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