cambridge University Press.
- Chen Wei 陳偉, ed. 2012. *Liye Qin jiandu jiaoshi* 里耶秦簡牘校釋 [Annotated edition of the Qin documents on wooden slips from Liye]. Vol. 1. Wuhan: Wuhan daxue chubanshe.
- Chin, T. T. 2014. *Savage exchange: Han imperialism, Chinese literary style, and the economic imagination*. Cambridge, MA: Harvard University Asia Center.
- Ebrey, P. 1980. "Later Han stone inscriptions." *Harvard Journal of Asiatic Studies* 40.2, 325–353.
- . 1983. "Patron-client relations in the Later Han." *Journal of the American Oriental Society* 103.3, 533–542.
- . 1986a. "The early stages in the development of descent group organization." In P. Ebrey and J. L. Watson (eds.), *Kinship organization in late imperial China, 1000–1940*, 16–61. Berkeley, CA: University of California Press.
- . 1986b. "The economic and social history of Later Han." In D. Twitchett and M. Loewe (eds.), *The Cambridge history of China*. Vol. 1, 608–648. Cambridge: Cambridge University Press.
- Ebrey, P. and J. L. Watson, eds. 1986. *Kinship organization in late imperial China, 1000–1940*. Berkeley, CA: University of California Press.
- Emura Haruki 江村治樹. 2005. *Sengoku Shin Kan jidai no toshi to kokka: Kōkogaku to bunken shigaku kara no appuroochi* 戦国秦漢時代の都市と国家: 考古学と文献史学からのアプローチ [Warring States, Qin, and Han cities and the state: Archaeological and documentary approaches]. Tokyo: Hakuteisha.
- Evers, K. G. 2011. *The Vindolanda Tablets and the ancient economy*. Oxford: Archaeopress.
- Finsterbusch, K. 1966–2004. *Verzeichnis und Motivindex der Han-Darstellungen*. 4 vols. Wiesbaden: Harrassowitz.
- Gale, E. M., trans. 1967. *Discourses on salt and iron: A debate on state control of commerce and industry in ancient China, Chapters I–XXVIII*. Taipei: Ch'eng Wen.
- Giele, E. 2015. "Private letter manuscripts from early imperial China." In A. Richter (ed.), *A history of Chinese letters and epistolary culture*, 399–474. Leiden: Brill.
- Hanshu* 漢書 [Documents of the Han]. 1962. Composed by Ban Gu 班固 (32–92 CE). Beijing: Zhonghua shuju.
- Hirth, K. 2020. *The organization of ancient economies: A global perspective*. Cambridge: Cambridge University Press.
- Hou Hanshu* 後漢書 [Documents of the Later Han]. 1965. Composed by Fan Ye 范曄 (398–445 CE). Beijing: Zhonghua shuju.
- Hsu, C. 1980. *Han agriculture: The formation of the early Chinese agrarian economy (206 BC–AD 220)*. J. L. Dull (ed.). Seattle, WA: University of Washington Press.
- Huang Jinyan 黃今言. 2005. *Qin Han shangpin jingji yanjiu* 秦汉商品经济研究 [A study on the Qin and Han commodity economy]. Beijing: Renmin chubanshe.
- Hulsewé, A. F. P. 1985. *Remnants of Ch'in law: An annotated translation of the Ch'in legal and administrative rules of the 3rd century BC discovered in Yün-Meng Prefecture, Hu-Pei Province, in 1975*. Leiden: Brill.
- Kamiya Masakazu 紙屋正和. 1994. "Ryō Kan jidai no shōgyō to ichi" 兩漢時代の商業と市 [Commerce and markets during the period of the two Han dynasties]." *Tōyōshi kenkyū* 東洋史研究 52.4, 655–682.
- Knechtges, D. R., trans. 1982. *Wen xuan, or selections of refined literature*. Vol. 1, *Rhapsodies on metropolises and capitals*. Princeton, NJ: Princeton University Press.
- Korolkov, M. 2012. "'Greeting tablets' in early China: Some traits of the communicative etiquette of officialdom in light of newly excavated inscriptions." *T'oung Pao* 98.4/5, 295–348.

- . 2020. "Empire-building and market-making at the Qin frontier: Imperial expansion and economic change, 221–207 BCE." PhD diss., Columbia University.
- Korolkov, M. and A. Hein. 2020. "State-induced migration and the creation of state spaces in early Chinese empires: Perspectives from history and archaeology." *Journal of Chinese History*, 1–23. doi:10.1017/jch.2020.45.
