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Göttingen in Wartime : Felix Klein's Lectures on the History of 19th-Century Mathematics as a Communal Project

Abstract :

Klein's wartime lectures were originally conceived as providing an overview of major developments during the nineteenth century, arranged both thematically as well as along the lines of competing national traditions. Delivered over several semesters, they were written up by various auditors as typescripts some of which afterward circulated in select circles. Not long after Klein's death in 1925, Richard Courant enlisted the services of Otto Neugebauer to help prepare the first volume for publication in Springer's "yellow series" under the title *Vorlesungen über die Entwicklung der Mathematik im 19. Jahrhundert*. This volume soon became a classic and influenced the writings of historians from Dirk Struik to Eric Temple Bell. This alone might be reason enough to wonder about the content and context of Klein's original lectures. Another reason relates to the second volume, which is somewhat more technical than the first, and aims to show the interplay between mathematical formalisms and concurrent developments in physical theory. A primary reason for this thematic shift came from Klein's involvement with Einstein's theory of relativity, which was taken up by Hilbert, Klein, Runge, and several other Göttingen mathematicians during the war years.

Luckily, Klein preserved his lectures from this period so that it is possible to gain a fairly clear idea of how he went about preparing his talks in Göttingen. We can thus form a picture of what he spoke about, when, where, and to whom. Some of Klein's lectures were attended by faculty members (Runge, Carathéodory, et al.), as well as post-docs (including Emmy Noether), and a small number of students. Elisabeth Klein, his youngest daughter, prepared the typescript for the first series of lectures. Klein's notes indicate numerous conversations with Emmy Noether and others who assisted him at this time. By comparing passages from the original notes with the typescripts made by his assistants, as well as the published texts as prepared by Neugebauer and co., we can gain a picture of the communal activity that helped produce this singular text, which became famous as Klein's personal vision of a mathematical culture that was fast receding into the past.