BOOK REVIEWS

KÜNSTLICHE RADIOAKTIVE ISOTOPE IN PHYSIOLOGIE, DIAGNOSTIK UND THERAPIE. 2. Auflage. Band I und II. Herausgegeben von H. Schwiegk und F. Turba. 2 575 Seiten und 759 Abbildungen. Springer Verlag, Berlin 1961. Price: DM 398.

The rapid increase in the use of radioisotopes for the most varied purposes in the medical sciences is well reflected in the fact that the second edition of the well-known handbook of SCHWIEGK has grown to more than double the size of the first edition. It contains contributions from 83 authors, mostly German and American, writing in their respective languages; one chapter is in French. About 330 of the 2 575 pages contain lists of references, while the subject index fills 270 pages. It is clearly impossible within a reasonable space to review in detail a work such as this, and there is probably no single person in the world able critically to judge all parts of so varied a subject matter. The present reviewer can claim competence only within small realms of the subjects treated.

The first volume begins with a long chapter on general methods for detecting radioisotopes although without any detailed treatment of the electronic instruments in use, and a still longer one on the different radioisotopes, and the preparation of various compounds and samples for measurement. There are chapters on autoradiography, radiobiology, radiation protection, and the construction and equipment of nuclear medicine laboratories.

A few chapters on general aspects on the use of radioisotopes in biochemistry, physiology etc are followed by a number of chapters with detailed treatment of various special problems.

The second volume begins with chapters on several of the most important elements and their radioisotopes. Very little information is, however, given on half-lives and radiation properties. The chapter on iron describes in detail the normal and pathologic metabolism of the element and hematologic applications of radio-iron.

Other chapters concern muscle and nerve physiology, various metabolic studies, and applications of radioisotopes in bacteriology, virology, and immunology. Some of the chapters that follow have more direct diagnostic interest (circulation research, tumour diagnostics, thyroid function studies, the biochemistry of vitamin B12).

The last chapters are concerned with therapeutic uses (tumour therapy, hematology, thyroid therapy). Uses of radioisotopes in sealed containers for internal or external irradiation including telegamma therapy, are also described, though relatively briefly. A chapter on the therapeutic use of high-energy heavy ions falls outside the scope of the book as defined in its title as, in the diagnostic part, do the references to uses of stable isotopes.

As far as the reviewer can judge, the editors and the authors have done a good job, and no cause for any major criticism has been found. Several duplications are of course unavoidable when different authors treat closely related subjects, but they seem to be innocuous and sometimes even useful.

The work may be considered indispensable to general medical libraries and to radiological and biophysical institutes. Many research workers will also find it worth its relatively high price even though they may have practical use of only a fraction of its contents.

Sven Benner

THE INITIAL EFFECTS OF IONIZING RADIATIONS ON CELLS. A Symposium held in Moscow, October 1960. Edited by R. J. C. Harris. 367 pages, 129 illustrations and 24 tables. Academic Press, London 1962. Price: 75 sh.

These are the proceedings of a Symposium in Moscow in the autumn of 1960, supported by UNESCO, IAEA and the Academy of Sciences, USSR.

The word 'initial' is not to be taken literally since irradiation effects that become apparent days or even weeks after the irradiation were also discussed. All the usual subjects of radiation biology were covered at the meeting.

The particular interest in this symposium lies in the fact that a substantial presentation of Soviet radiobiology becomes available in English, nearly fifty per cent of the contributions being from Soviet scientists. There were many interesting communications. The material in some of the Russian papers was evidently condensed from years of work, and references about interesting details are sometimes made to original publications in the Russian language.

Of the papers that seem to present new lines of research and new technical ideas may be mentioned FRANK's studies on rhythmic changes in oxydative processes. A micropolarographic device was developed to study these phenomena. MEISSEL et alii have applied fluorescence microscopy to the study of irradiation effects on nucleic acids and proteins.

The symposium was concluded by a 'general discussion' on topics of particular interest selected from the material presented in the individual papers.

A. Forssberg

FUNDAMENTALS OF RADIOBIOLOGY. By Z. M. Bacq and Peter Alexander. Second completely revised edition. 555 pages, 150 illustrations and 81 tables. Pergamon Press, Oxford 1962. Price: 70 sh.

This well known book now appears in the 'International Series of Monographs on Pure and Applied Biology' in what is virtually an entirely revised form of the first edition. The great amount of experimental work that has been done in the last decade is at once apparent from a perusal of the text. Radiation biology in its present stage encompasses large tracts of the sciences of chemistry and biology and also needs a fair knowledge of the fundamentals of physics. A survey of radiation biology is certainly a taxing enterprise for two authors although a combination of a physics chemist and a physiologist probably comes closest to the ideal combination. The selection of the material must nevertheless to some extent reflect their interests and scientific fields, particularly as it is virtually impossible to cover the whole material in some 500 pages. To quote the preface: 'This is a survey and not a monograph. We have selected certain investigations from the enormous mass of published material . . .'.

Subjects such as the radiation chemistry of macromolecules, and some parts of mammalian radiobiology, e. g. the biochemistry, physiology and pathology of the irradiated body, are comprehensively treated, and the same applies to protection. The rapid development in the important field of radiation genetics is outlined in a few pages but with references, as in other instances, to modern reviews. The book is written in a vivid and entertaining way which reflects the enthusiasms of the authors and makes for easy reading. The personal views of the authors in many controversial questions, e. g. the merits of the physical target theory in radiation biology, are clearly expressed.

A. Forssberg