

may be used for distillations where frothing or foaming is liable to give trouble. The jet of air being colder than the vapors in the froth or bubbles causes a condensation of the vapors and a breaking of the bubbles, preventing frothing.

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NEW BOOKS.

The Metallurgy of Iron and Steel. By BRADLEY STOUGHTON, Adjunct Professor, School of Mines, Columbia University. New York: Hill Publishing Co. 1908. vi + 509 pp. Price, \$3.00.

In the preface the reader is informed that "the purpose of this book is to serve as a text book, not only for college work, but for civil, mechanical, electrical, metallurgical and mining engineers and architects, and for those engaged in work allied to engineering or metallurgy." The scheme is thus seen to be comprehensive. It is questionable whether a book satisfactory as a text can also be entirely satisfactory to those engaged in pursuits allied to engineering and metallurgy. The one would demand an exact logical treatment of the science; the other a more popular, lucid statement of facts. The author has endeavored to combine these two styles and it is doubtful whether or not he has succeeded.

As a text for students the treatment is superficial, the description of some processes inadequate, and lacking in clearness and conciseness; it is in no sense authoritative and shows no originality of treatment. For those interested in the sciences allied to metallurgy one may obtain a very good picture of the various metallurgical processes. The style is easy, and one would find it an interesting book to use as a source for broadening his knowledge of metallurgical methods. For those not looking for accurate detailed information, the book may be called successful. It is comprehensive in its scope and treats of all of the various processes from the extraction of the ore to the production of the many forms of iron and steel products, with a chapter on elementary chemistry and physics for the benefit of those without training in these subjects. The illustrations are many and in most cases excellent. Exception must be made, however, to the introduction of plates without descriptive text such as those of the coke ovens on pages 12 and 13; also to the careless manner in which many of the microphotographs have been trimmed.

The book is not authoritative or convincing and this is shown in many places. This deficiency is more in evidence in those portions of the book dealing with theory rather than practice. In the chapter on the elementary principles of chemistry and physics are found many loose and some inaccurate statements which may be due more to carelessness than lack of knowledge. This same statement is also true in regard to Chapter X. on

"The Solution Theory of Iron and Steel." The terms solid solution, mixed crystals, and isomorphous mixtures are used synonymously and would lead to misconception.

A valuable list of references is placed at the end of each chapter. Throughout the text credit is not always given where it belongs and one obtains the impression that the author's distinguished preceptor is responsible for more than he would claim for himself. HENRY FAY.

Inorganic Chemistry, by E. I. LEWIS. University Press, Cambridge, England, and G. P. Putnam's Sons, N. Y., 1907. viii + 408 pp. Price, \$1.25.

This text was written primarily for beginners at Oundle School, England. Part of the class had had some science, part none. "The course had, therefore, to be both a revision and an introduction." "In preparing the course, an endeavor was made to follow the strictly logical method; hence no compound of unknown composition could be employed for chemical purposes except with the object of determining its composition." "This imposed a somewhat unusual order. . . ." These statements in the preface describe the book. The author has adhered throughout to the scientific method of thought and it is a pleasure to find facts and experimental evidences so bountifully presented before reasoning from them is begun. The atomic and molecular theories do not appear until the eleventh chapter, and no symbols nor formulae are used before this, although volumetric and gravimetric relations in many compounds, such as water, chlorides, oxides of sulphur and of carbon, are experimentally determined. The reviewer heartily agrees with the author that "There is perhaps no more insidious enemy to sound thinking than an undigested formula" and congratulates him on the effective way in which he has provided for their assimilation before adding them to the diet.

But it is questionable whether such wide divergence from the usual order in elementary texts is necessary or advisable. The book is divided into four sections: the first contains six chapters, "Leading to Equivalent Mass;" the second, six chapters, "Leading to the Atomic Theory;" the third, seven chapters on the "Application of the Atomic Theory;" and the fourth, fourteen chapters, called Part II, "Leading to the Classification of the Elements." This arrangement necessitates recurring to the same subject several times: for instance, Chapter II is on "The Elements of the Air," and Chapter XIX is on "The Atmosphere;" Chapters X, XV, XVI and XXIX are all on carbon and its compounds: fluorine, bromine and iodine are not mentioned until chapter XXII, and hydrogen peroxide appears first in chapter XXVI, rather far along in a book consisting of thirty-three chapters.

The dissociation theory is treated a little like an unwelcome intruder. It is all there, even to the grotesque 'idion and 'osion nomenclature