

SHORTER NOTICES.

The Theory of Determinants ; in the Historical Order of Development. Second edition, revised. By THOMAS MUIR. London, Macmillan and Co., 1906. xii + 491 pp.

THE present work "is intended for the student who aims at acquiring such a knowledge as can only be got by a study of the subject in the historical order of its development, for the investigator who is specially interested in this branch of mathematics and wishes to become acquainted with the various lines of attack opened up by previous workers, and for the general working mathematician who requires guide books and books of reference concerning special domains."* It covers the period from the beginning of determinants in 1693 to the close of 1841. Jacobi's long and exhaustive memoirs published in volumes 27 and 29 of *Crelle's Journal* are also considered in connection with skew determinants, although they appeared three or four years after the close of the period under consideration.

About one-third of the space is devoted to quotations from the works of the authors under consideration. These quotations enable the reader to form an independent judgment in reference to questions of priority and are especially valuable to those who do not have access to large libraries. Each new theorem of importance is numbered in Roman figures, and if the same result is either generalized or obtained in a different way by a subsequent writer it is marked among the contributions of the latter with the same Roman figure followed by an Arabic numeral.

Two very useful tables are inserted, showing the advance of the subject from 1693 to 1812 and from 1813 to 1841 respectively. There is also an index to the numbered results, but there is no general subject index. Its value as a reference book would have been greatly enhanced by such an index, especially since the chronological order of arrangement made it frequently impossible to bring together the material relating to the same topic.

The book is divided into two parts. Part I, in ten chapters, treats of general determinants and occupies considerably more

* From the preface.