- Lau, U. and T. Staack. 2016. *Legal practice in the formative stages of the Chinese Empire: An annotated translation of the exemplary Qin criminal cases from the Yuelu Academy Collection*. Leiden: Brill.
- Lee Kim, M. 2016. "Discrepancy between laws and their implementation: An analysis of granaries, statutes, and rations during China's Qin and Han periods." *Journal of the Economic and Social History of the Orient* 59.4, 555–589.
- Lewis, M. E. 2006. *The construction of space in early China*. Albany, NY: State University of New York Press.
- . 2007. *The early Chinese empires: Qin and Han*. Cambridge, MA: Belknap Press of Harvard University Press.
- . 2015a. "Early imperial China, from the Qin and Han through Tang." In A. Monson and W. Scheidel (eds.), *Fiscal regimes and the political economy of premodern states*, 282–307. Cambridge: Cambridge University Press.
- . 2015b. "Public spaces in cities in the Roman and Han Empires." In W. Scheidel (ed.), *State power in ancient China and Rome*, 204–229. Oxford: Oxford University Press.
- Li Yufang 李毓芳. 1993. "Han Chang'an cheng hongfan yao he zhubi yizhi" 汉长安城洪范窑和铸币遗址 [The coin casting and mold-baking kiln sites at Han Chang'an]. *Zhongguo kaoguxue nianjian* 中国考古学年鉴, 245–246.
- Li Zhenhong 李振宏. 2003. *Juyan Han jian yu Han dai shehui* 居延漢簡與漢代社會 [The Han documents from Juyan and the Han society]. Beijing: Zhonghua shuju.
- Liu Qingzhu 刘庆柱. 2000. *Gudai ducheng yu di ling kaoguxue yanjiu* 古代都城与帝陵考古学研究 [An archaeological study on ancient capitals and imperial tombs]. Beijing: Kexue chubanshe.
- Loewe, M. 1967. *Records of Han administration*. 2 vols. Cambridge: Cambridge University Press.
- . 2015. "The tombs built for Han Chengdi and migrations of the population." In M. Nylan, G. Vankeerberghen, and M. Loewe (eds.), *Chang'an 26 BCE: An Augustan age in China*, 201–217. Seattle, WA: University of Washington Press.
- Ma Tsang Wing 馬增榮. 2017a. "Qin Han shiqi de guyong huodong yu renkou liudong" 秦漢時期的僱傭活動與人口流動 [The activities of hired laborers and population mobility during the Qin and Han periods]. "Jianbo 簡帛 – Bamboo and Silk Manuscripts Web." http://www.bsm.org.cn/show_article.php?id=2946.
- . 2017b. "Scribes, assistants, and the materiality of administrative documents in Qin-Early Han China: Excavated evidence from Liye, Shuihudi, and Zhangjiashan." *T'oung Pao* 103.4–5, 297–333.
- Mattingly, D. J. 2011. *Imperialism, power, and identity: Experiencing the Roman Empire*. Princeton, NJ: Princeton University Press.
- Mote, F. W. 1977. "The transformation of Nanking, 1350–1400." In G. W. Skinner (ed.), *The city in late imperial China*. Stanford, CA: Stanford University Press.
- Nienhauser, W. H., ed. 2019. *The Grand Scribe's records*. Vol. 11, *The memoirs of Han China, Part 4*. Bloomington, IN: Indiana University Press.
- Ning Ke 宁可. 1982. "Guanyu 'Han Shiyarli fulao dan maitian yueshu shiquan'" 关于《汉侍延里父老僱买田约束石券》 [On the 'land purchase contract on stone by an association of village elders from Shiyarli']. *Wenwu* 文物, no. 12, 21–27.
- Nishijima, S. 1986. "The economic and social history of Former Han." In D. Twitchett and M. Loewe (eds.), *The Cambridge history of China*. Vol. 1, 545–607. Cambridge: Cambridge University Press.

- Nylan, M. 2015a. "Introduction." In M. Nylan and G. Vankeerberghen (eds.), *Chang'an 26 BCE: An Augustan age in China*, 3–52. Seattle WA: University of Washington Press.
- . 2015b. "Supplying the capital with water and food." In M. Nylan, G. Vankeerberghen, and M. Loewe (eds.), *Chang'an 26 BCE: An Augustan age in China*, 99–130. Seattle, WA: University of Washington Press.
