and reported in the volume entitled "Calcul simplifié." The several chapters describe instruments having a common purpose or having the same purpose and involving a common mechanical principle. At the end of each chapter there is given an almost complete chronological list of the instruments of the type described therein, with the names of inventors, dates, and frequently a remark to indicate the special characteristic. Frequent references are made to the articles by R. Mehmke and M. d'Ocagne respectively in the German and French editions of the Encyclopedia of Mathematical Sciences (French: tome I, volume 4, fascicule 2), which follow the same classification and supplement the volume under review.

There are treated instruments for the solution of problems of arithmetic, of algebra, and of analysis. These three broad types are further divided into numerous groups and classes, each with its history and development, with a description of the principle involved, a well-marked figure and enough detail, in many instances, at least, to enable even the amateur mechanician to make a similar instrument or machine.

CHARLES C. GROVE.

Mathematische Theorie der astronomischen Finsternisse. By P. SCHWAHN. Leipzig und Berlin, B. G. Teubner, 1910. 128 pp. + 20 figures in the text.

THIS very readable book forms part 8 of Jahnke's "Mathematisch-physikalische Schriften für Ingenieure und Studierende." Its aim is to give to students of natural sciences at large a clear and simple presentation of the theory of the eclipses of the Moon and the Sun, the passages of Mercury and Venus over the disc of the Sun, and the occultations of stars by the Moon. The theory of Bessel, on account of its inherent elegance was certainly best adapted for this purpose and the author has done well to select it in preference to those of Chauvenet and Wollaston. Since the book was not intended to serve as a guide to the astronomer at an almanac office, the author has introduced simplifications, wherever this could be done without injury to the final object the book was written for. The size of the book and the clear presentation of the material will make it a welcome gift to the professional astronomer, especially when reference to Bessel's original or to Chauvenet's more lengthy presentation of Hansen's method is not required. The publishing house of B. G.