

BOOK REVIEWS

Mathematics Applied to Electrical Engineering. By A. G. Warren. New York, Van Nostrand, 1940. 384 pp., 131 figs. \$4.50.

This is a review course in college mathematics for electrical engineers. Some pages read as if they were a part of a mathematical text in electricity and magnetism, except that the emphasis is on mathematics; other pages read as if they were out of a book on "unified" college mathematics; in its entirety the book is a compact presentation of a number of useful mathematical principles and methods, illustrated by a wide selection of electrical problems.

Thus we find: complex numbers and their use in steady state electric circuit problems; linear differential equations with constant coefficients and their application to transients; the Bessel equation and the skin effect problem; partial differential equations and a discussion of plane waves, spherical waves and waves along wires; elements of functions of complex variable and problems of steady current flow; Heaviside's operational calculus and transients in transmission lines.

The above is not a complete list of either the kinds of mathematics or types of problems (some more elementary than others), which are taken up in the book. To help those who may be "rusty" on the principles of electricity and magnetism the author provides brief review chapters. Altogether, the book may appeal to college students and to practicing engineers—to the latter as a review book in fundamentals and to the former as a bridge between their mathematical and engineering studies.

SERGEI A. SCHELKUNOFF

Elemente der Operatorenrechnung mit geophysikalischen Anwendungen.

By Hans Ertel. Berlin, Springer, 1940. 6+133 pp. RM 7.50.

This monograph demonstrates the applications of the operational calculus according to Heaviside to problems in geophysics. In the first section some pertinent remarks are made about certain simple differential equations with the view of later applications. The second section is concerned with the derivation and a brief physical discussion of some of the partial differential equations of mathematical physics, in particular the Stokes-Navier equations, the Maxwell equations and other equations derived from these. The third and fourth sections are concerned with a discussion of the Heaviside operational calculus and its applications to a variety of interesting problems in geophysics.