

and in some ways superior, species with which to teach insect anatomy. Until now, two obstacles have impeded the widespread adoption of the locust for this purpose: there has been no dissection manual, and supplies of the adult insects have not been available on a commercial scale. Dr. Thomas's book has removed the first of these, and the removal of the second will no doubt soon follow.

The book has been written for sixth forms in schools and for undergraduate students, and the author has struck a very suitable balance between the requirements of these two classes of reader. After introductory notes on the life history, and on rearing and preserving locusts, the book deals in successive sections with the external features and the dissection of all the principal systems. The text is written very clearly, with the practical instructions for dissection usefully marked off from the rest of the text by being printed in italics; accounts of microscopical structures are printed in smaller type. An appendix gives brief notes on the making of permanent preparations and suggests a number of simple investigations that can be made with living locusts.

The book is amply illustrated with clear, fully labelled diagrams, enabling the descriptions and instructions for dissection to be easily followed. It is well bound in a large sensible format, and can be recommended unreservedly to both students and teaching staff of the biological departments of schools and universities.

D. R. RAGGE

### The Two-nucleon Interaction

By Michael J. Moravcsik. (Oxford Library of the Physical Sciences.) Pp. viii + 154. (Oxford: Clarendon Press, 1963.) 18s.

THE physics of the two-nucleon interaction has recently reached a breathing-space. Our empirical knowledge of the proton-proton interaction is now essentially complete throughout the elastic scattering region; a similar wealth of information on the neutron-proton interaction is much harder to win and will not all be available for several years. This review of the subject is therefore timely and welcome.

The book is divided into two equal parts. The first deals with the experimental information and with the simple theoretical apparatus (*S*-matrix, potential models, phase shifts) needed to describe it phenomenologically. The second half discusses the attempts that have been made to provide a fundamental theory of the nucleon-nucleon interaction (pion potentials, dispersion relations, exchange of pion resonances).

Within the restricted format of an Oxford Library volume it would of course be impossible to develop, for example, the theory of dispersion relations from scratch; nor would it be desirable in a monograph such as this. Enough is said, however, to indicate what sort of theories there are, their premises and their mathematical expression, the type of results to be obtained, and the difficulties involved. Together with the full experimental survey, this gives a good clear picture of our present state of knowledge of the interaction which lies at the heart of so much modern physics.

J. M. SOPER

### Intra-ocular Lenses and Implants

By Prof. Peter Choyce. Pp. x + 211. (London: H. K. Lewis and Co., Ltd., 1964.) 90s. net.

THIS is a beautifully produced book, well illustrated and liberally provided with coloured illustrations of a high calibre. The illustrations have the great merit of showing at a glance what they are intended to convey, and are self-explanatory to such an extent as to render the captions almost redundant. Prof. Choyce, a master equally in explaining basic principles and detailed opera-

tional techniques, surveys the brief history of lens prostheses and puts his weight firmly behind Strampelli's fixed-length acrylic anterior chamber implant. Various types of fixation are described and the special requirements of aniridic eyes carefully set out. If one wonders to what extent Gullstrand's schematic eye is truly representative of the optics of the non-existent average eye—witness only the dependence on age which is not negligible but which has heretofore been ignored in 'schemes'—one may, none the less, provisionally follow Prof. Choyce in the acceptance of his theoretical basis. It may be argued that, if the eye were not normal before the insertion of the implant, it would scarcely be so afterwards. His Tables 22 and 23 showing the residual spherical and cylindrical errors assuage one's fears and, at the same time, demonstrate the progressive improvements of the technique.

Implants can also be used in dealing with keratoplasty and for the restriction of vitreous prolapse into the anterior chamber, although the long-term effects following these, and other, operations remain to be established. Prof. Choyce believes that later editions of this monograph will be more helpful in throwing light on these questions. This leads to a feature of this book which he has done his best to prevent one from overlooking. In his commentary on Spinoza, Prof. Hampshire emphasizes the philosopher's severely analytical style, as typified by the exclusion of all adornment and personal traits: the writer's ego appears in his treatises no more than it does in Euclid's theorems. The very reverse is true of the monograph under discussion. If the reader is reminded of '57 Varieties' when reading references to "Choyce mark III, IV, V implants", he may well be pardoned for questioning the objectivity of this highly personalized account. Prof. Choyce's surgical skill may match that of his pen. He cannot quote his patients' opinions: we have to wait for those of his peers.

R. A. WEALE

### Radionuclide

Von D. Kurt Schmeiser. Zweite, völlig neu Bearbeitete und Erweiterte Auflage von Radioaktive Isotope. Pp. xii + 282. (Berlin: Springer-Verlag, 1963.) 59 D.M.

THE book is primarily intended as a guide for biologists, doctors, chemists and other scientists who want to use radioactive nuclides for radiography or analysis. It is quite easy to understand, and the main emphasis is on practical applications. There are numerous literature references up to 1961 which permit a study in greater depth when this is desired.

In seven main sections the book deals with the basic principles of atomic structure and the production of radionuclides, the interaction of radiation with matter, radioactive decay, radiation detectors, source applications of radionuclides and radiation protection.

Three new items are added to the second edition: the determination of low-energy radiation ( $^3\text{H}$ ,  $^{14}\text{C}$ ) with liquid scintillation counting,  $\gamma$ -spectrometry and low-level counting. The chapter on liquid scintillation counting gives on eight pages a survey about the techniques involved, the properties of some scintillators and solvents in use and the advantages and disadvantages of the method. Compared with its importance nowadays, the  $\gamma$ -spectrometry is discussed rather briefly (six pages). The chapter on low-level counting mainly centres on the techniques for reducing the background, including anti-coincidence shielding.

In greater detail are discussed the techniques of activation analysis (14 pages) and autoradiography (25 pages). A number of useful examples are described of the application of the various techniques in the fields of chemistry, biology and technology.

The book is well written and can be recommended as a useful tool to those familiar with the German language.

E. GLUECKAUF