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STAFF PAPER

DIVERSE BEGINNINGS

Agricultural Economics
1880 - 1920

by

B. F. Stanton

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DIVERSE BEGINNINGS*

The Late Nineteenth Century

What has come to be known as agricultural economics in the United States grew out of diverse beginnings. At the start of the twentieth century the discipline had begun to emerge. In the language of plant breeding the parent genetic material reflected great variability. The resulting crossbred lines were vigorous in part because the outcrosses were many and the heritable characteristics so diverse. It was interest and concern for a common set of agricultural problems that brought the early leaders together more than anything else.

The 1880's and 1890's - To get some flavor of the early days of agricultural economics one must recall some American history of the late 19th century. The great westward expansion of the 1870's and 1880's coupled with transcontinental railroads and the mechanization of agriculture led to major problems in agriculture and widespread discontent. In the words of Henry C. Taylor, "Eastern markets were flooded with wheat, pork and beef at prices that were embarrassing not only to farmers of the West but also to farmers of Ohio, New York, Pennsylvania and New England." (13, pp. 3)

Carver in his chapter, "Historical Sketch of Modern Agriculture" described the American farm economy in the following terms:

"For the first time in modern history the landowning interests have been the turbulent, dissatisfied, radical, or semi-revolutionary elements of our population. The grange movement of the early 1870's

*This paper benefitted from the careful reading and suggestions of a number of colleagues, particularly K. L. Robinson, Nelson Bills, Lee Day and S. W. Warren. The errors of fact or inference remain with the author.

was not in its origin a radical movement, nor were its objects political, but it speedily developed into a political movement aiming primarily at reforms in the banking and railroad policy of the country. Next came the greenback movement of the late seventies and the early eighties, which threatened to overturn our monetary system completely. Finally there came the free-silver movement of the nineties, another movement of the same kind, which subsided only at the return of prosperity to the agricultural interests. It was the overexpansion of agriculture and its consequent unprofitableness during this period, more than anything else which brought about this condition of instability and discontent." (pp. 97-98)

There was a great depression in 1893 not only in agriculture but throughout all sectors of the American economy. Prices fell; debts were unpaid; mortgage foreclosures were common. Farm leaders, agriculturists, economists, and Congressmen discussed different forms of government intervention from the granting of government credit to individual farmers to the public regulation of banking, railroads and meat packing.

Agricultural Colleges and Experiment Stations - The Morrill Act of 1862, which made possible the formation of the land grant colleges of the several states is now widely recognized as a major landmark in the building of our national system of higher education. But the beginnings in agriculture were slow. Often only one or two professors of agriculture were appointed at the new A&M Colleges. There were little money and few students in the 1870's and 1880's. In many respects it was the Hatch Act of 1887 and the associated funding for state and federal agricultural experiment stations that signaled the real commitment of federal dollars to agricultural research and teaching. Prior to 1888 there were 20 experiment stations in the United States. In 1888 alone 26 new stations were established (Carver, (2) pp. 108). The federal-state partnership^{1/}, which we now take for granted, was thus established with

^{1/} The Smith-Lever Act and Cooperative Extension developed early in the 20th century in a somewhat analogous manner.

a continuing source of money for scientific work in agriculture. The applied biology and experimental work pioneered in Europe and a few stations in the Eastern third of America now could be developed in every state.

Political Economy - The study of economics or political economy was a part of the curriculum at most colleges and universities in the United States during the last half of the 19th century. Because agriculture was a major industry and the primary activity of a large proportion of the population it was treated in most economics textbooks as a separate topic or alternatively was the basis for many of the examples and illustrations of economic principles such as rent, the valuation of resources and comparative advantage. As Taylor wrote, ... "while no one in the United States specialized in agricultural economics prior to 1900, there were many economists who took an interest in the economic problems of the farmer as a part of the whole national economy." ((13), pp. 31) The 1892, 1894 and 1896 meetings of the American Economic Association had major sessions devoted to the farmers' movement, agricultural discontent and economic demands, and the special problems of agriculture.

