

and, notwithstanding the usual habit of rushing the visitor through the place as quickly as possible, can understand the *modus operandi* more fully than the guide has reason to expect.

Teachers may congratulate themselves upon the appearance of this book, for it contains, expressed in a concise manner, much that would otherwise (with perhaps less happy results) require the consultation of many books.

In a work so thorough it is difficult to select any one subject more carefully treated than the others; therefore, chemists can well feel grateful to Prof. Thorp for his contribution and doubtless few libraries will be without a copy thereof.

ALFRED SPRINGER.

THE PRACTICAL COMPOUNDING OF OILS, TALLOW, AND GREASE FOR LUBRICATION, ETC. By an expert oil refiner. London; Scott, Greenwood & Co.; New York: D. Van Nostrand Co. Price, \$3.50.

This book purports to give "to merchants and manufacturers in the different branches of these trades practical hints for the compounding of oils, also for the utilization of waste products, such as ullages, etc," and treats chiefly of lubricating oils, with one chapter on lamp oils.

Numerous receipts are given for compounding these oils for various uses with some hints and cautions. The flash and viscosity tests of mineral oils are described and also some of the simpler tests of animal and vegetable oils for the purpose of detecting adulteration. The real character of the various mixtures given and the reason of their usefulness for particular purposes seems to be ignored. So also the general theory of lubrication.

While to one entirely ignorant of the subject such a work would give an idea of the combinations of mineral and fatty oils which have been found useful for lubrication, it is difficult to see how the intelligent manufacturer will be benefited by so superficial a treatise.

E. TWITCHELL.

LIGHTING BY ACETYLENE. GENERATORS, BURNERS, AND ELECTRIC FURNACES. BY WM. E. GIBBS, M.E. Second Edition, Revised and Enlarged. New York: D. Van Nostrand Co.; London: Crosby, Lockwood & Son. pp. 161. Illustrated. 1899. Price, \$1.50.

Mention was recently made in these pages of the first edition

of this work, and the present edition calls for little further notice. The author has added some twenty pages on the subject of generators, and has somewhat expanded the chapter on "Generation of Acetylene"; otherwise the volume is little changed.

A misplaced decimal point on p. 37 makes the theoretical yield of acetylene from 100 pounds of carbide 5.81 instead of 581 cubic feet. The author confuses benzine with benzene, referring to the former as a polymer of acetylene. The limits between which acetylene forms an explosive mixture with air are much greater than those stated by the author. The figures given apply more nearly to ordinary coal-gas.

E. G. LOVE.

LAVAS AND SOILS OF THE HAWAIIAN ISLANDS. BY WALTER MAXWELL,
Director and Chief Chemist of the Experiment Station of the Hawaiian Islands. 186 pp.

The work is an important contribution, perhaps the only contribution, to our knowledge, of the composition of the soil of the islands, which have lately come into the dominion of the United States. The total area of the islands where agriculture is possible is 6,740 square miles. The islands of the Hawaiian group are of pure volcanic origin. Fifteen volcanoes of the first class have existed at different times and been in action in the islands. The group of islands therefore represents a portion of the great mass of matter due to volcanic action, which has been projected above the water's level. The composition of the soil is, therefore, what would be expected from the decomposition of basaltic lavas. In type the soils differ from those of our country in being essentially basic instead of acidic. In the ordinary soils of the United States the acidic element, namely, silicic acid, is the predominating factor, while in Hawaiian soils, lime, alumina, and iron make up almost, if not quite, half of the total weight of the soil.

In the decay of these lavas, in the activity of the usual forces which produce the disintegration of rocks, the functions of water, steam, and air have been extremely prominent. In addition to this the vapors of sulphuric acid, which find their way by means of the steam into the crevices and broken surfaces of the lava masses, has added greatly to the power of water and steam in disintegrating the rock masses. In one instance where a quantity of steam was condensed and preserved for analysis, it was