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Constantin Carathéodory in Munich (1924–1945): moral courage and constraints under the Nazi Regime**

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Abstract

This paper examines the life and decisions of Constantin Carathéodory, a Greek-German mathematician, during his tenure at the University of Munich (1924–1945). It addresses criticisms of Carathéodory's actions during the Nazi regime, analyzing historical sources to argue that he maintained a hostile attitude toward the regime while supporting persecuted colleagues. The study highlights the constraints he faced and the moral choices he made against the backdrop of a tragic period in German history, offering a nuanced understanding of his legacy.

Keywords Constantin Carathéodory · Calculus of variation · Partial differential equations · Thermodynamics · Maria Georgiadou · Ulf Hashagen

1 Introduction

Constantin Carathéodory (1873–1950) was a prominent mathematician whose work spanned fields such as the calculus of variations, partial differential equations, and thermodynamics. Born into a cosmopolitan Greek family, Carathéodory's career took him across Europe, including a significant period at the University of Munich (1924–1950). His tenure coincided with the rise and fall of the Nazi regime, a period marked by profound moral and professional challenges for academics in Germany.

This paper revisits Carathéodory's life and decisions during this turbulent era, addressing criticisms raised by historians such as Maria Georgiadou and Ulf Hashagen. By analyzing primary sources and contextualizing Carathéodory's actions within the constraints of the Nazi regime, we argue that he demonstrated moral courage in supporting persecuted colleagues and resisting the regime's ideological pressures, despite the risks involved.

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2 Carathéodory's early life and career

2.1 Family background and education

Carathéodory was born in Berlin in 1873 to a distinguished Greek family with deep roots in diplomacy and commerce. His father, Stephanos Carathéodory, served as an attaché at the Ottoman embassy in Berlin, while his mother, Despina Petrocokino, came from a wealthy merchant family in Marseille. The Carathéodory family belonged to the Phanariots, a group of influential Greek elites who played key roles in the Ottoman administration.

Growing up in Brussels, Carathéodory was exposed to a cosmopolitan environment that shaped his intellectual development. His multilingualism and exposure to diverse cultures fostered a broad worldview, which would later influence his academic and personal decisions.

2.2 Transition to mathematics

Carathéodory completed his engineering studies at the École Militaire de Belgique in 1895 and studied at the École d'Application until 1896. The outbreak of the Greco-Turkish War in 1897 placed him in a difficult position, as his father was then the Ottoman ambassador in Brussels. Rather than taking up arms, Carathéodory accepted a position as an engineer for the British Colonial Service in Egypt. While working on the construction of a barrage, he pursued his passion for mathematics, conducted measurements on the Cheops Pyramid, and authored a book on Egypt.

His growing interest in mathematics led him to abandon his engineering career and pursue advanced studies in Berlin and Göttingen. Under the mentorship of David Hilbert and Felix Klein, Carathéodory earned his doctorate in 1904 with a groundbreaking dissertation on discontinuous solutions of variational problems.

2.3 Academic career before Munich

Carathéodory's academic career was marked by rapid advancement. He held professorships at several German universities, including Bonn, Hannover, Breslau, and Göttingen, where he succeeded Felix Klein in 1913. His work during this period established him as a leading figure in mathematics, contributing to fields such as complex analysis, measure theory, and thermodynamics.

In 1919, Carathéodory was invited to establish the Ionian University of Smyrna, which he envisaged as a bridge between the Occident and the Orient. He traveled extensively in Europe to promote the project and acquire books and equipment for the new university. However, the Turkish attack on Smyrna in 1922 forced him to flee the burning city. Using his military training, he saved the university library and transported it to Athens on a battleship. He remained in Athens, teaching at the National University and the National Technical University, until accepting a position at the University of Munich in 1924.

3 Carathéodory in Munich: challenges and criticisms

3.1 Return to Munich (1924)

Carathéodory's decision to leave Athens for Munich in 1924, following the defeat of the Greek army in the Greco-Turkish War, has been scrutinized by historians. Maria Georgiadou and Ulf Hashagen suggest that he was motivated by the lack of a robust scientific environment in Greece and his belief in the Philhellenic tradition sparked by King Ludwig II in Bavaria. These factors, combined with his conviction that he could no longer serve his native country effectively, were undoubtedly significant reasons for his move to Munich, where a flourishing mathematical research environment awaited him.

