

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