

The book will be particularly useful in the hands of many instructors who, like Dr. Long, have to do with students who can give but limited time to the study of chemistry and use it merely as auxiliary to the study of other subjects, as medicine, pharmacy, engineering. It is so concise, so complete, so logical in its arrangements, and so clear in the description of the reactions and methods, that our prejudice against the smaller works on these subjects is largely removed, and we are glad to commend it to the careful consideration of those instructors for whom the larger works are too bulky, and who cannot devote to the subject the time these larger works necessarily require.

W. MCMURTRIE.

LIGHTING BY ACETYLENE. BY WM. E. GIBBS, M. E. New York: D. Van Nostrand Co. 1898. 141 pp. Price \$1.50.

This is a popular rather than a scientific exposition of the work which has been done in the effort to make artificial lighting by means of an acetylene a practical success. The author in his preface claims that "the safe, efficient, and cheap lighting of houses by acetylene is an accomplished fact," a claim which many doubtless would be ready to dispute.

Short chapters are devoted to the history, dangers, and purification of acetylene; but the bulk of the volume is devoted to descriptions of electric furnaces for the production of the carbide, and generators for effecting its decomposition and the storing of the resulting acetylene gas.

Acetylene lamps and burners claim some twenty pages, and the volume closes with the requirements of the New York fire underwriters, and a list of the U. S. patents relating to this subject. Unfortunately the book has no index.

It is rather surprising to note the amount of brain power which has been devoted to the devising of acetylene generators, and yet the author assures us that "the ideal machine has certainly not yet been invented."

Most gas companies in this country would resent the author's rating of their gas at sixteen candles.

The volume will be found useful by those wishing to try acetylene lighting on a small scale, but we think its value would have been increased if the author had omitted some of the impossible generators and had said something on the details of

installing an acetylene plant, its cost, cost of the light as compared with other artificial illuminants, etc.

The volume is well printed and abundantly illustrated.

E. G. LOVE.

A SHORT COURSE IN INORGANIC QUALITATIVE ANALYSIS FOR ENGINEERING STUDENTS. By J. S. C. WELLS, Instructor in Analytical Chemistry, Columbia University. New York: John Wiley & Sons. 1898. vi + 294 pp.

The author of this book aims, according to the preface, to give a short but thorough course in qualitative analysis for the use of students who have only a limited time to devote to the subject.

This statement, which is frequently repeated in substance in the prefaces to laboratory manuals, and which often denotes a want of completeness in the treatment of the subject, cannot be so understood in the case of the present work.

Beginning with an excellent chapter upon reactions and the use of formulas in general, the author discusses the properties and behavior of bases towards reagents in a thoroughly satisfactory manner. Many chemical facts of general interest are interspersed throughout the book, serving to illustrate the importance of a knowledge of the reactions taught by qualitative analysis.

Equations are used more freely than in some of the larger works and will supply in advance answers to many of a student's questions. The methods directed for use in the separation of the bases of a group are, in the main, those of Fresenius, although modifications are here and there suggested which are undoubtedly to be looked upon as an advance. In his treatment of the separations of acids the author has given some good methods.

In all cases the schemes for separations are presented in the form of tables supplemented by full and detailed explanatory notes. In the part devoted to the analysis of complex mixtures the student receives many useful suggestions. A short chapter upon reagents closes the book.

Altogether, it is quite evident that, in spite of the author's modest limitation of the use of the book to engineering students, it will find a much wider use. The accuracy of treatment and completeness of detail will commend its use both to teacher and student.

F. C. PHILLIPS.