An early leader was J. M. Gregory at the University of Illinois whose book, A New Political Economy, published in 1882 was widely used in early courses taught by Professors of Agriculture as well as economists. One of the founders of the American Economic Association in 1885 was Richard Ely (1854-1943). Ely left Johns Hopkins in 1892 for the University of Wisconsin, and taught generations of students about political economy, conservation and what would develop in time to be called, land economics. The other major figure before the turn of the century was Thomas Nixon Carver (1865-1961), professor of political economy at Harvard University. Both Ely and Carver, trained as economists, were so influential in the development of agricultural economics in the 20th century that it is easy to forget their importance as leading economists in the 1890's. Carver was one of the first 10 fellows of AAEA honored in 1957.

Agricultural Science - In the last half of the 19th century, applications from the natural sciences began to have an impact on teaching in colleges of agriculture. The fields of soils, agronomy, plant breeding, horticulture, animal nutrition and agricultural chemistry found their way into the course programs of most agricultural colleges. Most of the first professors of agriculture were generalists. They took the scientific work from Europe and the husbandry gleaned from years of observation and taught their students. They ran the "College Farm" and conducted a few experiments. With new money from the Hatch Act (1887) and agricultural distress all around them, more effort was made to carry on tests at the experiment stations and learn more about farmers' problems in the field.

In scattered locations across the country in the 1890's cost studies for individual crops were initiated, a few farm accounts were collected and analyzed, and field observations on well managed farms were made and recorded. Most of these pioneers were trained in agronomy, horticulture or soils. It was the professors of agriculture, pushed by low prices in the 1880's and 1890's and the concern of farmers, who encouraged these new ventures. Thus it was men like Bailey at Cornell, Hays at Minnesota, Scott at Wisconsin, Hunt at Ohio State, and Morrow at Illinois who started the teaching and these field studies, on which one of the foundations of our discipline was built.

Hence, it was the interaction of a number of powerful forces that led to early work in agricultural economics. (1) Agricultural discontent and the economic plight of farmers were one element; (2) Permanent funding for research and teaching was another; (3) Active participation by economists in scholarly work in colleges of agriculture was another dimension; and (4) the efforts of agronomists and agriculturists to find answers to business problems of farmers was still another. To discuss them as separate forces is perhaps to suggest an

independence that did not exist in fact. All worked cumulatively to lead a number of individuals to work full time on the economic problems of agriculture and the management problems of farmers. These independent minded, strongly committed and creative pioneers fashioned the warp and woof of our profession. Happily they came out of quite different traditions which produced the vigor and diversity which remain today.

The Early Twentieth Century, 1900 - 1920

It was farmer distress and low agricultural prices that piqued interest in farm economics in the late 19th century, but it was agricultural prosperity and continued political activism by farm leaders early in the 20th century that allowed the discipline to develop. At last there was money from both state and federal sources to teach and study agricultural problems. Bright young men could work full time on economic issues. Moreover, the new lands of the West were now largely settled. It was time to think about how to use these resources most wisely.

Cochrane (3), Salter (9), Taylor (12) and Warren (14) all agree in their historical summaries about key individuals who provided initial leadership. In the state colleges and experiment stations there were two groups with somewhat different approaches. One came from the discipline of economics with an orientation towards political economy. The other group came from agronomy and the agricultural sciences. Simultaneously, a group within USDA began to work full time on the economic problems of farmers. The Office of Farm Management was established in 1902 and grew under the leadership of W. J. Spillman, who was trained as a mathematician, physicist and biologist. He was given the title of agrostologist.

There were many individuals who left their mark on the institutions where they worked as well as on their colleagues and their students. Any list of these initial leaders will do an injustice by omitting some key and deserving individuals. But the imprint of Spillman, Taylor and Warren during these early years remains pervasive. Each was educated in liberal arts and sciences as an undergraduate. Each committed himself vigorously to the welfare of farmers and rural communities. Each was a forceful personality, both loved and feared, most willing to take a stand and defend it. Despite their differences, these three men joined forces to establish the American Farm Economics Association in 1919. The American Farm Management Association formed in 1910 and the Association of Agricultural Economists formed in 1915 had too much interest in the same important problems to work separately.

