

linkings in the last position. The model can readily be constructed from a flexible brass band 1-2 cms. wide, with stiff wires soldered through holes in the rim, while corks of different colors serve admirably for the carbon and hydrogen atoms. It is, however, obtainable from Messrs. Baird and Tatlock, London, E. C.

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NEW BOOKS.

A TEXT-BOOK OF ELEMENTARY ANALYTICAL CHEMISTRY, QUALITATIVE AND VOLUMETRIC, BY JOHN H. LONG, M. S., Sc. D. THIRD EDITION. PHILADELPHIA, P. BLAKISTON'S SONS & CO., 1906, pages XII + 299. Price \$1.25.

This admirable text-book has appeared in a third revised and enlarged edition. It is becoming more and more the custom to give instruction in volumetric analysis in the second year's work in chemistry in colleges and there are certain advantages in this over the old way of taking up gravimetric analysis immediately after qualitative work. This is the plan of Dr. Long's book and those teachers who favor this method can hardly do better than to have their students use this text-book as their laboratory guide.

The directions for work are very clear and precise and sufficiently full. All the explanation that is needed is given. There is not too much theory, the instructor can supply any further theories that may seem desirable to him. In this new edition a chapter has been added in which a general discussion of reactions in solutions is given. In this chemical equilibrium, solubility product, hydrolysis, etc., are considered. The qualitative processes have been simplified in a number of ways and several new volumetric methods, such as the titration of borates and formaldehyde have been added.

It can be truly said that this text-book has so many merits that it deserves to be very widely used.

EDWARD H. KEISER.

A SHORT MANUAL OF ANALYTICAL CHEMISTRY, BY JOHN MUTER. FOURTH AMERICAN EDITION, ILLUSTRATED. p. 242 P. BLAKISTON'S SONS & CO., PHILADELPHIA. Price \$1.50.

The very fact that the book has reached its fourth edition clearly shows that it has much merit. It includes both qualitative and quantitative analyses of organic and inorganic products.

Part 1 deals with the detection of metals, acid radicals, and alkaloids, and gives details for qualitatively analyzing unknown salts.

Part 2 deals with volumetric, gravimetric and ultimate organic analyses as well as with special processes for the analysis of water, air, foods, drugs and urine.

The last chapter is devoted to the analyses of gases, polarization and spectroscopy. The arrangement is very satisfactory, and the index is

quite complete. It contains many features of interest, particularly to those who are desirous of securing essentials. Details are largely omitted. There are some statements which might be improved upon; for example, under alkaloids it is stated that if on heating a substance on platinum foil, it burns away with a smoky flame and an odor of singed hair, the substance is probably an alkaloid.

Under phenacetine it is also stated that this chemical can be distinguished from acetanilide by the isonitrile test. This has long been shown to be an error.

Some of the cuts are extremely poor, particularly the microscopic plates in connection with urinary analysis. The assaying of drugs is largely based upon the methods contained in the latest revision of the United States Pharmacopoeia.

Notwithstanding a few shortcomings, the book presents in admirable form much useful information in a handy, inexpensive volume.

L. F. KEBLER.

A HISTORY OF CHEMISTRY FROM EARLIEST TIMES TO THE PRESENT DAY, BY ERNST VON MEYER, PH.D. TRANSLATED BY GEORGE MCGOWAN, PH.D. THE MACMILLAN COMPANY, NEW YORK. Price \$4.25.

Three editions of the German original of this work have appeared, dated in 1888, 1894 and 1904. Each of these has been translated by Dr. McGowan, who was a former pupil of the author. Each translation contains alterations and additions made with the sanction of the author, who has also revised the English proof sheets.

The third English edition contains XXVII + 691 pages. About a fourth part is given to the chapters on the progress of chemistry before the age of alchemy, during that age, during the iatro-chemical period, and during the reign of the phlogiston theory. Half the remaining three-quarters is given to the history of chemical theory since the time of Lavoisier, and half to the history of experimental research. There are two indexes, and the table of contents is of especial excellence.

Von Meyer's history of chemistry is marked by breadth of view, insight, fairness, good judgment, and by the possession of the historic sense and of the sense of proportion. There are excellent monographs and essays, and histories of a single branch of chemistry easily to be procured by the student; but von Meyer's history of chemistry as a connected whole has attained a position which is commanding and authoritative. It is worthy of all commendation, but needs none.

The translation is good, very good indeed. A careful reading of the first eighth part of the book detected only two errors affecting the sense; on page 28, the date of writing the Leyden papyrus is made the date of finding it; on page 17 it is said that Dioscorides at first used a certain