

Grundzüge einer allgemeinen Theorie der linearen Integralgleichungen. Von DAVID HILBERT. Leipzig und Berlin, Teubner, 1912. xxiv + 282 pp.

THIS book appears as volume 3 of a new Teubner collection entitled *Fortschritte der mathematischen Wissenschaften in Monographien*, under the general editorship of Professor Otto Blumenthal, and consists of a reimpression, with some insignificant changes, of the six papers on integral equations published by Hilbert in the *Göttinger Nachrichten* from 1904 to 1910, with an additional chapter on the foundations of the kinetic theory of gases (also published in *Mathematische Annalen*, volume 72). These various papers not having been remoulded into an organic whole, the presentation of the theory is not a systematic one, but this defect is largely offset by an elaborate table of contents arranged by subjects and stating the main theorems in extenso. Since Hilbert's papers have already become classical and are familiar to all students of the subject, an enumeration of the section headings will suffice: I. General theory of linear integral equations; II. Application of the theory to linear differential equations; III. Application of the theory to problems in the theory of functions; IV. Theory of functions of an infinite number of variables; V. A new exposition and extension of the theory of integral equations, VI. Application of the theory to various problems in analysis, geometry, and theory of gases.

T. H. GRONWALL.

Gabriel Lippmann. Par E. LEBON. Paris, Gauthier-Villars, 1911. viii+70 pp.

THE series *Savants du Jour* by Lebon has made known to mathematicians the world over, and let us hope to a general public in France, the portrait and the details of the life and work and writings of Poincaré, Darboux, Picard, and Appell. The attention is now turned to the physicist Lippmann. To one at all familiar with the rigorous program of studies and examinations through which the young French savant passes it is particularly interesting to read how Lippmann by too great an enthusiasm for extra-curriculum studies failed to pass the aggregation, took his doctorate in Germany, returned for his doctorate at the Sorbonne, and then marched steadily on to the leading position in French physics. In regard to the

biography as a whole, we may quote from the remarks of Darboux when presenting the work to the Académie des Sciences: " Cette Notice nouvelle est composée avec le même soin, avec le même souci de l'exactitude et selon la même méthode que les Notices précédemment parues. . . . M. Ernest Lebon ne néglige pas de nous faire connaître la genèse des plus belles découvertes de Gabriel Lippmann. . . . Nous n'hésitons pas à prédire à cette nouvelle Notice le succès et la faveur qui ont accueilli les précédentes."

E. B. WILSON.

College Mathematics Notebook. By R. E. MORITZ. Boston, Ginn and Company.

College Engineering Notebook. By R. E. MORITZ. Boston, Ginn and Company.

Two notebooks, each $8\frac{1}{2} \times 10\frac{3}{4}$ inches, each of weight $1\frac{3}{4}$ pounds, in biflex binder with removable sheets, have been designed by R. E. Moritz and published by Ginn and Company. The first, for classes in advanced algebra, trigonometry, analytical geometry, and calculus, has 3 pages of simple formulas, 95 pages of rectangular coordinate paper ruled about 25 to the inch, 5 pages of polar coordinate paper ruled about $7\frac{1}{2}$ to the inch (radially), 2 pages containing seven 2-place tables, and one page of common graphs. The second, for classes in technical schools and colleges, contains 11 pages of simple mathematical and engineering formulas, the same outfit (apparently) of coordinate paper plus 5 pages of logarithmic paper, the same graphs, the same tables plus 4-place logarithms, 3-place natural functions, and a conversion table for circular measure.

For teachers who like to use notebooks of this type, these seem as elaborate as any. In so far as a notebook induces the student to greater system and neatness it is desirable. There are, however, undesirable features in a system of instruction which uses notebooks. For instance, in most work in mathematics a rough sketch of a curve is as good as a careful graph; using finely ruled paper generally leads the student to take the large amount of time necessary to construct a good graph or gives him too high an opinion of the accuracy of a hasty sketch; there are difficulties of the sort experienced in using 7-place tables on 3-place data; a coarser notebook might