Spillman (1863-1931) - The first Director of USDA's Office of Farm Management is perhaps best remembered today for his little book, The Law of Diminishing Returns (10), published in 1924. Independently he and Mitscherlich in Germany developed a mathematical formulation to allow the estimation of a production function for crop or livestock production which incorporated the "law of the diminishing increment" ($y = A(1-R^x)$). But his interests were not confined to production functions^{1/}. He initiated studies of types of farming in the United States, the use of dot maps to show the distribution of crops and livestock, studies of farm tenancy and surveys to compare farmer practices with experimental results. He was the first President of the American Farm Management Association formed in 1910 and a key figure at the USDA in insuring that research on economic issues in agriculture received funding and high priority.

^{1/} Warren described Spillman in these terms, "Just when his interest in farm management began, I do not know. But since he was interested in physics, heredity, language, grasses, and everything else, I presume a search of his versatile work would show something in the field of farm management before this date (1902)." (14)

His excitement and enthusiasm stimulated all those who worked with him. He was an important reason why there was federal funds for research in agricultural economics.

Taylor (1873-1968) - Often referred to as the "father of agricultural economics in the United States," Henry C. Taylor's life spanned much of our profession's history. His doctoral dissertation in economics from the University of Berlin dealt with the decline of the land owning farmers in England. He was a professor at the University of Wisconsin from 1900 to 1922 except when he was on leave serving with one government agency or another in Washington, D. C. In 1922 when the Bureau of Agricultural Economics was formed he became its first chief. His text, An Introduction to the Study of Agricultural Economics, initially published in 1905 was one of the first to apply the principles of economics primarily to agricultural questions. He became the first Director of the Farm Foundation in 1933.

He was a prolific writer. His book, The Story of Agricultural Economics in the United States, 1840-1932, is carefully annotated and describes in detail early work in our field in some 1121 pages. His last article in the JFE came in May 1966 when he was 93 years old. Its title, "Food Requirements Dominate Britain's Trade Policy" reflects the breadth of his interests and the continuing energy that he gave to all he did.

Warren (1874-1938) - Just as Taylor is associated with the economics branch of agricultural economics, Warren was a leader on the agricultural science side. Trained in mathematics at Nebraska he came to Cornell to study horticulture with L. H. Bailey. But the problems of farmers and interest in the country life movement led Warren to a new field. Over a span of 5 or 6 years with Bailey's active encouragement, the agricultural survey method was developed. The methods used in the first farm management survey of 749 farms

in Tompkins County published in Cornell Bulletin 295 in 1911 had a major impact on subsequent work throughout the United States. The underlying philosophy of Bailey and Warren's approach is given in the first paragraph of that bulletin:

"Every farm is an experiment station and every farmer the director thereof. If we can collect and properly correlate the results of all the more or less accurate experiences and experiments, we shall have a body of most valuable knowledge.

If such results are secured from a few farmers or from general observations, the conclusions are not likely to be accurate; but if large numbers of experiences are studied by statistical methods, reliable results may be obtained." (pp. 385)

Warren was an effective writer. He wrote in clear, short sentences. He made his facts come alive. Pictures, tables and charts were a key part of all his books and bulletins. From farm management his interests moved on to prices, cooperatives, business cycles, land economics and farm policy. But the well-being of farmers and rural communities were always fundamental to his work throughout his career.

The work and interests of these three early leaders tell us something about the combination of things which attracted other bright, ambitious scholars to the new field of agricultural economics. There was a burning desire to understand more about why prices, costs and agricultural institutions changed as they did. There was a basic commitment to get facts and numbers from which to make generalizations and judgments. There was recognition that state and federal governments had roles to play and responsibilities to serve farmers. They sought to begin to define them. Solving real world problems was their goal. Statistics and quantitative methods were important tools from the beginning.

