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BOOK NOTICES.

DATA OF GEOCHEMISTRY. United States Geological Survey, Bulletin 695. By Frank Wigglesworth Clarke. 4th edition. 773 pages and index, 8vo. Washington, Government Printing Office, 1920.

This work comprehends an elaborate study of the materials constituting the earth as included in human experience; that is, the lithosphere and the atmosphere. A vast amount of information concerning the composition of rocks, waters and gases is presented in a readable and at the same time strictly scientific form. The literature has been searched thoroughly and with great care, and it is really astonishing to those who have not followed the special field to which the work is devoted to see the extent of the researches already carried out. There is a somewhat romantic feature of the essay, inasmuch as discussions are given concerning the age of the earth's crust, the origin of the atmosphere and the source of the great mass of carbon now locked up in the rocks which are so marked a feature of the crust as we know it. As might be expected, the discussions on these subjects do not lead to any positive result, although some of the promulgators of special views are quite convinced of the reliability of their conclusions.

Special note should be given to Doctor Clarke's method of presenting the composition of waters. Discarding the usual methods of uniting the several positive and negative ions into salts according to the arbitrary methods long in vogue, he recalculates the data into percentage of the ions, using the residue after ignition as the total fixed solids. It is, of course, an advantage to get rid of the so-called "loss on ignition," which

is so common in statements of water analysis, for the figure has neither practical nor theoretical value, but it is an open question whether the residue dried at a moderate temperature will not in many cases be a safer guide. The figure for the fixed solids is stated as "salinity," a word that may be not wholly satisfactory, as it seems to suggest the content of chlorides. Doctor Clarke's method of presenting the data of water analysis has the advantage of enabling quick and convenient comparison of waters of the same type and showing vividly the contrast between waters of different types.

It will be probably a long while before the commercial analyst will be able to make a statement of water analysis on the basis of the unassociated ions, for his clients always want a presentation that will show some of the specific actions of the sample. Even many scientific workers hesitate to set down Fe^{+++} or SiO_3 .

HENRY LEFFMANN.

AIDS IN THE COMMERCIAL ANALYSIS OF OILS, FATS AND THEIR COMMERCIAL PRODUCTS. By George Fenwick Pickering. viii—129 pages and index. 8vo. Philadelphia, J. B. Lippincott Company, 1917.

Not much new matter can be expected in a book of this size on a topic which has been so extensively exploited as that of the fats and oils, for the existing literature is immense. The work contains a great deal of information compactly presented, especially in tabular form. The methods chosen are mostly so-called "works methods," and do not claim such a degree of accuracy as is found in many departments of inorganic analysis. The author states that all the figures given are published for the first time. Mr. Pickering's position as a research assistant to the late Doctor Lewkowitsch is a guarantee that he has had large experience in careful work and is familiar with the field to which the book is devoted. The nomenclature is mostly conservatively English, and the determination of the volatile acids is given only by the alcohol-potassium hydroxide method, no mention being made of the glycerol-soda procedure, which is now official in France, Germany and several other leading European nations.

HENRY LEFFMANN.

THE PHOTOGRAPHIC RESEARCHES OF FERDINAND HURTER AND VERO C. DRIFFIELD, being a reprint of their published papers, together with a review of their earlier work and a bibliography of their later work. Edited by W. B. Ferguson, K.C., M.A. (Oxon.), F.I.C. Hon. F.R.P.S. Small folio, 366 pages, indexes, and numerous illustrations. London, The Royal Photographic Society of Great Britain, 1920.

The names of Hurter and Driffield are familiar to all photographers, and the Royal Photographic Society has done them just honor by thus presenting in full many of their papers and furnishing a bibliography for the rest. The apparatus and manuscripts are now in the custody of that society. A list of these is given, and shows a very large and varied collection.

Frederick Hurter was born in 1844 at Schaffhausen in Switzerland, and after studies at Zurich went to Heidelberg, where he studied under