next, followed by irradiation damage and repair in solid biological systems. This latter chapter contains a useful discussion of energy migration and electron conduction through proteins. As an illustration of how electron spin resonance spectroscopy can provide information on metabolic processes, the biosynthesis of melanin is discussed; other examples such as photosynthesis and the visual processes might with profit have been included. The final chapter in the ESR section of the book deals with medical applications. There are interesting qualitative differences in free radical content between tissues, particularly when neoplastic and normal tissue are compared. The reviewed achievements of whole tissue studies to date, however, indicate the wisdom of learning to walk before one begins to run—study purified biological macromolecules as a preliminary to macromolecular assemblies.

In the preface, Wyard states that "the scope of the book is something between a textbook, a review and an original research contribution combining some of the qualities of all three". Within this frame of reference, he can be said to have succeeded and this volume will form a valuable addition to the libraries of laboratories where solid state techniques are being applied.

PETER F. KNOWLES

PROTEIN CHEMISTRY

Physical Principles and Techniques of Protein Chemistry

Part A. Edited by Sydney J. Leach. (Molecular Biology: An International Series of Monographs and Textbooks.) Pp. xiii + 530. (Academic Press: London and New York, April 1969.) 224*s*.

THIS is another edited book concerned with some of the physical techniques used by protein chemists. It joins an ever increasing number of edited books (for example, "Methods in Biochemical Analysis", "Biological Macromolecules Series", "Methods in Enzymology", "Advances in . . .", and the like) which seek to keep the physical biochemist informed of the various techniques and advances in his subject. The only shortage is of time to read them all.

Inevitably, with many publishers promoting edited books, considerable overlap occurs and the same topics, treated by different authors, are to be found in many of the books. In this respect, chapters on "X-ray Methods" by R. D. B. Fraser and T. P. MacRae and "Ultraviolet Spectroscopy" by J. W. Donovan are included, although both subjects have been covered previously on more than one occasion. This comment is not intended to detract from the quality of the articles—both of which are excellent—but one wonders what the criteria are for judging a topic to be adequately covered. Similarly, for some of the other topics which include "Electron Microscopy of Globular Proteins" by E. M. Slayter; "Fluorescence of Proteins" by R. F. Chen, H. Edelhoch and R. F. Steiner; "Perturbation and Flow Techniques" by B. H. Havsteen and "Dielectric Properties of Proteins: I, Dielectric Relaxation" by S. Takashima. The claim of the editor, Dr S. J. Leach, that the articles are "concerned primarily with methodology rather than theory" is well met, and I found the treatments of the techniques, of which I have little or no experience, to be very clear. A colleague who has contributed to the theory of both electrophoresis and analytical gel filtration found both chapters to be theoretically sound and well written.

In general, this is a well presented book and will be of value both to research students entering the field of protein physical chemistry and to established workers wishing to obtain background knowledge in other techniques. Much of the information, however, can be obtained from other sources and I wonder who or what will limit the growth in the number of edited books.

E. M. BRADBURY

HANDBOOK FOR THE LAB

Handbook of Neurochemistry

Vol. 1: Chemical Architecture of the Nervous System. Edited by Abel Lajtha. Pp. xvii + 484. (Plenum Press: New York, 1969.) $35.

THIS is the first of a series of seven volumes designed to provide a concise assessment of the chemistry and biology of the nervous system for ready reference in laboratory, clinic or classroom.

In this volume of neurochemistry there are sixteen chapters, most of them between 10 and 20 pages long, but lipids (50 pages) and enzymes (140 pages) have been allowed a little more space as appropriate to their prominence in chemical studies of brain. There are about 3,000 references in all, half of them with titles providing a fairly complete coverage of the literature to the end of 1967 but with little reference to 1968. Chemical data are assembled in more than forty tables, one of them (a table of enzymes) 73 pages long. In addition, most authors have managed to summarize the present state of knowledge in their section of the field, indicating trends in remarkably few words. There is a comprehensive subject index, but although the book makes extensive use of abbreviations there is, however, no list of abbreviations. Such abbreviations might be very familiar in the research laboratory, but some of them might not be easily understood in the clinic or classroom.

One's interest in a handbook such as this usually depends on one's particular field of specialization. I think that the lipid chapter gives a very useful coverage ranging from the structural formulae of the individual lipids to an extensive list of disorders of the nervous system in which lipids may be involved. Several chapters also include sections on changes in composition associated with pathological disorders and also with age. There are also comments on the effects of drugs on brain sterols. The inclusion of a chapter on enzymes (more than 350 enzymatic activities are listed) can probably be justified in a volume which is primarily on chemical composition, but that on "Cerebral Metabolism *in Vivo*" is rather misplaced when volume three will be entitled "Metabolic Reactions in the Nervous System".

The series will certainly be welcomed in research laboratories and even in clinics, but I doubt whether it will be seen in many classrooms.

J. B. FINEAN

CRUSADE FOR STANDARDS

Systems of Units in Electricity and Magnetism

By Leo Young. (Electronic and Electrical Engineering Texts, Vol. 1.) Pp. xv + 235. (Oliver and Boyd: Edinburgh, June 1969.) 42*s*.

THE text of this new book on unit systems has been so prepared that it can be read also by undergraduate students of physics and electrical engineering. It attempts to explain as well as unify the various systems of electrical units in common use. This thorough account is all the more welcome because there is at last every hope that a unified system of units will be universally used by all engineers. It has taken nearly a century for this to be within sight of actual achievement.

In view of the recent widespread efforts to get engineers to use the "Système Internationale", the SI system of units, so that all will use the same definitions and the same units, the reader may well wonder and ponder on the need for detailed treatment of the whole subject of other systems of units and definitions. There is, in this book, almost an encyclopaedia on units or, as the preface claims, a kind of combined grammar and dictionary of the whole subject. The chaos caused by the failure to adopt a single system has been so great that surely it would be better to make a clean break and ignore past mistakes completely. The