

NEW BOOKS.

Practical Physical Chemistry. By FRANCIS W. GRAY. Lecturer in Charge of the Physical Chemistry Department, Aberdeen University. XVI and 211 pp. 61 figs. Macmillan and Co. New York. Price, \$1.25.

This is an excellent little manual for a first course in laboratory work in physical chemistry. The thirty-nine "exercises" include all the methods ordinarily given in such a course. They are arranged in chapters or groups, each group being preceded by a brief, clear statement of the fundamental principles involved in the experiments which follow. The laboratory directions are precise, adequate, and accompanied by well executed and intelligible diagrams. The author lays stress on the fact that he has so planned that no one exercise requires more than the usual period of two or three hours for its completion, and this is a good feature. The first thirty-five pages are devoted to a valuable discussion of "Accuracy" and "Errors;" the last seventeen to "Tables" and "Useful Data."

The style is uniformly concise and lucid, producing a most favorable impression on the reader, but occasionally one feels that this brevity is carried a trifle too far, and that a little more explanation in the text would be desirable. It would forestall a good many questions which will inevitably arise in the minds of those new to the work. The only thing which disturbed the enjoyment of the reviewer in reading this book was the appearance, four or five times, of the unfamiliar word "dissolecule," meaning molecular weight. Additions to the already unnecessarily long list of "special" words should be made only when it is unavoidable. But one small blemish can readily be forgiven among so much that is admirable.

S. LAWRENCE BIGELOW.

A Laboratory Course in Organic and Physiological Chemistry. By A. P. LOTHROP, PH.D., Assistant Professor of Physiological Chemistry, Queens University. R. Unglow & Co., Kingston, Ontario. 1915. 83 pp.

The rapid development of physiological chemistry in the past few years is indicated among other things by the large number of laboratory manuals which are appearing. This indicates that the science is still in a state of flux, that the teaching has not yet been standardized, or at any rate that there is as yet no generally accepted opinion as to what should be covered in the course and how it should be taught. Each teacher makes his own laboratory course. Of the several such manuals which have appeared in the past year, this is one of the simpler and older fashioned. It contains some simple experiments in organic chemistry and following these the ordinary, simpler tests for special substances and methods of examination of certain tissues and the urine. The experiments are clearly described, the directions are printed on one side of the page only leaving space for the recording of the results in the book itself, and the student is generally not told what to observe but only to write down

what he sees. There is no explanation of any of the reactions or observed facts, the author evidently expecting that this will be supplied by the text-book or brought out in recitation. Only one or two quantitative methods are given for the examination of the urine.

The reviewer is of the opinion that for modern, first-class medical schools, in which organic chemistry is required for entrance, the organic chemistry experiments are superfluous. If these were left out, the book could be much improved, without lengthening it, by the introduction of some of the modern quantitative chemical methods for the examination of blood and the secretions of the body. The book represents about what was required in most medical schools ten to fifteen years ago.

A. P. MATHEWS.