

populations and communities and the history of life. Although one section is entirely devoted to accounts of evolution and its theories, the whole of the text is interwoven with that evolutionary thread which is the most general principle yet evolved in biology. Throughout the text, too, the authors show how scientists approach problems and how, through a historical approach, important biological problems have been completely or partially solved.

The text is as free from technicalities as such a book could be. Where technical terms contribute to easier communication and comprehension of principles they are used; where unnecessary they are omitted in favour of language which can be easily followed by the non-specialist reader. In many cases additional terminology is added to figures and legends where the reader may take it or leave it. In this way the authors can rightfully claim that they have produced a book which has been written neither for the non-professional student of biology nor for the student who is beginning a professional career but for both.

Unstinted praise does not mean that the book is free from blemish. Despite a ready facility to illustrate a principle with examples drawn from the plant or animal kingdoms according to which is most suitable, the authors lean much more heavily on the zoological than on the botanical sciences. Despite the not unsuccessful efforts to use the whole of the text to illustrate the principle of evolution, many general readers would have gained more if the section on the diversity of life had been inserted much earlier in the book. It would be difficult for the unacquainted to see where certain organisms fit into the evolving pattern of life without knowing something of the organisms themselves. The chapter on the history of biology is fragmentary, and would not have been missed had it been omitted.

Yet these are criticisms which are of a minor nature in a work of such superb quality. The text is lavishly adorned with photographs and line-drawings of extraordinary merit; the latter are reminiscent of those which have long illuminated the books of a well-known British writer of botanical works.

"Life" is a remarkable achievement which would be invaluable to those who wish to make themselves familiar with the general principles of biology before going on to specialize in botany, zoology, biochemistry or any other life science.

PROPERTIES OF DISLOCATIONS

Dislocations and Mechanical Properties of Crystals An International Conference held at Lake Placid, September 6-8, 1956. Edited by J. C. Fisher, W. G. Johnston, R. Thompson and T. Vreeland, Jr. Pp. xiv+634. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1957.) 120s. net.

Les Dislocations

Par J. Friedel. (Monographies de Chimie Physique.) Pp. viii+314. (Paris: Gauthier-Villars, 1956.) Broché, 3,500 francs; Cartonné, 3,800 francs.

THE general properties of dislocations are discussed in a number of books, but the subject now includes a number of distinguishable branches each covering a formidable body of work and requiring separate detailed treatment. The report of the international conference on dislocations and the

mechanical properties of solids may be considered a standard text on its subject.

Just as the transistor experiments gave many people a clear physical picture of the behaviour of holes and electrons in solids, so the series of beautiful experiments here recorded makes dislocations seem quite familiar: not only have individual dislocations been made visible by a variety of techniques, but also they appear in motion pictures.

The book is divided into eight sections some of which are introduced by review papers with detailed references to the original work: they deal with (1) direct observations of dislocations; (2) deformation of pure single crystals; (3) work-hardening and recovery; (4) alloy crystals, impurities, yield point phenomena; (5) dislocation damping and fatigue; (6) theory of dislocations; (7) whiskers and thin crystals; (8) radiation damage. The several sections include a series of discussions of the relations between dislocations and defects on the scale of one or a few atoms. The properties of dislocations in organic crystals, linear polymers and planar structures are not among the subjects discussed. The volume is well produced and illustrated, and an index is provided.

"Les Dislocations" is of the standard of a final-year university text, if somewhat specialized in character, and is intended by its author to provide, for the French reader, a survey of the principal properties of dislocations. This it does, but it would not seem particularly easy to follow as an introduction to the subject. Perhaps more adequate illustrations would have helped, as the complexity of the subject is such that a clear physical picture of dislocations is essential if it is to be understood.

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THE RADIO UNIVERSE

The Exploration of Space by Radio

By R. Hanbury Brown and Prof. A. C. B. Lovell. Pp. xii+207+21 plates. (London: Chapman and Hall, Ltd., 1957.) 35s. net.

ASTRONOMY is the oldest of the sciences, but it is a science which becomes younger as time goes on. It is not long since the universe was merely a spherical surface on which the various heavenly bodies moved in an orderly but complicated manner: now it is a field of exploration, inexpressibly remote but accessible by interpretation of the signals it sends to us in the form of electromagnetic waves. The spectrum of the cosmic radio waves contains a surprisingly small amount of energy, and in comparison with light waves it would be reasonable to expect that the information that radio waves can give us about the universe would be slight indeed. This young science of radio-astronomy has nevertheless revealed to us a new universe, in which visible objects are almost insignificant, while faint nebulae containing thin gas clouds radiate such strong radio signals that the sky seen by radio-telescopes has a quite unfamiliar appearance.

The first successful radio-telescope was a steerable array of dipoles used for investigating the noise-levels of short-wave radio communications. Radio-telescopes have grown with the new subject; in August 1957 the great parabolic reflector at Jodrell Bank was first used for recording cosmic radio waves. This wonderful and versatile instrument was completed just 25 years after the publication of Jansky's first