

their classes simply the facts of organic chemistry, and desire on the part of their students a knowledge rather of the properties of certain useful compounds than of the principles of the science.

JAMES F. NORRIS.

THE PHASE RULE AND ITS APPLICATION. BY ALEX. FINDLAY, with an Introduction to the Study of Physical Chemistry by SIR WILLIAM RAMSAY. New York: Longmans, Green & Co. lxiv and 313 pp. Price, \$1.25 net.

This is the first volume of the series of text-books on physical chemistry edited by Sir William Ramsay, of which the book on "Electro-chemistry" by R. A. Lehfeldt has already been reviewed in this Journal (27, 80.)

In the introduction (xlvii pages) which is also for sale separately (\$0.25), Sir William Ramsay gives a very interesting historical review of the development of physical chemistry and a brief discussion of many future problems. The author has divided the main work into the following chapters: I. Introduction; II. The Phase Rule; III. Typical Systems of One Component; IV. General Summary; V. Systems of Two Components—Phenomena of Dissociation; VI. Solutions; VII. Solutions of Solids in Liquids, only One of the Components being Volatile: A. Anhydrous Salt and Water; VIII. B. Hydrated Salt and Water; IX. Equilibria between Two Volatile Components; X. Solid Solutions; Mixed Crystals; XI. Equilibrium between Dynamic Isomerides; XII. Summary. Application of the Phase Rule to the Study of Systems of Two Components; XIII. Systems of Three Components; XIV. Solutions of Liquids in Liquids; XV. Presence of Solid Phases; XVI. Isothermal Curves and the Space Model; XVII. Systems of Four Components. In an Appendix are treated the methods for the experimental determination of the transition point.

In the opinion of the reviewer this book is a remarkably good one, for the author has performed his task in a very satisfactory manner. As can be seen from the short list of the contents, nearly all important problems relating to the phase rule have been taken up, and the different topics are treated with much thoroughness and with conciseness, so that any student or worker in another branch of chemistry will derive great advantage from the study of this book. The work might be improved in some matters of detail (for instance, it would be desirable to give also

the molal composition of the cryohydrates on page 116), but they are not of such importance as to lessen the value of the book.

W. BÖTTGER.

GRUNDZÜGE DER SIDEROLOGIE. VON HANNS FREIHERR VON JÜPTNER, Professor an der K. K. technischen Hochschule in Wien. Dritter Teil, zweite Abtheilung: Die hüttenmännischen Prozesse. 1904. Leipzig: Verlag von Arthur Felix. xi + 274 pp. Price, 9 marks.

That a book so comprehensive, so thorough, so modern in its views, should have been completed in so short a time is remarkable. All metallurgists and scientists interested in the properties of iron will welcome its completion, not only as a valuable reference book, but for the clear exposition of the whole subject. The application of the laws of physical chemistry to the iron and steel problems by one so competent to deal with the subject is a great step forward in industrial science.

The present volume completes the work on Siderologie, the previous parts of which have been reviewed in these columns. It treats of the thermal and chemical reactions of the blast-furnace, the production of malleable and puddled iron; and the various steel processes.

HENRY FAY.

THE BECQUEREL RAYS AND THE PROPERTIES OF RADIUM. BY HON. R. J. STRUTT, Fellow of Trinity College, Cambridge. London: Edward Arnold. 1904. 214 pp. Price, 8s. 6d, net.

In response to the general demand for information regarding radioactivity, a large number of treatises have appeared, but knowledge has increased so rapidly that many of these books now fail to adequately represent the present status of the subject. This work brings the subject up to about the middle of the year 1904. The author, who has himself made valuable contributions to our knowledge of radioactivity, has, in this case, written for the general reader. He has entirely avoided mathematical treatment and has assumed but the minimum of scientific attainment on the part of the reader. Nevertheless the book is thoroughly scientific and the statements are, in general, as rigid and accurate as non-mathematical language will allow. There are no references to the original literature. The first chapter deals with the electric discharge in high vacua and the properties of the cathode rays. The next six chapters treat of the most important phenomena of radioactive substances, including also the earth, air and common bodies. The final chapter considers the electrical theory