for determining water in rocks and minerals. We notice that in discussing the operation of filtration no mention is made of the Neubauer crucible. Further, the reviewer does not think that sufficient attention has been paid to the determination of silica in the silicates. The names of the discoverers of methods are only occasionally given, and no direct references to the chemical literature accompany the descriptions of processes. It is rather remarkable that in the list of books and journals Mohr's classic work on volumetric analysis and Fresenius' *Zeitschrift* find no mention. These, however, are minor shortcomings when we consider the excellence of the book as a whole. It is essentially a *practical* treatise on analysis, wide in scope, clear in its descriptions, and generally reliable in its methods. The type and paper are good, and the book is well bound. It is also provided with a good index. We welcome the appearance of this 8th edition, and take pleasure in warmly recommending it not only to teachers and students, but to analysts in general.

LEROY W. MCCAY.

Anleitung für das organisch präparative Praktikum. FRANZ W. HENLE. Leipzig: Akademische Verlagsgesellschaft m. b. H. 1909. 8vo. 176 pp., 43 figs.

The attempt has been made, and that quite successfully, to present each preparation not as an individual synthesis but rather as a type of a general class of reactions. This is partially accomplished by the method of presenting the experimental directions but even more by the numerous citations to the original literature discussing the typical reactions of the class of substances under discussion. It is the opinion of the reviewer that the author has made plain to the student the need for the use of the original literature and thereby there will be much less occasion for the almost universal complaint that students engaged in organic preparations do not recognize the importance of reading the original literature.

Coming as it does from Thiele's laboratory at Strassburg, one expects, and finds, it to be thoroughly up to date in the references to the theory of the reactions as well as in the inclusion of examples of the Grignard, Sabatier and other modern syntheses.

It is one of the best of the more advanced manuals and like the others (Fischer, Gatterman, etc.) it will probably give its best service when preceded by a *short* course in which the simpler preparations of the aliphatic series are studied.

RALPH H. MCKEE.

Kolloidchemische Beihefte. By DR. WO. OSTWALD. Volume I, Nos. 1 and 2 Theodore Steinkopff, Dresden. To subscribers of the Kolloid-Zeitschrift 1 M., single volumes 1.20 M.

The object of this publication is to collect together and to present as early as possible the most important general articles on colloids. This is to be a supplement to the Kolloid-Zeitschrift. It should enable those who wish to follow the general advance of the subject to do so without

having to discover or recognize for themselves the most important papers for that purpose. Thus, the monographs of Wolfgang Ostwald will differ from those of William Ostwald by being confined to a single subject and by being published as nearly as possible at the time of the completion of the experimental work. W. R. WHITNEY.

Metallographie: Ein ausführliches Lehr-und Handbuch der Konstitution und der physikalischen, chemischen und technischen Eigenschaften der Metalle und metallischen Legierungen. DR. W. GUERTLER. Erster Band: Die Konstitution. Heft. I., Berlin, Gebrüder Borntraeger. 1909. 80 pp. Price, M. 4.20.

Dr. Guertler has planned a comprehensive treatise on metallography. In this volume, which deals almost exclusively with the theoretical side of the subject, he discusses the constitution of binary alloys. After reviewing the early development of the science, equilibrium diagrams of binary mixtures are discussed from the point of view of the phase rule, solid solutions and compounds are studied, and the cooling curves of the alloys manganese-iron, iron-cobalt, and nickel-cobalt are considered in detail.

It is difficult to discuss in detail so small a part of an extensive treatise, but Dr. Guertler is especially well fitted to undertake a comprehensive work such as he has planned, and so far he has succeeded admirably. The book will be difficult for all except those who have had considerable training in physical chemistry. The discussion of some of the diagrams seems unnecessarily complicated, and it is believed that the practical methods of metallography should have been discussed as early as possible so as to make clear the manner of establishing a complete diagram. The book is excellently printed and is well provided with marginal references to the text. HENRY FAY.

The Elements of Metallography. By RUDOLF RUER. Translated by C. H. Mathewson. First edition. New York: John Wiley & Sons. 8vo. xiv + 342 pp., ill. Cloth, $3.

The book is divided into two parts, Theory and Practice. In Part 1 there are four chapters dealing with: *One-component system*, transformations and heterogeneous equilibria. *Two-component systems*, the different cases of various solubility in the liquid and solid states, without and with polymorphous transformations or the formation of chemical compounds. The different cases are illustrated by typical alloys mostly from work done at Goettingen. Supplementary sections are given on methods of determination of equilibrium curves and methods of investigation of solidified mixtures. *Three-component systems*, insoluble in solid state; completely soluble in solid state; phase rule.

Part 2 deals with methods of thermal investigation, heating apparatus, cooling and heating curves and the like; investigation of structure, microscopic examination. At the end of the book there is a collection of