

Preface

This volume is, as may be readily apparent, the fruit of many years' labor in archives and libraries, unearthing rare books, researching *Nachlässe*, and above all, systematic comparative analysis of fecund sources. The work not only demanded much time in preparation, but was also interrupted by other duties, such as time spent as a guest professor at universities abroad, which of course provided welcome opportunities to present and discuss the work, and in particular, the organizing of the 1994 International Graßmann Conference and the subsequent editing of its proceedings.

If it is not possible to be precise about the amount of time spent on this work, it is possible to be precise about the date of its inception. In 1984, during research in the archive of the *École polytechnique*, my attention was drawn to the way in which the massive rupture that took place in 1811—precipitating the change back to the synthetic method and replacing the limit method by the method of the *quantités infiniment petites*—significantly altered the teaching of analysis at this first modern institution of higher education, an institution originally founded as a citadel of the analytic method. And it was in a French context, so favorably disposed to establishing links between history and epistemology, that I first presented my view that concept development is culturally shaped; it was at the third *Ecole d'Été de Didactique des Mathématiques* of July 1984 in Orléans that I presented my paper “Le retour du réfoûlé—Les débats sur ‘La Méthode’ à la fin du 18ème et au debut du 19ème siècle: Condillac, Lacroix et les successeurs.”

When the work was eventually completed in 2002, it was accepted as a *Habilitationsschrift* by the Mathematics Department of the University of Bielefeld. I am grateful to Jesper Lützen, editor of the series *Sources and Studies in the History of Mathematics and Physical Sciences*, and to the publishing house of Springer, for publishing the script in their series. The relatively independent former Chapter C, investigating the context of the 1811 switch in the basic conceptions at the *École polytechnique* is published separately as “Le Retour du Réfoûlé—Der Wiederaufstieg der synthetischen Methode an der École polytechnique” (Augsburg: Rauner, 2004). Its principal results are summarized here in Chapter IV.3.

In an effort to accelerate the publication of this volume, the sheer size of the manuscript led me to organize its translation from German into English, practically as a collective endeavor. I am indebted to the commitment shown by Jonathan Harrow and Günter Seib, Chris Weeks, and Dorit Funke as translators.

I wish to thank the following archives for their kind permission to reproduce documents: Archiv der Berlin–Brandenburgischen Akademie der Wissenschaften (Berlin), Archives de l'École polytechnique (Paris/Palaisau), Archives de l'Académie des Sciences (Paris).

In conclusion, I should like to make two points. Firstly, all the translations of non-English quotations—both from the original sources and from publications—are ours, except in cases where English translations already existed, which are so indicated. In a few cases, the original quotation is preserved when the context makes its meaning sufficiently clear.

The second point concerns terminology. The French reflections on foundations constitute the major focus of this study; consequently, the “triad” of basic concepts used in French mathematics to “span” the contemporary concept fields—namely *quantité*, *grandeur*, and *nombre*—is also used here, as the configuration of basic terms. Since *quantité* was understood to be the key foundational concept (cf. the *Encyclopédie* defining mathematics as the science of *quantité*), and since my English terms are intended to recall the French understanding of the time, *quantité* is rendered here throughout as “quantity,” and *grandeur* as “magnitude.”

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