of succeeding institutes (in North America as well as the rest of the world), the relative contributions of professors versus visitors, the roles played by women, the effect of the Institute on teaching loads and research focus within universities, the tension between achieving depth in narrow fields and covering the bewildering breadth of topics that have proliferated since 1960, and, finally, the codification of the rules of governance that were enacted around 1973 and modified 20 years later. Such suggestions for a supplementary volume do not detract from the profundity of the study that Steve Batterson has presented in *Pursuit*, but should be viewed as complementing an impressive first presentation.

References


David E. Zitarelli
Department of Mathematics, Temple University,
1805 N. Broad St., Philadelphia, PA 19122, USA
E-mail address: zit@temple.edu

Available online 26 January 2007

10.1016/j.hm.2007.01.002


These volumes present much more than a collection of letters. The essays introducing each of the major sections of the work present carefully constructed overviews of Sommerfeld’s scientific work and organizational activities. They also locate his wide-ranging work amid contemporaneous research and introduce central thematic threads that allow the reader to interpret the thematically selected and chronologically organized letters that are located in each section. The authors describe related aspects of the work of Sommerfeld’s most significant interlocutors and students. Thus, while not a scientific biography, the section introductions, comprising approximately 284 pages of text, present a detailed and guided entrée to Sommerfeld’s scientific efforts. When read together with the letters, the essays afford the reader a capacious picture of Sommerfeld’s work.

In developing a picture of Sommerfeld’s varied research, informed by a comprehensive knowledge of the history of physics literature, the authors restrict themselves to suggesting key themes and avoid forceful interpretation. The
The letters collected in the two volumes, and on an additional included CD containing an extra volume of unedited letters, represent a culling of cream from a large project that has produced an on-line database of the Sommerfeld Nachlass. The carefully chosen collection of letters present important aspects of Sommerfeld’s endeavors in the major areas of his research and contain a wealth of information contributing to an understanding of the conceptual, social, and institutional development of physics and of the sciences more broadly during a period in which not only physics, but the natural and humanistic sciences were increasingly coordinated within the German Reich.

The first volume reveals how Felix Klein’s encyclopedic project for a coherent presentation of mathematics and related physical and technical sciences was intertwined with Sommerfeld’s early and mature approaches to technical and physical questions. The volumes offer an important window on developments in physics that led to the emergence of relativity and quantum physics. In addition to indicating Sommerfeld’s viewpoints and their relationships to those of other leading researchers, including Planck and Einstein, the early letters reveal that an interacting group of mathematically trained researchers, including Sommerfeld, Wilhelm Wien, Karl Schwarzschild, and Sommerfeld protégé Paul Hertz, pursued common approaches to the physical problems of the day, often bringing sophisticated arsenals of mathematical techniques to resolve them.

Responding to the novel techniques and concepts introduced by Planck, Einstein, Ehrenfest, and others, Sommerfeld is seen to have consistently sought to conserve as much coherence in the physical world view as possible, and, in particular, to have pursued approaches that, pace relativistic and quantum novelty, did not require fundamental breaks within the theoretical representations of physical systems. In his work within the old quantum theory Sommerfeld framed systematics and mathematical structures that increasingly avoided models and Bohr’s Correspondence Principle, with the aim of developing a more complete classical theoretical foundation.

After the Great War Sommerfeld intensively promoted the development of quantum theory. The letters reveal how Sommerfeld’s students, including Heisenberg, Pauli, and a host of others, negotiated the divergent approaches to quantum theory to discover and develop the new physics. The second volume provides insight into the manifold ways in which Sommerfeld stimulated new work by training and directing many of the leading physicists of the quantum generation and assigning or suggesting fruitful topics and questions, as well as through his own work and collaboration on (what would later be called) solid-state physics.