- Ökushi Atsuhiko 大櫛敦弘. 1985. "Kandai no 'chūka no san' ni kan suru ichi kōsatsu: Kyoen Kankan shoken no 'ko' 'choku' o megutte" 漢代の『中家の産』に関する一考察: 居延漢簡所見の『賈·直』をめぐって [An investigation into the 'wealth of middling families' of the Han period: 'jia' and 'zhi' in the Han documents from Juyan]. *Shigaku zasshi* 史学雑誌 94.7, 1172–1194.
- Pirazzoli-t'Serstevens, M. 2009. "Chinese lacquerware from Noyon uul: Some problems of manufacturing and distribution." *Silk Road* 7, 36–41.
- . 2010. "Urbanism." In M. Nylan and M. Loewe (eds.), *China's early empires: A re-appraisal*, 169–185. Cambridge: Cambridge University Press.
- Razeto, A. 2014. "Comparing east and west: Aspects of urban manufacture and retail in the capitals of the Roman and Han Empires." In A. T. Creekmore, III and K. D. Fisher (eds.), *Making ancient cities: Space and place in early urban societies*, 337–369. Cambridge: Cambridge University Press.
- Russell, B. 2013. *The economics of the Roman stone trade*. Oxford: Oxford University Press.
- Sahara Yasuo 佐原康夫. 2002. *Kandai toshi kikō no kenkyū* 漢代都市機構の研究 [A study of the structure of cities during the Han period]. Tokyo: Kyūko shoin.
- Scheidel, W. and S. J. Friesen. 2009. "The size of the economy and the distribution of income in the Roman Empire." *The Journal of Roman Studies* 99, 61–91.
- Selbitschka, A. 2018a. "'I write, therefore I am': Scribes, literacy, and identity in early China." *Harvard Journal of Asiatic Studies* 78.2, 413–477.
- . 2018b. "Sacrifice vs. sustenance: Food as a burial good in late pre-imperial and early imperial Chinese tombs and its relation to funerary rites." *Early China* 41, 179–243.
- . 2018c. "The pitfalls of second-hand information: On the traditionalist dogma in Chinese excavation reports." *Bulletin of the Museum for Far Eastern Antiquities* 79/80, 31–72.
- Shi Yang 石洋. 2012. "Ryōkan yōka henshen kōshō" 兩漢雇傭變遷考証 [A critical study of wage dynamics during the period of the two Han dynasties]. *Tōyōshi kenkyū* 東洋史研究 71.2, 1–28.
- . 2014. "Liang Han Sanguo shiqi 'yong' qunti de lishi yanbian: Yi minjian guyong wei zhongxin" 兩漢三國時期'傭'群體的歷史演變: 以民間雇傭為中心 [The historical transformation of the social group of 'yong' during the periods of the two Han dynasties and the Three Kingdoms: with a focus on private employment]. *Zhongguo shi yanjiu* 中国史研究, no. 3, 51–77.
- Shigechika Keiju 重近啓樹. 1990. "Shin Kan no shōnin to sono futan" 秦漢の商人とその負担 [Qin and Han traders and their liability]. *Sundai shigaku* 駿台史学 78, 27–59.
- Shiji* 史記 [The Scribe's records]. 1959. Composed by Sima Qian 司馬遷 (145 or 135–ca. 87 BCE). Beijing: Zhonghua shuju.
- Shu jin shihua bianxie zu 蜀錦史话编写組. 1979. *Shu jin shihua* 蜀錦史话 [A history of Shu brocade]. Chengdu: Sichuan renmin chubanshe.
- Shuihudi Qin mu zhujian zhengli xiaozu 睡虎地秦墓竹簡整理小組. 1990. *Shuihudi Qin mu zhujian* 睡虎地秦墓竹簡 [Bamboo slips from a Qin tomb at Shuihudi]. Beijing: Wenwu chubanshe.
- Smith, M. L. 2018. "Urbanism and the middle class: Co-emergent phenomena in the world's first cities." *Journal of Anthropological Research* 74.3, 299–326.
- Swann, N. L. 1950. *Food and money in ancient China: The earliest economic history of China to AD 25: Han Shu 24 with related texts, Han Shu 91 and Shih-Chi 129*. Princeton, NJ: Princeton University Press.

- Tada Kensuke 多田 隼介. 1965. "Kandai no chihō shōgyō ni tsuite: gōzoku to shonōmin no kankei o chūshin toshite" 漢代の地方商業について: 豪族と小農民の關係を中心として [Local commerce during the Han period: Centering on the relations of wealthy families and small farmers]. *Shichō* 史潮 92, 36–49.
