

methyl acetate and the saponification of ethyl acetate, followed by 21 well selected and useful tables conclude the book.

As a whole, this manual is a fairly complete summary of the methods of physical chemistry, but too brief for the ground it covers. Formulae are freely inserted throughout, occasionally without their derivation, once even without a statement of the meanings of the symbols (the formula for the molecular lowering of the freezing-point on page 64), and more frequently omitting essential steps in their derivation. This occasional omission of essential steps is a fault more or less felt throughout the book, in fact, very few methods are presented with sufficient completeness to enable a beginner to carry them out without other assistance. Used as a skeleton outline, however, with a competent instructor at hand to fill in the gaps, it will unquestionably be of value in laboratory instruction.

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GRUNDZÜGE DER SIDEROLOGIE. VON HANNS FREIHERR VON JÜPTNER, Professor an der K. K. technischen Hochschule in Wien. Dritter Teil, erster Abteilung: Die Wechselwirkungen zwischen Eisen und verschiedenen Agentien. 1904. Leipzig: Verlag von Arthur Felix. 152 pp. Price, 6.50 marks.

This book is the first part of the third volume of Jüptner's "Siderologie," the first two volumes of which have been reviewed in this Journal. The author considers, from the physico-chemical point of view, all those reactions which may take place when iron or its oxides are subjected to oxidizing or reducing agents, or when iron reacts with other elements as carbon, phosphorus, sulphur, or with slag. The equilibrium and dissociation phenomena are discussed in detail in a clear and precise manner, and the older experimental work is brought into harmony with the more recent views and the latest work on the physical chemistry of iron. Among the more important of recent investigations the author discusses, in detail, the work of Stead on phosphorus and iron, the work of Le Chatelier and Ziegler on the relations between iron, manganese and sulphur, and the important work of Charpy and Grenet on the breaking down of iron carbide into graphite and the influence of temperature and silicon on this reaction.

The high standard of the first two volumes is fully maintained in this one.

HENRY FAY.