These volumes provide insight into the changing shape of the German academic world that Sommerfeld witnessed and helped shape. The volumes outline Sommerfeld’s gradual assimilation into a German-speaking physics community as that community gained greater uniformity and cohesion within the solidifying German Reich. Volume I shows how Felix Klein and Sommerfeld were able to successfully negotiate the tense relations between the technical institutes and the universities, divisions within the faculties, and the interests of cultural ministries to promote their students and their wider scientific programs. On the international front, the volumes describe Sommerfeld as a proud and self-conscious representative of German physics and science. While empathetically describing his testy stance as a symbol of German science in the face of the exclusion of German researchers from international associations and meetings after WWI, the work equally underlines the political dimensions of his missionary trips abroad to the United States, India, and China, among others, and suggests the inherently nationalist undertones embedded in Sommerfeld’s efforts to represent and promote German science as a core component of German culture. Nevertheless, the descriptions and letters, especially from the National Socialist period, reveal Sommerfeld fighting within university and ministerial circles against the attempts—eventually successful—of promoters of National-Socialist-infused Deutsche Physik to install their scientific candidates in major chairs of physics (including his own) and then reveal him promoting Jewish students and colleagues in their search for positions abroad. In the face of the clear excesses of
the Nazi era, Sommerfeld’s correspondence shows a decided moderation from the feisty nationalistic stance that he had expressed against allied nations in the interwar period.

In short, these volumes provide a well-constructed window onto the rapidly changing relations between physics and mathematics and the emergence of theoretical physics, reflected through the career of one of the leading mathematician–physicists of the late 19th and early 20th centuries. Charting Sommerfeld’s career thus provides an important perspective on the processes through which the disciplinary and conceptual foundations of modern physical science were settled. More generally, these volumes represent a fecund source for researchers studying the history of the physical and mathematical sciences of this era. The wider Sommerfeld project, of which these volumes are a part, represents a model for further projects mapping the work of key creative figures in modern physical sciences.

Edward Jurkowitz

Department of History,
Lake Forest College, Lake Forest, Illinois, USA

E-mail address: jurkowitz@lakeforest.edu

Available online 21 April 2007

10.1016/j.hm.2007.04.003

R.L. Moore: Mathematician and Teacher

Robert L. Moore (1882–1974) was a member of what may be considered the first generation of American-trained research mathematicians [Parshall and Rowe, 1994]. Born in Texas, he received his undergraduate education at the University of Texas, Austin under the irascible George Bruce Halsted before pursuing graduate work in mathematics at the University of Chicago. There, his research focused, like that of the mathematics department’s guiding light E.H. Moore, on the search for complete and independent postulational systems. R.L. Moore concentrated on geometry and, in 1905, succeeded with the help and encouragement of the newly minted Chicago Ph.D. Oswald Veblen in deriving a “Set of Metrical Hypotheses for Geometry,” the work with which he earned his Ph.D. The foundations of geometry—but ultimately the not unrelated axiomatization and development of point set topology—would make Moore’s mathematical reputation, while his idiosyncratic teaching technique—the so-called Moore Method—would secure his reputation in the classroom. Journalist John Parker, writing under the aegis of and in cooperation with the Educational Advancement Foundation and The Legacy of R.L. Moore Project, has now written the first book-length biography of this mathematician whom David Zitarelli has styled one of the “towering figures” of early 20th-century American mathematics [Zitarelli, 2001].

Parker’s book, however, like its subject, is idiosyncratic. Some of what one expects to find in a biography is certainly here, but some of what one would expect to find in the biography of a “mathematician and teacher” (the book’s subtitle) is not.

The book opens with a chapter on R.L. Moore’s “Roots and Influences (1882–1897)” that takes Moore’s story up through his matriculation at the University of Texas. Here, Parker traces, as had Moore himself, the family’s roots to “two American presidents, the president of the Confederacy and three European royal houses” (p. 3) and proceeds to sketch the future mathematician’s life growing up in the rough-and-tumble Texas city of Dallas in the 1880s and 1890s. Not surprisingly, the account focuses on the young Moore’s education with Parker looking for, and finding, traces both of the mathematician-to-be and of the infamous Moore Method that would evolve. The evidence for the former is compelling; as a teenager, Moore was already writing to Halsted at Texas to ask his advice on calculus books to study, since calculus was not part of the curriculum of the school Moore attended in Dallas. The evidence for the latter is less so, with Parker “speculating” that the philosophy of education articulated in the school’s promotional materials “might well have sown the seed for the unique style of teaching eventually adopted by” Moore (p. 10). And it might well have not. This example in the first chapter is, unfortunately, only one of many peppered throughout this book where suggestion, in this case, or assertion, in others, replaces real evidence or compelling historical analysis.