- Utsonomiya Kiyoyoshi 宇都宮清吉. 1955. *Kandai shakai keizai shi kenkyū* 漢代社會經濟史研究 [A study of the social and economic history of the Han period]. Tokyo: Kōbundō shōbō.
- von Glahn, R. 2016. *The economic history of China: From antiquity to the nineteenth century*. Cambridge: Cambridge University Press.
- . 2020. "Modalities of the fiscal state in imperial China." *Journal of Chinese History* 中國歷史學刊 4.1, 1–29.
- Wagner, D. B. 2001. *The state and the iron industry in Han China*. Copenhagen: Nordic Institute of Asian Studies.
- Wang Zijin 王子今. 2012. "Xi Han Chang'an de gonggong kongjian" 西汉长安的公共空间 [Public spaces in Western Han Chang'an]. *Zhongguo lishi dili luncong* 中国历史地理论丛 27.1, 72–83.
- Watanabe Shinichirō 渡辺信一郎. 1986. *Chūgoku kodai shakai ron* 中國古代社會論 [On the ancient society of China]. Tokyo: Aoki shoten.
- Watson, B. 1993. *Records of the Grand Historian: Han dynasty II*. Revised ed. New York, NY: Columbia University Press.
- Wen Leping 溫樂平 and Cheng Yuchang 程宇昌. 2003. "Cong Zhangjiashan Han jian kan Xi Han chuqi ping jia zhidu" 從張家山漢簡看西漢初期平價制度 [Investigating the system of fair-market prices during the early Western Han period on the basis of the Han documents from Zhangjiashan]. *Jiangxi shifan daxue xuebao (Zhaxue shehui kexue ban)* 江西师范大学学报 (哲学社会科学版), no. 11, 73–77.
- Wen xuan* 文選 [Selections of Refined Literature]. 1936. Composed by Xiao Tong 蕭統 (501–531 CE). Hong Kong: Shangwu.
- Xie Yanxiang 谢雁翔. 1974. "Sichuan Pixian Xipu chutude Dong Han canbei" 四川郫县犀浦出土的东汉残碑 [An Eastern Han fragmented stele excavated at Xipu, Pixian, Sichuan]. *Wenwu* 文物, no. 4, 67–71.
- Yamada Katsuyoshi 山田勝芳. 1993. *Shin Kan zaisei shūnyū no kenkyū* 秦漢財政收入の研究 [A study on Qin and Han fiscal revenue]. Tokyo: Kyūko shoin.
- . 2000. *Kahei no Chūgoku kodaishi* 貨幣の中国古代史 [A monetary history of Chinese antiquity]. Tokyo: Asahi shinbunsha.
- Yantie lun jiaozhu* 鹽鐵論校注 [The Discourses on Salt and Iron with collated commentaries]. 1992. Composed by Huan Kuan 桓寬 (first century BCE). Commentaries compiled by Wang Liqi 王利器. Beijing: Zhonghua shuju.
- Yü, Y. 1967. *Trade and expansion in Han China: A study in the structure of Sino-barbarian economic relations*. Berkeley, CA: University of California Press.
- Zhang, J. 2015. "The residential wards 里 of Western Han Chang'an." In M. Nylan and G. Vankeerberghen (eds.), *Chang'an 26 BCE: An Augustan age in China, 175–200*. Seattle, WA: University of Washington Press.
- Zhongguo shehui kexueyuan kaogu yanjiusuo Hancheng dui 中国社会科学院考古研究所汉城队, ed. 1994. "Han Chang'an cheng yaozhi fajue baogao" 汉长安城窯址发掘报告 [Excavation report of the kiln sites of Han Chang'an]. *Kaogu xuebao* 考古学报, no. 1, 99–129.
- Zhongguo shehui kexueyuan kaogu yanjiusuo Hancheng gongzuodui 中國社會科學院考古研究所漢城工作隊, ed. 1995. "1992 nian Han Chang'an cheng yezhu yizhi fajue jianbao 1992 nian 汉长安城冶铸遗址发掘简报 [Preliminary report of the 1992 excavation of the casting site at Han Chang'an]." *Kaogu* 考古, no. 9, 792–807.
- Zhou Changshan 周長山. 2001. *Han dai chengshi yanjiu* 漢代城市研究 [A study on cities of the Han period]. Beijing: Renmin chubanshe.

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