

briefly. Although the text contains but 336 pages, the index covers 20 pages, each containing two columns.

The theoretical considerations are contained in two chapters placed in about the middle of the book: one on molecular weights (six pages), and one on the theory of electrolytic dissociation (five pages). In addition, there are a few brief references to such subjects as valence, reversible reactions, etc., scattered throughout the text. The theory appears to be given for the sake of the theory itself, and not on account of its value in interpreting chemical phenomena; little application is made of it in the treatment of compounds or reactions which are discussed in subsequent chapters.

The book is strikingly original and will, no doubt, appeal to many teachers. A student who has mastered its contents will know more facts of inorganic chemistry than can be learned by a study of many books twice its size.

JAMES F. NORRIS.

**Experimentelle Untersuchungen über Atomgewichte.** VON THEODORE WILLIAM RICHARDS und seinen Mitarbeitern, 1887-1908. Mit 34 Abbildungen im Text. Deutsche Ausgabe besorgt von J. Koppel. Hamburg und Leipzig. Verlag von Leopold Voss. 1909. vi + 890 pp. Price, 35 marks.

A felicitous outcome of the delivery of a course of lectures in the University of Berlin by Professor Richards has been the publication of this substantial and important volume. About a fifth of its pages now appear for the first time in a German translation; the matter reprinted from a previous translation has been revised only to make it more faithful to the English original.

The first article is entitled "Die in Harvard ausgeführten Atomgewichtsbestimmungen"; the included bibliography gives the titles of 63 papers. Four of these contain the work of Cooke on antimony and of Huntington on cadmium, and antedate Richards' activity. Nine of the more recent do not mention his name as author. Of the remainder, 43 papers, filling 850 pages of this reprint, bear his name, and 19 of them, with their 330 pages, bear his name alone. These 43 together with three others needed for completeness of presentation, contain determinations of the atomic weights of no less than 19 elements: a magnificent body of work of the highest attainable accuracy.

EDWARD W. MORLEY.

**Treatise on Qualitative Analysis.** By J. F. SELLERS. Second revised edition, 173 pp. Ginn & Company. 1909. Price, \$1.00.

Treatise is the proper title for this little work. It deals with qualitative analysis from all sides. Almost half of the book is taken up with theoretical considerations, explanations of analytical operations and additional notes. The application of physical chemistry to analytical chemi-

istry is developed strongly and the presentation of this part is made very clear and attractive.

The part devoted to the detection and separation of the metals and acid radicles covers about the same ground that is included in most of the smaller works on this subject. The value of making comparisons between reactions brought about by the same reagent acting upon different solutions is left for the student to see for himself, it is not brought out here.

For training "future chemists" this book is inadequate, but for students taking the course in a general way it is remarkably well adapted as it points out plainly that there is something to qualitative analysis beside color and solubility of precipitates, and the separation of the "six groups," a point entirely missed in many courses and most books. O. L. SHINN.

**A Manual of Qualitative Analysis.** By J. F. MCGREGORY. 133 pp. Ginn & Company. 1909. Price, \$1.00.

This differs from most books on this subject in the arrangement. Groups and group reactions are not spoken of until all of the metals and the acid radicals have been studied separately. The groups are only discussed in the line of separations and the comparisons between the different metals are not made apparent. This method of treatment appears to multiply isolated facts and add confusion to the mind of the student. The term ion and the theory of dissociation are not used, and the old term radical is retained. The use of tables or schemes for group separations is condemned but one method of separating each group is described in the text.

The author states in the introduction that the book is not designed for those who intend to become chemists, but for those who can spend but a short time on this subject. For such students it would be a satisfactory book.

O. L. SHINN.

**An Introduction to Chemical Analysis for Students of Medicine, Pharmacy and Dentistry.** By ELBERT W. ROCKWOOD, M.D., Ph.D. Third edition, illustrated, 247 pages. Philadelphia: P. Blakiston's Son & Co. Price, cloth, \$1.50 net.

The first edition of this excellent laboratory guide was reviewed in *THIS JOURNAL*, 24, 287. This third edition contains some new matter, and is especially characterized by the attention paid to the ionic interpretation of reactions. The preparation of a satisfactory book for a special class of students who have but a limited time to devote to chemistry is not an easy problem under any conditions; in the case of a work for medical students which must be full enough to prepare for physiological chemistry the difficulty is very great. Medical courses are already badly overcrowded.

The present book does not make any undue requirement on the time