own theorem on the embedding of differentiable manifolds in Euclidean space, of the triangulation of differentiable manifolds, and of the theorem of de Rham.

Throughout the book one finds numerous simple examples which are most helpful in explaining the author's motivation. One may hope that his enthusiasm will continue and will inspire further contributions in this field.

HERBERT FEDERER

Handbuch der Physik, Band 1, *Mathematische Methoden* 1. Ed. by S. Flügge. Springer, Berlin, 1956. vii+364 pp. DM72.

This is the first of the two volumes of the encyclopedia of physics devoted to mathematical methods. The book starts with a 90 page section on analysis. This presents the principal definitions and theorems relating to calculus, ordinary differential equations, and the analysis of real and complex numbers. There is much exposition of prerequisite notions of algebra and trigonometry, as well as an appendix on the Lebesgue integral. There follow two sections of about 30 pages each on partial differential equations and elliptic functions. Although all these were contributed by the same author, J. Lense, the two specialized sections contain an outline of the theory as well as a collection of statements. For example, the discussion of elliptic functions starts out from Weierstrass's point of view, and later leads into the results of Legendre and Jacobi.

The section on special functions of some 70 pages was written by J. Meixner. This deals principally with functions related to the hypergeometric function and its limiting cases, and those related to Mathieu functions. This section includes many indications of proofs, and the classification proceeds by general methods, including some of the ideas of Truesdell, rather than by individual functions. But cross references are given to facilitate the study of any one class of function.

The final section of some 140 pages was written by F. Schlögl. This begins by treating orthogonal functions, integral equations, and the calculus of variations. It then proceeds to the discussion of boundary value problems of partial differential equations as such.

In this entire volume there are some, but relatively few, footnote references. However each author has included a short bibliography of basic texts and a few articles at the end of his contribution. These three lists have some items in common.

There is an index with English entries, as well as one with German entries. These also serve as short English-German and German-English dictionaries of technical terms.

The topics seem well selected for the purpose of applications to physics. And a surprisingly large amount of information is compressed into the allotted space. Though rarely suitable for the initial study of a mathematical subject, exposition on such a scale may be very useful to a reader seeking isolated items, or wishing to extend and refresh his knowledge. In fact, considering their space limitations, the authors have succeeded admirably in their purpose.

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