

has thus far prevented further attempts to carry out a satisfactory study of this method including the perfection of its details.

LABORATORY OF THE RHODE ISLAND
AGRICULTURAL EXPERIMENT STATION.

NEW BOOKS.

ANALYSIS OF WHITE PAINTS. A Collection of Notes on the Chemical Analysis of White and Tinted Paints. BY GEORGE H. ELLIS, B.SC. Evanston, Ills.: The Technical Press. 8vo. pp. 57.

The notes under review were originally published in the *Paint, Oil and Drug Review*, of Chicago, and were prepared and edited by one who has had long practical experience in the technical examination of the products treated. They consist really of a collection of methods for analysis of paints and pigments long used by the author in his daily practice largely devoted to the products of the paint industry, and as the methods have been thoroughly tested and are described in the fullest detail they will be particularly useful to those chemists whose work has given them but limited practice with such products and methods.

With the methods of analysis in each case are presented results obtained by the author in the use of the methods, showing the average composition of the commercial product treated, and thus offers much useful information not easily found elsewhere. The book is commended to those whose duties lead them occasionally in the lines of work here treated and indeed to all needing guidance in the technical examination of pigments and paints.

WM. MCMURTRIE.

THE CHEMISTRY OF SOILS AND FERTILIZERS. BY HARRY SNYDER, B.S., Professor of Agricultural Chemistry, University of Minnesota, and Chemist of the Minnesota Agricultural Experiment Station. Easton, Pa.: The Chemical Publishing Co. 1899. 12 mo. ix + 277 pp. Price \$1.50.

We are told in the preface that this book was intended primarily to be used as a text-book in the author's classes. This fact explains the "experiments" and "review questions" which are given at the end of the book, as well as the condensed manner in which it is written.

It should answer admirably the purpose for which it was intended. The subject-matter is well chosen, well arranged, and clearly and concisely stated.

The style is as nearly popular as is possible with applied chemistry, and the book will be found of value even to agriculturists whose education has not included a course in chemistry.

W. D. BIGELOW.

A SYSTEM OF INSTRUCTION IN QUALITATIVE CHEMICAL ANALYSIS. BY ARTHUR H. ELLIOTT, Ph.D. and GEORGE A. FERGUSON, Ph.B. Third edition, revised and enlarged. New York: Published by the Authors. 155 pp. Price, \$1.50.

This manual contains a straightforward, carefully detailed procedure for the systematic qualitative examination of solutions or substances of moderate complexity. The analytical scheme is accompanied by a series of "solution tests" which the student is required to apply to each metal or acid radical and which include the reactions with certain general reagents, and with such special reagents as yield typical products. In connection with these tests a useful list of the important commercial compounds of each metal is given.

Certain of the schemes for the separation of the metals used in former editions have been altered or replaced by others (notably those of the copper and barium groups), and the procedure for the separation and detection of the acid radicals has been enlarged and improved. The book is liberally provided with tabulated statements of the methods of separation, and of the results of the "solution tests." The student can, indeed, hardly go astray within the field covered by the manual, so minute are its directions; yet, under the conditions imposed, the instructor will need to use much effort to encourage independence of thought and action on the part of the student.

The introduction of the "solution tests" is, perhaps, no more a proper subject for criticism in this manual than in many other similar works, but it may fairly be questioned whether so many of these isolated tests do not, by interrupting the study of the systematic plan of analysis, by confusing the beginner and lessening his interest, fail to serve a really useful purpose when the teaching of qualitative analysis is the central aim. To those teachers, however, who favor this method of presentation, the book will appeal strongly as a guide for beginners.

H. P. TALBOT.