

elliptic partial differential equation, the author includes a good introduction to the integral equation according to Fredholm. The chapter is clear and not too brief for the reader for whom the book is intended, though the following chapter on boundary problems in ordinary linear differential equations of the second order might have been shortened with profit in a work of this type and title. One quarter of the book is devoted to the introduction to integral equations. In chapter seven the results of the two previous chapters are applied to particular equations of the elliptic type. Properties of the solutions of

$$\Delta u = 0,$$

in particular two boundary value problems, are treated at some length, following Fredholm and Hilbert in treatment and notation. A few pages are devoted to special points connected with the solutions of

$$\begin{aligned}\Delta u + 2\pi\varphi(x, y) &= 0, & \Delta u + \lambda u &= 0, \\ \Delta u + \lambda k(x, y)u &= 0 \quad (k > 0).\end{aligned}$$

The volume closes with a short chapter on some partial differential equations of physics.

The book is clear and logical. Generalities are illustrated by well-chosen special examples. After deciding upon the content the author keeps to the point and does not forget the student for whom he is writing. As to the content, of course there will be differences of opinion as to the choice of topics from such a wide field. For example it would not have been a difficult task to give some notion of Lie's methods without an increase in size. This volume is well worthy of a place in a series which includes Schlesinger's little work.

A. R. CRATHORNE.

*Lehrbuch der Differentialgleichungen.* Von A. R. FORSYTH. (Mit den Auflösungen der Aufgaben von HERMANN MASER.) Zweite autorisierte Auflage, nach der dritten des englischen Originals besorgt und mit einem Anhang von Zusätzen versehen von WALTHER JACOBSTHAL. Braunschweig, Vieweg und Sohn, 1912. xxii + 921 pp.

For many years Forsyth's Treatise on Differential Equations has held a place of importance among physicists and