within the scope of the volume, as well as the modern electronic theory.

The reader has thus an opportunity of taking an unfamiliar course through familiar fields of study, and will be well repaid for doing so. It is a pity, however, that the cost of this sectional history is greater than that of a more comprehensive text-book, since many readers who would purchase the latter will be content merely to borrow the former.

T. M. L.

Fixation of Atmospheric Nitrogen. By Frank A. Ernst. (Industrial Chemical Monographs.) Pp. ix + 154. (London: Chapman and Hall, Ltd., 1928.) 12*s.* 6*d.* net.

THE author of this book points out in the preface that it is not written for the scientific specialist, but "for the teacher and student, for the business man and banker." The book deals first with the sources of nitrogen and the need for its fixation from the atmosphere, and then considers in detail the arc process, the cyanamide process, the direct synthetic ammonia process, and ammonia conversion products. The material is well presented, and is especially valuable on account of the full statistics given not only throughout the text and the chapter entitled "Statistics," but also in the tables at the end of the book. A fair bibliography is also included. The chapter dealing with "Economic Considerations" indicates clearly a number of economic problems that arise in the commercial fixation of nitrogen. At the beginning of Chapter ii. (p. 11) Bertholet is mentioned instead of Berthollet, and Sir Humphry Davy's name is spelt incorrectly. No mention is made of MacDougall and Howles, who first worked the arc process in Manchester, and whose patent (1899) preceded that of Bradley and Lovejoy (1902), on the basis of which the author (p. 12) claims that "the industrial fixation of nitrogen thus had its birth in the United States."

The Problem of Fermentation: the Facts and Hypotheses. By M. Schoen. With an Introduction by Prof. A. Fernbach. A Monograph of the Institut Pasteur, translated from the French by H. Lloyd Hind, and revised and enlarged by the Author. Pp. xii + 211. (London: Chapman and Hall, Ltd., 1928.) 21*s.* net.

THE author gives an interesting account of the present position of the problem of fermentation and traces its development from the time of Pasteur to the present day. The whole range of the subject is covered: alcoholic and lactic acid fermentation, the place of pyruvic acid and acetaldehyde in alcoholic fermentation, the function of phosphates and the effects of changing the reaction of the medium. Analogous processes in animal tissues are frequently referred to, such as the function of lactic acid in muscular contraction or in malignant growths. The references are given at the foot of each page and are also collected into a bibliography of some forty pages, which in addition serves as an index of authors' names. This is a volume for the specialist, but should be widely read also by those interested in related subjects for the light it frequently sheds on processes which bear some analogy to alcoholic fermentation itself.

The Determination of Hydrogen Ions: an Elementary Treatise on Electrode, Indicator, and Supplementary Methods, with an Indexed Bibliography on Applications. By Prof. W. Mansfield Clark. Third edition. Pp. xvi + 717. (London: Baillière, Tindall and Cox, 1928.) 30*s.* net.

PROF. CLARK'S standard work on the determination of hydrogen ions is too well known to require any introduction. The third edition, recently issued, has been thoroughly revised and brought up-to-date. The author points out that the number of papers on this subject has rapidly increased in recent years, so that, in spite of revision and enlargement, the work probably covers the field less completely than the first edition. In spite of this, few except the advanced specialist will fail to find details required within its pages on the colorimetric or electrode methods of determination. The subject is treated from both the practical and theoretical points of view, and forms a very complete treatise. As the question of hydrogen ion activity enters into most biochemical problems to-day, selected portions of the book will be of value to most biochemists and physiologists, and can be studied with profit. There is an extensive bibliography and a list of definitions of common terms.

Scent and All About It: a Popular Account of the Science and Art of Perfumery. By H. Stanley Redgrove. Pp. viii + 100. (London: William Heinemann (Medical Books), Ltd., 1928.) 3*s.* 6*d.* net.

THE careful reader of Mr. Redgrove's booklet will gather many unusual items of information, such as the natural sources of ambergris, frankincense, opoponax ("a name for perfumers to conjure with"), and civet. He will notice that the civet used in Great Britain comes mainly from Abyssinia, packed in ox-horns; that the odour of Jockey Club is that of the sweet wild flowers wafted over Epsom Downs; that diphenyl oxide develops an odour of geranium leaves only in dilute solution; that labdanum, the nearest approach to ambergris in the plant world, is gathered by shepherds from the fleeces of sheep which browse on the hills of Cyprus and Crete; and that the garden musk (*Mimulus moschatus*) of the present day has lost its odour, possibly owing to the fragrant plant of our ancestors having been a 'form' which has since died out. Within its modest limits this little book amply fulfils the author's purpose of providing the general reader with a popular account of the science and art of perfumery.

J. R.

Inorganic Chemistry. Vol. 1: *Non-Metals.* By Dr. G. H. Bailey and Dr. D. R. Snellgrove. Pp. viii + 488. (London: University Tutorial Press, Ltd., 1928.) 6*s.* 6*d.*

THIS book, together with the companion volume, "Inorganic Chemistry. Vol. 2: Mainly Metals," is intended to cover the course for an intermediate