Summary Observations - Agricultural economics became a field of academic study in the early twentieth century in this country partly because of economic stress and partly because of the uniqueness of agriculture. These problems and the efforts to understand them attracted the interests and skills of able

politicians, economists and agriculturists. With public funding from the 1890's onward, talents and methodology from diverse fields were melded together into a different, but separable area for study. The glue that bound the early workers together was a common concern for the economic problems of farmers. In the diversity of their interests, backgrounds and methodology lies part of the energy and strength of the field we now call agricultural economics.

References

1. Bailey, L. H., The Country-Life Movement, The MacMillan Company, 1911, 220 pp.

Liberty Hyde Bailey provided much of the impetus for initial growth and development of the College of Agriculture at Cornell. He was chairman of the Country Life Commission appointed by President Theodore Roosevelt as well as an active scientist, teacher and college administrator. This book reflects some national concerns at the turn of the 20th century and suggests what might be done to make rural life as effective and satisfying for its citizens as for those living in towns and cities.

2. Carver, T. N., Principles of Rural Economics, Ginn and Company, 1911, 386 pp.

This Harvard professor, trained in economics, applied the principles of economics to the problems of rural farms and communities. Chapter 2 provides an excellent summary of agricultural history in the 19th century. Chapter 6 entitled, "Principles of Rural Social Life," is an early example of an author applying ideas from macroeconomics to the problems of rural communities.

3. Cochrane, W. W., Agricultural Economics at the University of Minnesota, University of Minnesota, Misc. Publication 21, 1983, 132 pp.

This history of agricultural economics at the University of Minnesota gives a picture of developments at one of the major institutions where agricultural economics has been important from its beginnings. Hays and Boss were important leaders in farm management at the beginning of the 20th century. John D. Black dominated the department and the profession in the 1920's and 1930's. Cochrane provides excellent insight into how agricultural economics developed at Minnesota and in the rest of the country from 1886 to 1979.

4. Gregory, J. M., A New Political Economy, Van Antwerp, Bragg & Co., 1882, 394 pp.

This man of letters summarized his lectures on political economy into book form shortly before he became the President of the University of Illinois. His book was widely used throughout the United States in the 19th century and is cited in most of the early texts in agricultural economics. A separate chapter on the agricultural or rural economy is a feature of this early American book on political economy.

5. Harrison, Fairfax, Roman Farm Management, The MacMillan Company, 1913, pp. 365.

This book is primarily a translation of the treatises of Cato (B.C. 234-149) and Varro (B.C. 116-28) with an introductory statement about both Romans by Harrison, who describes himself as a Virginia farmer but was incidentally President, Southern Railroad. Cato's writings on agriculture are brief, 30 pages. Varro's writings and commentary make up the bulk of the book. This text was quite regularly cited in books and courses in farm management in the early 1900's.

6. Hunt, Thomas F., How to Choose A Farm, The MacMillan Company, 1906, 412 pp.

Hunt was an agronomist who taught one of the first courses in farm management in the United States. This book discusses soils, climate, topography, farm layout and cropping systems in relation to choosing and organizing a farm. More than half of the book describes types of farming throughout the United States from New England to Hawaii and even Latin America. Hunt taught at Illinois, Penn State, Cornell, Ohio State and was Dean at the University of California. Taylor dedicated his Story of Agricultural Economics to Hunt ... "who opened the door for agricultural economics in the land grant colleges".

7. Mitchell, D. G., Wet Days at Edgewood, New York, Charles Scribner, 1864.

The title of Mitchell's book does not give a sense of its contents. The author operated a farm in Connecticut as well as writing for the Atlantic Monthly and describes in nine chapters some of the important writings about agriculture from the time of the Greeks and Romans up to the 19th century. There are quotations from Homer, Xenophon, Cato, Virgil, Jethro Tull, Arthur Young, and many others from the years in between. This book was widely assigned to students in the first courses in agriculture in the United States in the 19th century.

