

and carbon, follow descriptions of the manufacture of hydrochloric, hydrofluoric, nitric and sulphuric acids. The halogens and sulphur follow much later. Acids, bases, and salts are discussed in detail before any of the metals are studied.

The author justifies his method by pointing out the "enthusiastic interest" of his classes. Such evidence of its value should be criticised with caution.

The treatment of the metals is full and interesting. Two very brief chapters are given to organic chemistry, and an appendix contains the names of a few books of reference, lists of chemicals and apparatus, a few tables, and some directions for manipulation.

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HUMPHRY DAVY, POET AND PHILOSOPHER. BY T. E. THORPE, LL.D., F.R.S. The Century Science Series. New York: The Macmillan Co., Ltd. 1896. viii + 240 pp. Price \$1.25.

Professor Thorpe, of the Royal College of Science, London, is no novice in the writing of biographies of chemists; his "Essays in Historical Chemistry" (London, 1894) included sketches of Boyle, Priestley, Scheele, Cavendish, Lavoisier, Faraday, Graham, Wöhler, Dumas, Kopp, and Mendeléeff, and now chemists have to thank him for a very satisfactory biography of the illustrious Davy. The author had access to much original material not before used, private letters, and documents in possession of London scientific societies, notably the original records of Davy's experiments in the Royal Institution. The result is a more accurate work than that of Dr. Paris (1831) and less partial than that of Sir Humphry's brother John (1836). Professor Thorpe was fortunate in having a charming as well as distinguished personality for his subject, and he treats it very agreeably. He seems to have become inoculated somewhat with Davy's poetical nature for he writes of the "Pierian Spring," "Devotions to Calliope," the "Daring of Phaeton," and of "Priestley's Pegasus."

Davy's childhood and scanty education in youth are touched upon; he seems to have had no training in science, whatever, when he began work at Beddoes "Pneumatic Institution" in Bristol, but his industry and ability were inborn, and his discovery of "Laughing Gas" at the age of twenty-one started him on a career which reached a lofty height before he arrived at the age of thirty.

The portrait which serves as frontispiece is an unfamiliar one, being from a painting by Jackson, taken at the age of 45. Davy appears less handsome than in the portraits by Sir Thos. Lawrence, Lonsdale, and others. The book has an index. The next volume of the series will be on Michael Faraday, by Dr. Silvanus P. Thompson. H. CARRINGTON BOLTON.

A HANDBOOK OF MODERN EXPLOSIVES. BY M. EISSLER. Second edition, enlarged. London: Crosby, Lockwood & Son; and New York: D. Van Nostrand Co. 1897. 8vo. 153 Figs. xx + 406 pp. Price \$5.00.

That there is a field for a book of this kind is shown by the fact that it has now gone to a second edition, the first edition having been published in 1890. In the preparation of this work the author has omitted all description of gunpowder, as it typifies the ancient explosives, and devotes his pages largely to nitroglycerine and guncotton and the preparation made from them, though some space is given to the nitrosubstitution explosives and the proposed substitutes for gunpowder. The scope of the treatment covers not only the methods of manufacture, the apparatus employed and materials required, the tests of the raw materials and manufactured products, and the properties of the explosives produced, but much space is given to the methods of using them in the industries and in war, while a goodly number of pages are devoted to the Explosives Act of Great Britain and other official regulations. In fact the book is written wholly from the English standpoint as regards this industry. This new edition is revised and contains about one hundred more pages and fifty more illustrations than the first edition. The most substantial addition is a chapter on nitrogelatine and gelatine dynamite in practical applications, while sections have been added on the tests of ingredients and concentration of spent acids in the nitroglycerine manufacture; apparatus for measuring the strength of explosives; properties of frozen nitroglycerine compounds and other minor topics.

It is to be regretted that many obvious errors which occurred in the old edition have been repeated in this, while new ones have been added: One remarkable error is in the cuts illustrating the manufacture of nitroglycerine by Mowbray's Process. The authority cited for the description is Mowbray's "Trinitroglycerine." The three cuts given bear the legends "Mowbray's