

*Geschichte der Elementar-Mathematik in systematischer Darstellung mit besonderer Berücksichtigung der Fachwörter.* By J. Tropfke. Dritte verbesserte und vermehrte Auflage. Vol. I: *Rechnen*, vi+222 pp. 1930. Vol. II: *Allgemeine Arithmetik*, iv+266 pp. 1933. Berlin and Leipzig, Walter de Gruyter.

The earlier editions of this work have been exceedingly useful, not only for the great amount of material which they contain but also for their many references both to the sources and to secondary material. The first two volumes of the third edition promise well for those still to come, for the bulk of each has been considerably increased, and the number of foot notes has been enlarged in even greater proportion. The additions to the two volumes indicate our increasing knowledge of the mathematics of Egypt and Babylonia and give evidence of the activities of the last decade in the study of Hindu mathematics. Since the second editions of these volumes (1921), important studies of the Rhind Papyrus have been published by T. Eric Peet and by Chancellor Chace and his collaborators. Work has been done with the Moscow Papyrus. The Michigan Papyrus 620 has added to our knowledge of Greek algebra. In addition, many intensive studies have been made of special fields as, for example, the work of the late Dr. Wieleitner, *Über das x der Mathematiker*. In general, the additions are noted by the insertions of sentences or paragraphs rather than by the recasting of the text.

The first volume, *Rechnen*, treats numerals, computation, and certain applications to business problems. Beside the increased attention to the mathematics of Egypt and Babylonia already noted, we find that the table of the development of Hindu-Arabic numerals has been enlarged to three times its length in the second edition. It now includes numerals from the Asóka inscriptions and from the Bahksali manuscript, and Gobar numerals from two undated Arabic manuscripts. It is unfortunate that the Herodianic Greek numerals were set in type instead of being in a cut, for the exigencies of the composition spoil the appearance of the numerals. Again and again in these two volumes, the reader wishes that Dr. Tropfke might have made the lavish use of cuts and facsimiles that the late Professor Cajori was allowed in his *History of Mathematical Notations*.

The second volume, *Allgemeine Arithmetik*, treats the name algebra, the development of the number concept, algebraic operations and their symbols, and logarithms. The question of the spelling of proper names has in general been met by using the standardized transliterations for the Greek and Hindu ones, and in using the form which those in our alphabet have in their own language. An exception appears in the case of Napier, who is consistently called "Neper." In spite of the "Neperschen Logarithmen," Napier would probably be the preferable spelling. A trivial slip is in spelling Barrow's first name as Isaak.

The author has given up the spelling of Fibonacci's *Liber Abaci* used in the second edition of the *Allgemeine Arithmetik*, and has taken the spelling *Liber Abbaci*, apparently without giving any reason for this change. He has kept to the date 1228, which is that of a revision of the work, instead of using the 1202 which appears in the *incipit*.

The slips in proofreading seem to be few. Professor Karpinski sometimes