

simple experiments such as has long been in use, in the methods of formation and in the study of the properties of the non-metallic elements, oxygen, hydrogen, the halogens, sulphur, nitrogen and carbon and their compounds, is the most satisfactory. But when it comes to the study of the metallic elements three options as to laboratory work present themselves: First, a continuation of experiments similar in nature to those of the first term; second, qualitative analysis; third, preparation work."

The author believes the third option gives the most satisfactory results and has written the book as a text for students pursuing this line of work. It contains directions for preparing thirty-seven compounds, wisely chosen from among the different groups of the metals with a view of illustrating not only the properties of the various metallic compounds but also the different types of chemical changes. After each preparation a number of questions are asked which require consultation of text books and independent thought.

The book is an admirable one for the purposes for which it was intended. There is no doubt but that the students pursuing the course as mapped out would have an excellent foundation for the analytical work which naturally follows it.

WILLIAM MCPHERSON.

**The Air and Ventilation of Subways.** By GEORGE A. SOPER, PH.D. New York: John Wiley and Sons. London: Chapman and Hall, Limited. 1908. ix + 244 pp., 43 figures. Cloth. Price, \$2.50, (10/6 net).

The scope and bearings of this book are somewhat broader than is indicated by the title. While primarily giving the results of investigations carried out in connection with the New York subway, Dr. Soper has presented much in this little volume which will be of service to those interested in the problems connected with air in confined spaces. While the book is sufficiently non-technical to be readily understood by the average reader, methods of ventilation of subways and for the chemical and bacteriological examination of air as regards its fitness for respiration are given in sufficient detail to be of service. The book is well printed and bound and constitutes a valuable addition to the literature of a subject of increasing importance in municipal hygiene.

S. R. BENEDICT.

**The Design and Equipment of Small Chemical Laboratories.** RICHARD K. MEADE, B.S., Editor of the Chemical Engineer. The Chemical Engineer Publishing Co., Chicago, Ill. pp. 136. Price, \$2.00.

Often the young chemist "is called upon to design and equip a laboratory when his knowledge of how it is to be done is rather meagre." The book will prove to be useful not alone to this class of chemists, but to many teachers in small colleges and schools, where opportunities for extensive reading, travel and study of other laboratories are not often presented. The value of the book is enhanced by including the names and

addresses of the manufacturers of apparatus and material. There is a good index.

CHARLES BASKERVILLE.

**A Treatise on Qualitative Analysis and Practical Chemistry.** Adapted for use in the Laboratories of Schools and Colleges. By FRANK CLOWES, D.Sc., F.I.C., Emeritus Professor of Chemistry in the University College, Nottingham, etc., etc. Eighth edition, 1908. London: J. and A. Churchill. Philadelphia: P. Blakiston's Son & Co. pp. xxiii+518. Price, \$3.00 *net*.

This work, which has long been favorably known, combines a partial laboratory course in general inorganic chemistry with inorganic qualitative analysis, and with considerable practice in the detection of typical organic substances. The second edition (the latest available to the reviewer for comparison) was a volume of 372 pages, and the increase through the various editions to the present total of 518 pages has made it possible to both increase the scope of the work, and to introduce improved procedures. The author states that the important changes in this edition concern the preparation and detection of gaseous compounds, and the reaction and detection of organic substances.

While this work is primarily intended to meet conditions which do not generally obtain in this country, it presents much that is of interest and value, and will be found to be a handy reference work for many practicing analysts.

H. P. TALBOT.

**Traité Complet D'Analyse Chimique Appliquée aux Essais Industriels.** Par J. POST, B. NEUMANN. Deuxième édition française entièrement refondue. Traduite d'après la troisième édition allemande et augmentée de nombreuses additions. Par L. Gautier. Tome Premier. Second Fascicule. Gaz d'Éclairage—Carbure de Calcium et Acétylène—Pétrole—Huiles de Graissage—Huiles de Goudron—Paraffine—Cire Minérale—Ozocérite—Asphalte—Graisses et Huiles grasses—Glycérine—Bougies—Savons. Avec 109 figures dans le texte. Paris: Librairie Scientifique A. Hermann, 6 Rue de la Sorbonne. 1908. pp. 219-562.

A brief review of Part I of Vol. 2 of this work has already appeared on p. 913 of this Journal. Detailed comment is, therefore, unnecessary. An appendix contains the methods followed in France by official laboratories for the analysis of fatty matters.

W. F. HILLEBRAND.

**Stoichiometry.** By SIDNEY YOUNG, Professor of Chemistry in the University of Dublin. Together with an Introduction to the Study of Physical Chemistry by Sir William Ramsay, K.C.B., F.R.S. London, New York, Bombay, and Calcutta: Longmans, Green and Co. 1908. lxi+381 pp. Price, 7s. 6d.

The title of this volume, which is intended to be the first in the series of text-books of physical chemistry edited by Sir William Ramsay, has a somewhat uncertain significance to the average reader, but one finds in the introduction, a statement of the scope of the book: "Stoichiometry or the various methods employed to determine atomic or molecular weights, and the classification of compounds."