

*Theoretische Arithmetik.* Von Otto Stolz und J. A. Gmeiner. Zweite Auflage, bearbeitet von J. Anton Gmeiner. I. Abteilung, 1911, vi + 146 pp.; II. Abteilung, 1915, viii + 369 pp. Leipzig, Teubner.

Maintaining the same division into "Abschnitte" as in the first edition and largely the same separation of each into sections, Gmeiner has given us in the second edition of the *Theoretische Arithmetik* of Stolz and Gmeiner a work larger by about twenty-five percent than the first edition of one volume. In every Abschnitt one finds numerous modifications and extensions, often of a minor character but occasionally of considerable extent. Many of the modifications are in the direction indicated by Stolz in notes he had made looking forward to a revision of the text. Gmeiner has carefully utilized these suggestions so as to carry out as far as possible the wishes of his teacher in this new edition of their common work.

The larger changes may be indicated briefly as follows: There is a fuller treatment in the second Abschnitt of subtraction of integers, division, powers, and the systematic representation of numbers; and there is a new section here on zero as a number. In the third Abschnitt the theory of the laws of operation has been expounded anew and in fuller form, especially that having to do with the distributive law. The sections on the fundamental operations with real numbers in the seventh Abschnitt and the theory of complex units in the tenth Abschnitt appear in a new form. Other changes, less important, are to be found throughout the volumes. In its new form the book will have an increased usefulness.

As the work is now divided the first volume treats the theory of rational numbers and the second the theory of real and complex numbers together with an introduction to the theory of infinite series both with real terms and with complex terms.

R. D. CARMICHAEL.

*Advanced Lecture Notes on Light.* By J. R. Eccles. Cambridge, University Press, 1919. 141 pp.

A sequel to the author's *Lecture Notes on Light*, 1917, the *Advanced Lecture Notes* treat in sequence Rainbows, Magnifying Power, Chromatic Aberration, Spherical Aberration, Wave Theory of Light, Interference, Diffraction, Polarisation of Light. There are really only half the indicated number of pages, because the left-hand page is left blank apparently