Ultra-nationalism and antisemitism were already prevalent in Germany in the 1920s. However, the rise of Nazism was not yet inevitable. Hitler had just been imprisoned after an unsuccessful coup attempt in 1923, and **Mein Kampf** had not yet been published. While the Nazi platform of the 1920s was based on anti-communism, antisemitism, and ultranationalism, most Germans in 1924 were indifferent to Hitler's rhetoric and focused on the country's economic recovery. To suggest, as Georgiadou does, that Carathéodory lacked discernment in not recognizing the Nazi danger is an overstatement.

In Munich, Carathéodory formed a close-knit intellectual circle with colleagues such as Oskar Perron and Heinrich Tietze, fostering a collaborative environment later expanded by Arnold Sommerfeld in theoretical physics. He was elected to the Bavarian Academy of Sciences in 1925.

Carathéodory's influence extended beyond this circle. Known for his rhetorical skills and broad cultural knowledge, he engaged with colleagues from other faculties, discussing topics ranging from ancient and modern Greece to Greek philosophy and mathematics. He often invited students to his home for scientific discussions, where his wife served tea and cookies. As Oskar Perron noted in his (1952) obituary, "Carathéodory did not publish many of his ideas; they live on in the works of others, especially his numerous students, whom he introduced to the spirit and methods of scientific research."

Carathéodory maintained close connections with prominent scientists such as Albert Einstein, David Hilbert, and Felix Klein, as well as with the Greek and international mathematical communities. His academic recognition grew significantly during this period. He received numerous honors, including membership in the Academy of Athens in 1926 and the editorship of **Mathematische Annalen**. In 1928, he became the first Visiting Lecturer of the American Mathematical Society, delivering talks at several American universities. He was offered a permanent position at Stanford in 1929 but used the offer to negotiate better conditions for remaining in Munich.

Notably, Carathéodory used his travels to the United States to seek academic positions for Jewish colleagues, such as Salomon Bochner, recognizing the increasing difficulties faced by Jewish academics in Germany. Although initially unsuccessful, he later secured a teaching position for Bochner at the University of Munich, where Bochner remained until he emigrated to the United States in 1933. See Hashagen (op. cit.)

3.2 Life under the Nazi regime (1933–1945)

The Nazi regime posed significant challenges for all German scientists, particularly those of Jewish descent. The Nuremberg Laws of 1935 defined Jewishness based on religion rather than blood, targeting individuals with three or four Jewish grandparents. However, discrimination extended beyond those legally classified as Jewish, affecting anyone with perceived intellectual or cultural ties to Jewishness. For example, Johannes Stark, a prominent figure in the anti-Semitic **Deutsche Physik** movement, attacked “Aryan” scientists like Max Planck, Arnold Sommerfeld, and Werner Heisenberg for teaching Einstein’s theories, labeling them “white Jews.”

The Nazi regime’s **Gesetz zur Wiederherstellung des Berufsbeamtentums** (Law for the Restoration of the Professional Civil Service) led to the dismissal of many distinguished academics, including Nobel laureates such as Albert Einstein, Hans Bethe, and Otto Stern. Even figures like Franz Haber, a converted Christian and nationalist hero of World War I, were forced to emigrate.

Few scientists openly opposed the regime. Karl Menger, writing from Vienna in 1934, observed that while Austria might have had only 45% Nazis, the percentage among university faculty was closer to 75%, and among mathematicians, nearly 100%. The situation in Germany was similar. Political naivety, nationalism, and a lack of information led many to accept or even welcome Nazi rule initially. However, as discrimination and political interference in academic life intensified, the scientific community demonstrated solidarity in subtle but significant ways. Resistance often took the form of blocking the appointment of unqualified political candidates and advocating for qualified scholars.

Carathéodory, as a Greek national with German citizenship, was classified as “Aryan” and thus not directly targeted by the race laws. However, he faced the same loss of academic freedom and climate of fear as his German colleagues. His non-German background was an additional disadvantage.

Carathéodory’s opposition to Nazi ideology is well-documented. For example, he once physically reprimanded his daughter Despina for expressing pro-Nazi sentiments, after which he sent her to Greece to continue her studies, away from the indoctrination of German schools.

