674 SHORTER NOTICES [Sept.-Oct.,

Interpolation. By J. F. Steffensen. Baltimore, Williams and Wilkins, 1927. 248 pp.

Numerische Infinitesimalrechnung. By Martin Lindow. Berlin and Bonn, Ferd. Dummlers, 1928. 176 pp.

Professor Steffensen's book is the outgrowth of the lectures which the author has given to actuarial students at the University of Copenhagen and is, with a few additions and simplifications, a translation of the Danish edition published in 1925. The book is intended as a text for students in American colleges and requires as mathematical equipment only an elementary knowledge of the differential and integral calculus. In a few places where the gamma function has been used the paragraphs have been printed in smaller type and may be omitted without breaking the continuity of the text.

The topics covered are (1) the general theory of interpolation and extrapolation including the standard formulas usually associated with the names of Newton, Gauss, Stirling, Bessel, and others; (2) numerical differentiation; (3) numerical integration; (4) numerical solution of differential equations.

Professor Steffensen's treatment is more rigorous than is usual in books on interpolation. This is important not merely from the point of view of the pure mathematician but also because of the increased number of formulas with workable remainder terms. It should not be supposed, however, that this adds to the difficulty of reading the text. The style is clear and, after the meaning of the symbols has been mastered, the book should prove very valuable to the increasing number of Americans who require some knowledge of this field of mathematics. The formulas and methods are illustrated by simple numerical examples, but the value of the book for class room use would be increased if it contained some problems to be solved by the student.

Dr. Lindow's book covers essentially the same ground as the preceding one. In the section on the numerical integration of differential equations he has made applications to the problem of the simple pendulum and the restricted problem of three bodies. There are no problems for the student but this book is not intended for class use in American colleges. A useful feature for the computer is the inclusion of seventeen tables giving the numerical coefficients for the expansions required in the various standard formulas.

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