8. Nôu, Joosep, Studies in the Development of Agricultural Economics in Europe, Annals of the Agricultural College of Sweden, Vol. 33, 1967, Esp. Chap. 11, pp. 494-562.

This book of 611 pages was presented by Nôu as his doctoral thesis at Uppsala. It describes early work in political economy and agricultural economics in each of the major countries in Europe. There are substantial quotations from each of the early writers in England, France, Germany and Russia as well as from the smaller countries of Europe such as Czechoslovakia, Austria, Switzerland, and the Scandinavian countries. The last chapter attempts a synthesis of the development of agricultural economics in the Western world including North America.

9. Salter, Leonard A., A Critical Review of Research in Land Economics, The University of Minnesota Press, 1948.

This book was published posthumously after Salter's tragic death in a hotel fire in 1946. It is an historical and analytical treatment of the evolution of land economics, or what is now thought of as natural resource economics between 1885 and 1940, in the United States and Western Europe. Salter's insights are still relevant some 40 years later.

10. Spillman, W. J. and Emil Lang, The Law of Diminishing Returns, World Book Company, 1924, 175 pp.

Spillman wrote a number of books during his active career including Farm Management in 1923. This small book of 170 pages summarizes his work on the "Law of Diminishing Increment." The second part, "The Law of the Soil," shows how a German soil scientist, Mitscherlich, also developed a mathematical formulation to estimate production functions for individual crops. Lang summarizes this work and relates it to Spillman's studies in the United States.

11. Taylor, Henry C., An Introduction to the Study of Agricultural Economics, The MacMillan Co., 1905, 327 pp.

This was the first text to use the title "Agricultural Economics." There were many editions of the original book. Each was successively longer and more comprehensive. In the preface of the 1919 edition he made the following statement:

"The author wishes especially to thank Professors Richard T. Ely, T. N. Carver, W. J. Spillman, and G. F. Warren, who have been of great help from time to time, in conferences and through correspondence, in clearing up many of the difficult problems in this field."

12. Taylor, H. C., "The Development of the American Farm Economic Association," Journal of Farm Economics, Vol. 4:92-100; April 1922.

This article charts developments that led to the formation of the American Farm Economic Association in 1919. He starts with an AEA meeting in 1897 at which L. H. Bailey proposed discussion of seven economic questions concerning agriculture. Other such sessions were held in 1903 and 1907. A meeting of teachers of farm management in connection with the Graduate School of Agriculture was held at Cornell in 1908. At the next meeting of the Graduate School at Iowa State in 1910, the American Farm Management Association was formed. The subsequent meetings and interchange between agriculturists and economists between 1910 and 1919 are then documented resulting in the Association which continues today. W. J. Spillman's review and comments are included at the end of the article.

13. Taylor, H. C. and Taylor A. D., The Story of Agricultural Economics, 1840-1932, Iowa State College Press, 1952, pp. 1121.

This massive volume is one of the Henry C. Taylor's last scholarly efforts. He and Mrs. Taylor worked on this book over a long period of years. He cites his indebtedness to Everett Edwards and the National Agriculture Library for their substantial assistance in identifying publications and references pertaining to agricultural economics. In many respects it is an autobiographical summary of Taylor's working relationships with nearly everyone in this field over more than half a century.

14. Warren, G. F., "The Origin and Development of Farm Economics in the United States," Journal of Farm Economics, Vol. 14, January 1932.

This journal article was written on the occasion of a special program memorializing the work of W. J. Spillman. It provides insight into early work among the agriculturists who were concerned with farm management and the ways in which strong contacts were developed with the economists who worked on the solution of agricultural problems.

15. Warren, G. F., Farm Management, The MacMillan Company, 1913, 590 pp.

This textbook which was widely used throughout the United States, (nine printings by 1918) provides insight into the importance of the survey methodology and the use of economic principles in teaching students and farmers. The writing style and the numerous practical examples indicate the ways in which academics were able to reach a large number of people throughout rural America.