

rations, illustrative of some of the typical processes of inorganic chemistry for the production of various classes of compounds.

The general use of the symbol Am for ammonium throughout this and other works by the same authors seems to lack full justification, and it is still more difficult to justify such inconsistencies in symbols as AmHO, and AmOH, and $\text{AlAm}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$, and $\text{MgNH}_4\text{PO}_4 \cdot 6\text{H}_2\text{O}$, which mar the pages of this generally excellent work.

H. P. TALBOT.

THE CHEMISTRY AND TECHNOLOGY OF MIXED PAINTS. BY MAXIMILIAN TOCH. pp. xvi + 160. New York: D. Van Nostrand Co. 1907. \$3.00 net.

There is always a satisfaction in reading a book written by a practical manufacturer, whether one agrees with him or not; he at all events has something definite to say, and says it. Mr. Toch writes simply and directly about paints, their manufacture, materials and use. First there is an excellent chapter on the plan and operation of the factory; this is followed by full accounts of the pigments in practical use, which give much interesting information about the newer pigments, concerning which the English books have very little to say. These are not mere physical descriptions of the dry pigments, but include specific information as to their use and value in paint, and are illustrated by sixty microphotographic plates. Especially new are the data about sublimed lead, zinc lead white, blue lead, artificial vermilion, and the various fillers, these last being in the author's opinion entitled to much more consideration than most previous writers have accorded them. The paint vehicles are then taken up, and some special paint problems are finally discussed. In an appendix is the most recent matter about tung oil.

The author writes from the standpoint of the newer class of paint manufacturers, and sets out clearly the views held by many of the important makers, and many of the paint chemists as well. There is a chapter on analytical methods; but information of a chemical nature is scattered freely throughout the treatise.

The book is handsomely printed and is free from typographical errors of any importance.

A. H. SABIN.

PRINCIPLES AND PRACTICE OF AGRICULTURAL ANALYSIS. A MANUAL FOR THE STUDY OF SOILS, FERTILIZERS, AND AGRICULTURAL PRODUCTS. SECOND EDITION, REVISED AND ENLARGED. VOLUME I, SOILS. BY HARVEY W. WILEY, A. M., PH. D. 92 Illustrations. 18 Plates. xii + 636 pp. The Chemical Publishing Co., Easton, Pa. 1906. Price, \$4.00.

Twelve years have elapsed since the publication of the first edition of this work, and in this time much progress has necessarily been made in methods and processes. The book has been brought strictly up to date. In spite of the fact that some of the material appearing in the first edition more fittingly treated under "fertilizers" has been left out, apparently to be transferred to Volume II, its place is more than filled with new matter.

Full attention is given in the revised work to many comparatively modern problems and processes such, for example, as the "cementing value" of soils and to the practical carrying out of the cementation tests; also to the increased use of the centrifugal machine in accelerating sedimentation, with a description of the most approved forms of machine. The importance of soil acidity in its influence on crop-producing power is also discussed, as well as the quantity and determination of phosphoric acid in soil waters. These are but a few of the newer topics treated.

The wonder is, however, not so much at the newer processes that have replaced the old during this twelve-year period between the two editions, but rather at the large number of old standard methods that have remained practically unchanged and are still in vogue.

The mechanical make-up of the revised work is much more convenient than the old, especially the feature of references by foot-note on the same page, rather than by being obliged to refer to the ends of chapters for authorities, etc.

ALBERT E. LEACH.

THIRD TREATISE ON THE EFFECTS OF BORAX AND BORIC ACID ON THE HUMAN SYSTEM. BY DR. OSCAR LIEBREICH. Translated from the German. London, 1906. J. and A. Churchill. Philadelphia: P. Blakiston's Son & Co. 70 pages, paper, \$1.75.

This pamphlet, as the title page explains, is called a "Critical Review of the Report of Dr. H. W. Wiley, Chief of the Bureau of Chemistry of the U. S. Department of Agriculture, to the Secretary of Agriculture," and is intended to throw doubt on the value of the experiments on the use of borax and boric acid as food preservatives, carried out some three years ago by the Department of Agriculture.

The author of the pamphlet has himself written several papers in which he defends the use of the borax preservatives, and his attitude in the present publication is distinctly hostile. The translation is said to have been made in the interests of the commercial concerns exploiting the use of borax and for this reason loses some of the value it might otherwise possess. It is possible that the translator is responsible for the peculiar arrangement and wording of the table of contents.

J. H. LONG.

NITRO-EXPLOSIVES: A PRACTICAL TREATISE CONCERNING THE PROPERTIES, MANUFACTURE AND ANALYSIS OF NITRATED SUBSTANCES, INCLUDING THE FULMINATES, SMOKELESS POWDERS AND CELLULOID. BY P. GERALD SANFORD, F. I. C., F. C. S. 2nd Ed. Revised and Enlarged. D. Van Nostrand Co. New York. Price, \$4.00 net.

This is a revised and large edition of a work which is well known by all workers in the explosives industries. Not only has the work been revised and enlarged, but it has also been considerably improved. The older edition was becoming out of date on account of the rapid developments in explosives. In the new edition the subject has been brought