

orous exercise of the student's thinking powers constitute commonly the points of advantage claimed for any new book designed to replace older ones in elementary chemical analysis.

As regards accuracy, clearness, and mode of presentation, the English version of Medicus' book fulfils its purpose in a very satisfactory manner. The descriptions of processes are explicit and yet concise, and wherever possible are supplemented by tabulated statements. Useful data are given as to solubilities of precipitates. The rarer elements are separately treated in an appendix, and, for the further illustration of their reactions, analyses of their more important ores are described.

As regards arrangement, many teachers will find no objection to the book. The author's system of classification of bases is the same as that adopted in various other text-books, but this classification, according to which the metals precipitated by hydrochloric acid are treated first in order, as group one, and the alkali metals with magnesium are considered last, as constituting group six, has some disadvantages. The student on entering upon a laboratory course has much to learn regarding the nature of salts, and he gains a clearer idea of these if he experiments upon the compounds of the alkaline and alkaline earth metals before taking up the study of mercury, antimony, and tin. The greater simplicity in the reactions of the light metals is an additional reason why they should precede the heavy metals. The work of the translator has been well performed.

On account of its attractive form and its simple and clear directions and explanations, this book will prove a valuable aid to students of analytical chemistry. FRANCIS C. PHILLIPS.

LECTURE NOTES ON THEORETICAL CHEMISTRY. BY FERDINAND G. WIECHMANN, PH.D., Columbia College. Second edition. Revised and enlarged. xviii+288 pp. 1895. New York: John Wiley & Sons. Price, \$3.00.

The favorable reception accorded the first edition has led the author to issue a second edition of the "Lecture Notes on Theoretical Chemistry." The matter has been carefully revised and such additions made as serve to keep the student in touch with the most recent developments of chemistry, especially in the field of physical chemistry. The space given to stereochemistry

has been doubled and additions have been made to the excellent bibliography, which include important publications since the appearance of the first edition. The book is neatly printed and is quite free from typographical errors.

It is a matter of regret that in a revised work the subject of valence has not been treated differently. The classification of elements as artiads or perissads is unnecessary and misleading. While it is true that variations in valence usually proceed by twos, yet there are such well-defined exceptions, based upon vapor density determinations of the molecular weights of compounds, that we cannot feel justified in making the assumption that "two bonds neutralize each other." Indeed, does such an assumption really explain anything? Certainly, it is a questionable good when it leads to such illustrations as those used in the text to represent a monad, a dyad, etc. CHARLES H. HERTY.

PRÉCIS D'ANALYSE CHIMIQUE—(I) ANALYSE QUALITATIVE, pp. 190.  
(II) ANALYSE QUANTITATIVE, pp. 312. By E. FINK. Small 12 mo.  
Paris: Carré et Naud, Editeurs. 1896.

It is indeed refreshing to find a French chemistry which does not write water HO (in view of which we can pardon the continuance of Fl, Az, Bo, and St), and in which the reactions are uniformly well written and correct according to the modern standards. The French "devil," however, is responsible for many typographical errors, one of which deserves mention even in this brief review: "anhydride chromique" is metamorphosed into "anhydride chrozique."

Part I is well done, the liberal use of different styles of type bringing the classification out clearly, the whole being put in good form for beginners to take hold of. It is regrettable that the chapter on dry tests was not made more complete, since it is well stated as far as it goes; the classification and treatment of the acids is particularly good. Part II cannot be so freely praised. The writer has attempted the impossible, even the undesirable. To condense the whole field of quantitative analysis into small space, is *necessarily* to sacrifice accuracy for brevity, to leave out all the fine points, to omit comparisons of methods and discussions of their limitations, and what kind of a chemist is he who is not taught these *from the beginning*? Such quantitative analysis as is put forth here, without criti-