

a newcomer to the field might turn, although this is no longer quite the case to-day.

After an elementary introduction to some basic physics, there is a short discussion of the principles governing the operation of a laser. This is followed by separate chapters on solid-state and gas lasers describing most of the pioneering work done in the field.

The book is introductory and evidently addressed to those meeting the subject for the first time. It is unlikely to be of great help to anyone actively engaged on research, who is more likely to turn to some of the recent review articles published in *Applied Optics* and *Proceedings of the Institute of Electrical and Electronics Engineers* for his information. The author has, however, succeeded in producing a readable introduction. The book is clearly written and well produced and as such is a welcome contribution to a field in which clear presentations are not exactly abundant.

L. MANDEL

Light

By Prof. R. W. Ditchburn. Second edition. (The Student's Physics.) Pp. xxvi+833. (London and Glasgow: Blackie and Son, Ltd., 1963.) 75s. net.

DITCHBURN'S *Light* has established itself as one of the best English physics text-books of the post-war period. The first edition was published in 1952 and it has now been extended by chapters on geometrical optics and the inclusion of such topics as coherence and stimulated emission. The result is a scholarly treatise which will be of great value to both students and teachers at honours-degree level.

The book, containing as it does an immense amount of material, is necessarily rather condensed in spite of its 800 pages, and many students will find it rather formidable; for example, the vector analysis used in the book is outlined in $1\frac{1}{2}$ pages—a useful summary for those already familiar with it, but rather difficult for the new student. Other topics are also introduced as though the reader were familiar with them; for example, St. Venant's principle is not clearly expressed (and is, incidentally, incorrectly indexed).

Many of the additions have been made by adding appendixes in smaller print at the ends of the chapters. Since some of the sections are also in this smaller type, and there are also numerous questions for students to try out, and footnotes and references interspersed through the pages, the book has rather an untidy appearance. It is to be hoped that in any future edition the author will try to cast the book in a more consistent mould.

Mistakes seem to be few. But Fig. 6. 3, as in the first edition, shows fringes only in the central maximum of the diffraction pattern of two slits; the correct pattern is shown in Fig. 9. 11. In Chapter 8, some of the Figures, for example, 8. 7, 8. 9a and 8. 9b, show rays passing through lenses in impossible paths. Moreover, on Plate 3 Figs. c, d and e are rather deceptive in that they show Fresnel diffraction patterns that must have been taken with different magnifications.

But then no book is perfect and the author and publishers must be congratulated in this very considerable contribution to physics teaching.

Fundamentals of Semiconductor and Tube Electronics
By Prof. H. Alex Romanowitz. Pp. xii+620. (New York and London: John Wiley and Sons, Inc., 1962.) 62s.

THIS book represents an attempt to present to the student the fundamental principles of operation of valves and semiconductor devices in a unified way, and relate these to circuitry problems.

It is doubtful whether this aim is a worthwhile one, since the principles of operation of valves and transistors are fundamentally different.

In addition to this, the relative importance of valves and semiconductors in many applications is, in my

own opinion, often misrepresented. For example, in the chapter on rectifiers and power supplies, the silicon rectifier, which is fast becoming the most commonly accepted device for rectification, is not discussed at all. Most of the 36 pages of the chapter are taken up in discussion of valves, selenium and copper oxide rectifiers.

Also much of the information in the book is confusing to the student, and mistakes are far too common. On p. 101, in describing the formation of a point contact rectifier, the author speaks of "atoms of an acceptor impurity, probably phosphorus", diffusing into an *N* type crystal to form a *p-n* junction. In the chapter on "Microelectronics", the author states that the field "has advanced to the point where whole systems such as a multivibrator are grown in the laboratory from a pool of semiconductor material". In my opinion this statement is misleading to the student, leaving him with a false picture of the processes for microcircuit fabrication.

A. A. SHEPHERD

Progress in Inorganic Chemistry

Vol. 4. Edited by F. Albert Cotton. Pp. 575. (New York and London: Interscience Publishers, a division of John Wiley and Sons, 1962.) 115s.

VOLUME 4 of *Progress in Inorganic Chemistry* appears to be of less general interest than its immediate predecessor. The fact that all the articles are in English will be welcomed by most buyers and it looks as if the article in German in Volume 1 by Becke-Goehring will be the exception of this series. The review by Pearson and Basolo on the *trans* effect will be of wide interest and contains interesting discussions of recent kinetic studies, such as those on isotope exchange in $[\text{Pt}(\text{NH}_3)\text{Cl}_3]^-$. The nephelauxetic series by Jorgensen should again interest a broad spectrum of readers, but is not written in an easy style. Phosphonitrilic polymers have been extensively reviewed and one questions the need for the article by Schmulbach even though it is a good one. More specialized but still interesting reviews are by Vannerberg on peroxides, superoxides and ozonides and on isopolytungstates by Kepert. The last-mentioned review of a difficult subject would have benefited from a more critical approach, but the section on kinetics and the summary are useful. Polymorphic modifications of arsenic trioxide is a very specialized topic. This is reflected in the fact that half the references here are to work by the authors of the review. The general standard of presentation is high and there are few misprints.

I. R. BEATTIE

An Introduction to Genetics

By Prof. A. H. Sturtevant and Prof. G. W. Beadle. (Dover Publication No. S306.) Pp. 391. (New York: Dover Publications Inc.; London: Constable and Company, Ltd., 1962.) 16s.; 2.00 dollars.

THIS issue is a corrected republication. When the book was first published, it was given very good reviews. Using mainly *Drosophila* and maize, with mention of other organisms to illustrate specific points, the authors gave an accurate and comprehensive picture of the behaviour of Mendelian genes and chromosomes. But this was in 1939, nearly twenty-five years ago. Genetics, like time, has not stood still.

In the preface to this inexpensive Dover edition, the authors acknowledge that there have been far-reaching changes in the subject but write: "In spite of these developments, however, we feel that the book gives a fair and balanced account of most of the field covered, i.e., of the chromosome mechanics of higher organisms. And this is an important, basic part of genetics that is often neglected or inadequately covered in recent books"; a statement which does not deny, however, that a few do adequately describe both foundations and later construction.

K. S. DODDS