

SHORTER NOTICES.

Taschenbuch für Mathematiker und Physiker. Unter Mitwirkung zahlreicher Fachgenossen, herausgegeben von FELIX AUERBACH und RUDOLF ROTHE. 3. Jahrgang, 1913. Leipzig und Berlin, B. G. Teubner, 1913. x + 463 pp. 6 M.

THE general aims and arrangement of this very useful little encyclopedia were explained by Professor J. B. Shaw in his review of the first volume, 1909, published in this BULLETIN, volume 16 (1910), page 321. The present volume opens with a biographical sketch of Friedrich Kohlrausch, and the principal other new contributions, according to the preface, are devoted to the following subjects: Calendar and astronomy, theory of aggregates, group theory and the Galois theory of equations, the last theorem of Fermat, integral equations and their applications, multiply valued functions and uniformization, international commission on the teaching of mathematics, analytical mechanics, theory of quanta, geodesy, crystallography, and general chemistry.

Among the other new features there appears a short historical list of prominent deceased mathematicians. A similar list of prominent physicists is expected to appear in the next volume. To enable the publishers to sell the book at a lower price the present volume contains about 100 pages less than its immediate predecessor. Most of this reduction has been made in the part relating to mathematics. The present volume is about the same size as the first volume of the series and is sold at the same price, while the second volume costs one mark more. The index and the table of contents of the present volume include references to the more important subjects treated in the earlier volumes but omitted in this. The fourth volume (1915) is expected to appear at the end of 1914.

Small books dealing with such immense subjects are very useful, not only to the man who has very little time for study yet wishes to keep in touch with the most important facts and advances, but also to the student who may wish to get a clear notion of some central features before entering into details. The two mathematical subjects to which the largest

amount of space is devoted in the present volume are theory of aggregates (12 pages) and integral equations with applications (8 pages). The contributions dealing with these two subjects are due to G. Hessenberg and O. Toeplitz respectively. The article on Fermat's last theorem (6 pages) is due to A. Fleck. This article was suggested by H. A. Schwarz, and should be especially welcome to editors of journals in view of the fact that many papers on this subject are now being offered for publication by authors who are not familiar with the literature.

While the number of references is not relatively as large as one would expect in a larger encyclopedia, yet this number is considerable, and sufficient to exhibit to the general reader the fact that rapid advances are being made, since many of the references are to the works of men who are still living. Such small books are extremely useful to secure a more rapid dissemination of important new knowledge and thus to secure for scientific workers a more general recognition. It seems unfortunate that we do not have a similar work in English. Possibly the success of this series may encourage some English publisher to fill the gap which is as serious with us as it was in Germany before the appearance of the first volume of this Taschenbuch.

G. A. MILLER.

Introduction a la Théorie des Nombres algébriques. By J. SOMMER, translated from the German by A. LEVY, with a Preface by J. HADAMARD. Paris, A. Hermann et Fils, 1911. x + 376 pp.

SOMMER'S "Vorlesungen über Zahlentheorie," which was published in 1907, was the first book to present in form really available to the beginner, the elements of the theory of algebraic numbers as developed by Kummer, Dedekind, and Hilbert. By devoting the greater part of his book to quadratic and cubic number realms, with applications to other branches of mathematics, Sommer rendered a real service to students who wish to become acquainted with this beautiful theory. The German edition has already been reviewed by Professor Ling,* whose favorable opinion has been borne out by the appearance of the French translation within four years of the publication of the original.

* Ling, BULLETIN, vol. 13, No. 3, December 1907.