

acquitted itself well. A compromise between methods dictated by custom, previous decrees of the British Engineering Standards Association, publications of the American Society for Testing Material and the American Bureau of Standards, has been achieved, to the lasting benefit of petroleum chemists and the industry in general.

Methods of testing oils and suitable apparatus are discussed, but the thorny problem of nomenclature has been left alone, owing to the impossibility of considering it on other than an international basis—a wise decision. Petroleum products are dealt with as gasoline, white spirit, kerosene, gas oil, lubricating oils, transformer oils, fuel oils, asphalt, and wax, and under each class appropriate tests are given, these tests being differentiated by “serial designations,” *i.e.* reference letter to the class of product and serial number to the precise test. In the language of the Committee “I.P.T. Special Designation—G.O.4” will in future indicate the standard test for sulphur in gas oil (class G.O., test No. 4), implying the use of a bomb-calorimeter of approved specification with manipulation as prescribed; similarly for other products and their routine testing. No degree of finality of methods is achieved (nor was that desirable) in the report; the fabric on which the I.P.T. standardisation is built up is sufficiently elastic to permit of modifications and additions in technique demanded by future developments. H. B. MILNER.

*The Journal of the Institute of Metals.* Vol. xxxi. Pp. xi + 680 + 40 plates. Edited by G. Shaw Scott. (London: Institute of Metals, 36 Victoria Street, Westminster, 1924.) 31s. 6d. net.

THE papers contained in the present volume are mainly of scientific interest. There are several studies of the equilibrium in binary and ternary alloys, including a remarkably well illustrated account of the alloys of copper and cadmium. Sir Henry Fowler gives a survey of the use of non-ferrous metals in engineering, and the president, Prof. Turner, devotes his address mainly to the importance of research in metallurgy. A practical investigation of the failure of some brass tubes, by Mr. Millington and Prof. Thompson, is chiefly interesting through leading the authors to a rather speculative, but highly ingenious, view of the mechanism of fatigue. The discussion on this paper shows how diverse are present opinions as to the nature of fatigue. A paper from Stockholm, partly covering the same ground as a recent communication from the National Physical Laboratory, treats of the study of inter-metallic compounds by means of X-rays. The volume contains a great deal of interesting matter, and, as usual, includes very full abstracts of the current literature relating to non-ferrous metallurgy.

*Lunge and Keane's Technical Methods of Chemical Analysis.* Second edition. Edited by Dr. C. A. Keane and P. C. L. Thorne. Vol. 1. Pp. xx + 704. (London and Edinburgh: Gurney and Jackson, 1924.) 63s. net.

THE new edition of this important work is distinctly better than the earlier one. It is to be in six volumes, each complete with its own index (besides a general index for the whole series), and the contents have been

rearranged so that associated subjects are grouped together more conveniently than in the first edition.

Dr. Keane has enlisted the assistance of British experts throughout, and certain of the sections, such as “Fuel” and “Cyanides,” have been entirely rewritten, while others are materially altered. The important sections on sulphuric acid, chlorine, and alkali have been brought up-to-date by Dr. J. T. Dunn; Dr. J. S. G. Thomas is responsible for “Gas Analysis” and for a noteworthy new section on “Physical Methods,” while a new chapter on “Electrolytic Methods” is excellently dealt with by Dr. H. J. S. Sands.

Very few printer's errors have been observed, and, except for a few of the illustrations, the book is well turned out. Altogether, this first volume represents a notable advance on the earlier edition, and it is to be hoped that the high standard will be maintained through the remaining volumes. T. W. H.

*The Recent Development of Physical Science.* By William Cecil Dampier Whetham. Fifth edition. Pp. xvi + 313 + 16 plates. (London: John Murray, 1924.) 9s. net.

TWENTY years ago, Mr. Whetham wrote a remarkable book, in which he gave, in pleasant narrative form, an account of the discovery of the electron, and other matters which were then new in physical science. The mobile electron has moved a long way in twenty years, and as a result nearly half of the new version of the book is devoted to describing ideas and facts which had scarcely come into existence when the first edition was issued. It would, however, be an injustice to suggest that Mr. Whetham has limited himself to telling, as so many others in recent years have done, the story of the electron and nothing else. Just as the earlier work included chapters on the liquefaction of gases, and on the processes of crystallisation from fusion or solution, so the later additions include a chapter on “Matter, Space and Time,” under the appropriate motto “Oh, dear! What can the matter be?” and a chapter on astrophysics. On account of its breadth of treatment, the book can be commended to readers who hold that neither the naked ion of thirty years ago, nor the naked electron of to-day, important as they are, can claim a complete monopoly of interest in physical science.

*Technical Writing.* By T. A. Rickard. Second edition, re-written and enlarged. Pp. ix + 337. (New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1923.) 10s. net.

THE second edition of Mr. Rickard's book has been thoroughly revised and enlarged. It is a useful guide to the writing of technical papers, and, although the worst examples of faults to be avoided are more often found in the technical press of the United States than in Great Britain, even a superficial student of publications on applied science must have noticed that such slovenly expressions are being increasingly used. The new sections include a chapter on “The Wrong Word,” and another on punctuation. The sections on style are slight but sound, the aim of the author being to encourage clearness and simplicity in the statement of facts.