Critics have argued that Carathéodory’s decision to remain in Germany, despite opportunities to emigrate, constituted implicit support for the regime. However, emigration does not necessarily demonstrate moral courage. While it can be a symbolic act of defiance, it also means abandoning the responsibility to act within the system to help those suffering. For Carathéodory, emigration would have meant leaving behind his cherished library, a collection painstakingly assembled over a lifetime and reflecting his identity as a scholar and intellectual nomad. As Georgiadou (2007) and Heilbron (2000) notes, the library contained works spanning mathematics, natural sciences, arts, and humanities, with a focus on the Ottoman Empire, Greece, and Turkey. Losing this library would have been devastating for a man who had risked his life to save the library of the Ionian University in Smyrna.

4 Moral courage and constraints

4.1 Support for persecuted colleagues

Carathéodory's diplomatic background and Byzantine heritage informed his approach to navigating the Nazi regime. Rather than engaging in overt resistance, which would have been both dangerous and counterproductive, he sought to balance accommodation with the regime and the autonomy of his profession. He maintained professional relationships with individuals associated with the regime, such as mathematicians Helmut Hasse, Wilhelm Blaschke, and Heinrich Süß. These connections facilitated his ability to continue his work without interference but also suggest a pragmatic approach to the political realities of the time.

Carathéodory supported persecuted colleagues through petitions and behind-the-scenes advocacy. For example, he signed petitions in favor of Richard Courant and Kurt Reidemeister, demonstrating his commitment to academic integrity and moral principles. His efforts to assist Jewish and politically targeted colleagues were significant, given the risks involved. His involvement in securing positions for émigrés highlights his willingness to use his international reputation for humanitarian ends.

4.2 Resistance to Nazi influence

Carathéodory's resistance to Nazi influence extended to his role in academic appointments. Alongside Perron and Tietze, he opposed the appointment of politically aligned but academically unqualified candidates. Their efforts culminated in the appointment of Eberhard Hopf, a mathematician critical of the regime, to Carathéodory's chair in 1944.

4.3 Personal and familial constraints

Carathéodory's decision to remain in Germany has been criticized, particularly by Georgiadou, who suggests that he prioritized his career and material possessions over moral principles. However, this critique overlooks the personal and familial constraints he faced. His wife and son were in precarious health, and his daughter had been sent to Athens to escape Nazi indoctrination. Emigrating at an advanced age would have entailed significant risks and sacrifices, including losing his pension and, as previously noted, his precious library.

5 Travels abroad and international engagement

Carathéodory maintained international connections despite the oppressive environment, traveling to conferences in Pisa, Bern, Brussels, and Oslo. These trips allowed him to advocate for persecuted colleagues and preserve the internationality of mathematics. His 1935 election to the International Commission of Mathematicians highlights his dedication to scientific collaboration, even in challenging times.

6 Witnesses and counterstatements

Primary sources, including letters from the National Socialist German League of Academics (NSDDB), attest to Carathéodory's opposition to the regime. A 1943 letter warns of his "cosmopolitan attitude" and "friendliness toward Jews," highlighting his perceived untrustworthiness. Such documents provide compelling evidence of his moral stance, even as they underscore the dangers he faced.

Colleagues such as Oskar Perron and Heinrich Tietze defended Carathéodory's actions, emphasizing his efforts to support persecuted scholars and resist the regime's ideological pressures. Their testimonies offer a counterbalance to the criticisms leveled by Georgiadou and Hashagen.

7 Conclusion

Constantin Carathéodory's tenure in Munich during the Nazi regime was marked by moral courage and significant constraints. While he did not engage in overt resistance, his support for persecuted colleagues and his efforts to preserve academic integrity demonstrate a commitment to humanitarian and scientific principles. His actions must be understood within the context of a brutal dictatorship, where even limited dissent carried profound risks.

This study contributes to a nuanced understanding of Carathéodory's legacy, challenging simplistic critiques and highlighting the complexities of moral decision-making under totalitarianism. By examining his life and choices, we gain insight into the broader struggles of academics during one of history's darkest periods.

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Declarations

Conflict of interest None.

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