

before seen upper case Fraktur  $I$  and  $J$  used in the same discussion (p. 105) and hopes he never sees it again.

G. WHAPLES

*Higher transcendental functions*. Vol. 3. Bateman Project Staff, Editor A. Erdélyi. New York, McGraw-Hill, 1955. 17+292 pp. \$6.50.

The present publication is a continuation of the two volumes of the *Higher transcendental functions* completed under the Bateman Manuscript Project sponsored by the California Institute of Technology (cf. this Bulletin vol. 60 (1954) pp. 405-408). In the meantime also two volumes of the *Tables of integral transforms* have been published which are a helpful supplement to the other volumes. (For reviews see this Bulletin, vol. 60 (1954) pp. 491-493 and vol. 61 (1955) pp. 239-240.) The present book shows the same erudition and competency which were apparent in the previous ones. At the same time it is clear again how difficult it is to define natural boundaries and dividing lines in this field. Considering the present material this is particularly conspicuous for the chapter on number-theory and for some parts of the chapter on automorphic functions which deal with special functions very different in origin, aspect, and interconnections from those functions to which this term is usually applied. The book follows in general the same ordering principles and organization as the previous volumes; its usefulness is on the same level.

Chapter XIV deals with automorphic functions, XV with Lamé functions, XVI with Mathieu and similar functions. (In the meantime the important book of Meixner and Schälke has been published on this subject.) Chapter XVII is an introduction to functions occurring in number-theory while Chapters XVIII and XIX deal with more scattered topics. Naturally the concept of "generating function" (Chapter XIX) is not sufficiently substantial in order to form the backbone to many rather heterogeneous subjects.

The overwhelming credit for the preparation of the book goes, of course, to the Editor, Professor Arthur Erdélyi, who was the Director of the Bateman Project Staff. Professors W. Magnus and T. M. Apostol have participated with success in the present work. The completion of the whole project by this volume is a good opportunity to stress again that this unique work will occupy for a long time to come an outstanding place in the modern literature on special functions occurring in mathematical physics. This well organized collection of important concepts and results will be a useful tool for those who deal with the application of special functions.

G. SZEGÖ