

contribution which Geddes' work and thought has made to the problems of to-day that the great merit of this book is to be found. Not simply in town and country planning, in the community centre and in like fields of sociology, but on a host of educational issues such as the multi-racial university (as Sir William Holford notes in his foreword), the functions and work of a university, the fragmentation of knowledge, halls of residence and technical assistance, Geddes had stimulating and sensible ideas, the reference of which in the context of to-day is apparent from Mr. Mairet's exposition. It is the more unfortunate, therefore, that the book is robbed of its full value by the omission to supply those bibliographical details which would enable the reader when interest is aroused to turn to Geddes' own writings and study for himself the implications of his thought. The book is also marred by some careless writing, inaccuracies of description, for example of the Committee of Intellectual Co-operation, and the index is erratic and might well be more complete. R. BRIGHTMAN

Tree Injuries

Their Causes and Their Prevention. By H. L. Edlin and M. Nimmo. Pp. v+167. (London and New York: Thames and Hudson, Ltd., 1956.) 21s. net.

THE post-war boom in horticultural societies has had its parallel in a marked revival of interest in arboriculture, and for this type of reader the book under review can be strongly recommended. It is eminently readable, the information provided is thoroughly reliable and, above all, the 125 photographs provided are fascinating. With the text these should provide a means of recognizing and explaining all the common, and some uncommon, forms of damage and abnormality likely to be seen about the country, and should also serve as a warning of the harm that may be caused inadvertently by man. Some people may find life the duller for the sensible answer given to the perennial question as to what damage is done to a tree by ivy, but they may perhaps find compensation in becoming knowledgeable about many more recondite problems. It may be pedantic to quarrel with the classification of old age, coppicing, spiral grain, etc., as 'injuries', particularly as the book would be much the poorer for their omission, but this leads to a misleading impression that 'prevention', as mentioned in the title, is not very adequately covered. In fact, such measures as are possible for the prevention of diseases and defects are given with commendable brevity and practical sense.

More than seventy types of 'injury' are described, and these are grouped conveniently according to causes, such as climate, man, mammals and birds, insects, climbing and parasitic plants, fungi and old age, with a chapter on deformities and curiosities. A useful bibliography of about forty articles and books is included. L. CHALK

Insect Life in the Tropics

By T. W. Kirkpatrick. Pp. xiv+311. (London and New York: Longmans, Green and Co., Ltd., 1957.) 35s. net.

THIS book may reasonably be likened to a small text-book on entomology in which particular point is made of selecting from tropical forms of insect-life examples to illustrate principles in insect biology and behaviour. The author draws largely from his own experiences and observations in East Africa,

Trinidad, Egypt and the Sudan. It is written primarily for the layman but contains so much information about different sorts of insects that it is likely to be helpful and of interest to the entomologist curious about insects beyond his speciality. The opening chapter considers briefly the nature of climates in the tropics. Two further chapters deal with the essentials of insect structure (mainly external), with some special reference to sensory organs, and the classification of insects to the level of orders. This is done in sufficient detail to satisfy the layman's aspirations to approach his hobby scientifically. The remainder of the book presents its subject from a biological point of view. Thus, the chapters are on the way insects develop, reproductive mechanisms, food and feeding habits, locomotion, defence and protection, insect social communities and the architecture of insect nests and termitaria. The book is well illustrated with 146 line drawings and photographs, well produced, and of a convenient size for travel.

Heat and Thermodynamics

An Intermediate Textbook for Students of Physics, Chemistry, and Engineering. By Prof. Mark W. Zemansky. Fourth Edition. Pp. xi+484. (London: McGraw-Hill Publishing Company, Ltd., 1957.) 56s. 6d.

AMONG the present glut of thermodynamical texts, Prof. M. W. Zemansky's book, in a refurbished edition, is still well among the best. It is, the author writes, aimed at physicists, chemists and engineers, but in fact it is most suited to the needs of physicists. It adheres rigidly to the classical approach, eschewing statistical mechanics and quantum theory, although certain facts have to be quoted from these subjects. This restriction does not prevent the author from discussing some of the most recent advances, notably in low-temperature physics. This topic, Zemansky's own speciality, occupies a new and extensive chapter which forms an excellent survey of the field but tends to spoil the balance of the book. Perhaps this will be redressed in a fifth edition with an equally long chapter on the increasingly fashionable problems of high-temperature plasma, undoubtedly of great thermodynamic interest. Ionized gas is studied briefly in the chapter on gas reactions. The concluding chapters on chemical thermodynamics and the phase rule, though very clear, are markedly more theoretical in approach than the physical chapters, which abound in experimental detail. The sections with relevance to engineering are probably the weakest, and the section on heat transfer is necessarily so brief as to be scarcely worth while. A greater emphasis on flow processes is desirable in a thermodynamical text-book for engineers.

The examples at the end of each chapter have been extended and improved. One's only criticism is that many are exercises in mathematics rather than applied physics.

Besides the discussion of low-temperature physics already mentioned, there are several new features in this edition. The faulty Kelvin treatment of the thermocouple has been superseded by the theory of coupled irreversible flows. The relation between information and entropy is touched on with tantalizing brevity. That the book should be so capable of continued development is testimony to the soundness of the original structure.

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