

and Director of the Laboratory, College of the City of New York, formerly of the University of North Carolina. Philadelphia: Williams, Brown and Earle. 1905. 164 pp. Price, \$1.00.

As stated in the preface, the object of this book is "To fill a demand for an inexpensive non-mathematical work on the subject of radium and its application to medicine." The success which has attended the author's efforts is not perfectly apparent. The limited space which has been devoted to the discussion of the various topics has necessitated a briefness of treatment which is not always conducive to clearness of meaning, and the great number and variety of original papers to which reference is made have led to a condensation of material which not infrequently results in ambiguity. A lack of system in the presentation of the subject is apparent in a number of instances, as, for example, where separate sections are devoted to the discussion of actinium and "emanium" without any mention of their probable identity, and where the similarity between polonium and radio-tellurium is likewise disregarded.

The value of the book is much enhanced by the introduction of a generous series of references to individual papers which may possibly afford a convenient directory to some of those desiring to consult the original literature on the subject.

The chapters on the physiological action of radio-active substances and other therapeutic radiations cover about forty pages. It is stated in the preface that "The writer is not in a position to harmonize the contradictory evidence given in reputable medical journals as to the therapeutic uses of the salts of radium, consequently the observations have been impartially reported."

The general appearance of the volume is neat and attractive.

B. B. BOLTWOOD.

SPECTROSCOPY. By E. C. C. BALY, F.I.C., Lecturer on Spectroscopy, University College, London. London and New York: Longmans, Green & Co. 1905. Crown 8vo, vi + 568 pp. Cloth. Price, \$2.80.

This volume is the latest of the series of Text-Books of Physical Chemistry, edited by Sir William Ramsay. It devotes 47 pages to a historical account, about 300 pages to prism, grating, and interferometer spectroscopic apparatus and methods of investigating the visible and invisible regions of spectra, with a chapter on efficiency of spectroscopes, and about 180 pages to the methods of production and nature of spectra, the Zeeman effect, series

relations, and changes of wave-length by pressure and by motion in the line of sight, concluding with a description of Rowland's ruling engine. Complete tables of wave-lengths have wisely been omitted, although the wave-lengths of the most important lines of the common elements are given in the text. Space is also saved by the omission of detailed descriptions and reproductions of spectra, real knowledge of which can be gained only by direct personal observation. The elementary optical theory of spectroscopic apparatus and the methods of adjustment and investigation are discussed with great thoroughness, with many valuable practical suggestions. For the purposes of the general student, it might have been better to have abbreviated the descriptions of the less commonly used apparatus and methods and to have given more space to such matters as the radiation of black bodies, Kirchhoff's law and "luminescence," changes in spectra produced by changes in physical conditions, and the bearing of recent ionic and electron theories on radiation phenomena, particularly on the origin of multiple spectra.

The book is clearly and concisely written and attractively printed, but contains some typographical errors.

There has long been need of a compendious text-book in spectroscopy, thoroughly up-to-date and giving a really adequate working knowledge of instruments and methods of research. This work very satisfactorily supplies the need, and will be warmly welcomed by all teachers of the subject.

PERCIVAL LEWIS.

ELEMENTS OF APPLIED MICROSCOPY. By CHARLES-EDWARD AMORY WINSLOW, Instructor in Industrial Microscopy and Sanitary Biology in the Massachusetts Institute of Technology. 12mo. 183 pp. 60 illustrations. New York: John Wiley & Sons. Price, \$1.50.

This little book is intended for the beginner with the microscope. It meets a pedagogic need as a text in a course having for its object facility in manipulation of the microscope and acquaintance with the scope of its practical applications.

The first four chapters describe the function and manipulation of the principal parts and attachments of the modern compound microscope, and the general technique of microscopy. The remainder of the book—about 120 pages—is given to an interesting survey of the principal fields in which the microscope has been applied to practical affairs, *e. g.*, microscopy of starches,