

Electromagnetically Enriched Isotopes and Mass Spectrometry

Edited by M. L. Smith. (Proceedings of the Conference held in the Cockcroft Hall, Harwell, 13-16 September 1955. Sponsored by the Atomic Energy Research Establishment, Harwell.) Pp. xvi+272. (London: Butterworths Scientific Publications; New York: Academic Press, Inc., 1956.) 45s.

THE appearance of this collection of papers on enriched isotopes will be welcomed by all who are interested in this field. These papers are concerned both with the technique of electromagnetic enrichment and with the applications of the enriched isotopes. Since much of the material either has not been published before or is contained in reports of limited circulation, its collection within one volume is an important contribution to the literature of the subject.

More than half the thirty papers are concerned with problems of design in the separator itself. Since the principal factor which determines whether or not an element can be processed electromagnetically is the availability of suitable ion sources and collectors, several papers are concerned with detailed discussion of their construction and of associated chemical problems. It is interesting to note that it is now possible to process in substantial quantities the stable isotopes of nearly all the elements. Abundance measurements and mass-spectrometry are surveyed in a number of papers, and interesting contributions are included on the method of dilution analysis and on a new type of mass-spectrometer employing radio-frequency methods. Other survey papers describe typical uses of enriched isotopes and give some indication of their wide field of application. Two papers direct attention to the importance of applying enrichment techniques to radioactive isotopes.

The book is well produced and contains clear diagrams and photographs. The provision of an adequate index and the inclusion of the discussions which followed the papers add greatly to its value.

M. A. GRACE

Protoblastologia

Handbuch der Protoblastmaforschung. Herausgegeben von L. V. Heilbrunn und F. Weber. Band 2: Cytoplasma. A: Morphologie. 2: Die Submikroskopische Struktur des Cytoplasmas. Von A. Frey-Wyssling. Pp. iv+244. (Wien: Springer-Verlag, 1955.) 72s.

DURING the past five years the electron microscope has become the main tool for investigating cellular fine structure. This change in technique is reflected in the much greater space given in this book to electron microscope results than in the earlier work by Prof. A. Frey-Wyssling on sub-microscopic morphology. The section on electron microscopy, which takes up the first half of the book, will be most useful to cell biologists. It brings together, for the first time, observations on cell structure which have been scattered through a large number of journals and discusses them in terms of both cell function and molecular morphology. There is an interesting section on the structure of the ground cytoplasm in which Prof. Frey-Wyssling points out the dangers of artefacts and illustrates them with some striking photographs of reticular structure in gelatin and Liesegang rings after osmium fixation. There are a number of good reproductions of electron micrographs, but one could wish for more.

The second half of the book is concerned with those aspects of chemistry, cell physiology and biophysics which are relevant to cellular fine structure. Perhaps the best section is that which deals with the structure of proteins and nucleic acids and describes the recent work of the X-ray crystallographers in this field.

J. M. MITCHISON

Physical Chemistry

By Prof. Walter J. Moore. Second edition. Pp. xii+633. (London and New York: Longmans, Green and Co., Ltd., 1956.) 30s. net.

PROF. W. J. MOORE uses the thermodynamical approach to physical chemistry, and his readers need a knowledge of advanced mathematics and the ability to apply them. The first edition (1950) was reviewed and commended in these columns (see *Nature*, 168, 577; 1951). In this, the second American, but first English, edition the author, in bringing the work up to date, has accepted friendly criticism and made numerous small improvements.

The chapters dealing with nuclear chemistry and electrochemistry, and that on the structure of molecules, have all been enlarged. Prof. Moore has extended the scope of the section on photochemistry, has removed it from Chapter 17, on kinetic energy, and has made it into a new chapter on photochemistry and radiochemistry. To the curtailed Chapter 17 he has added two new sections dealing respectively with reactions in flow systems and with the mechanisms of ionic reactions. The lists of articles and books recommended for further reading have been overhauled, brought up to date and extended. Many of the newly listed articles are from the *Journal of Chemical Education* or from the Chemical Society's *Quarterly Reviews*.

The work is recommended to those studying physical chemistry at university-level who have the necessary mathematical equipment.

G. F.

Animal Breeding

By Dr. A. L. Hagedoorn. (Agricultural and Horticultural Science Series.) Fifth edition. Pp. xix+364+21 plates. (London: Crosby Lockwood and Son, Ltd., 1954.) 18s. net.

PROBABLY no other book has done more than this one to stimulate practical livestock breeders and students of animal husbandry to take an acute interest in genetical principles and ideas. It is fitting that in this fifth edition, with its revisions and additions made by Dr. A. L. Hagedoorn before his death, there should be a memoir of the author by Dr. John Hammond which notes his outspoken critical approach to practical problems and controversies. For his provocative decrial of "fancy points" and show-ring standards, his robust insistence on progeny testing, and his advocacy of the nucleus system of breeding are further emphasized here.

Hagedoorn's own interests in, and practical contacts with, the breeding of large and small animals ranged widely and have once more been freely used for illustrating his main themes and provide the reader with a wealth of observations. Yet the tendency—perhaps need for his purpose—to over-simplify his interpretations of the underlying principles and his advice on breeding problems and procedures remains; while the book can certainly be recommended to be read, it still cannot be accepted without reserve as the full and authoritative word on this aspect of animal production.

J. E. NICHOLS