

titles, most of them concerned with the classification, structure and behaviour of ants, but a considerable number deal with problems of embryology, evolution, parasitism and the social life of insects in general. These formal books have had great influence upon the world of biological thought, but his observations of insects in the field caused him to make incursions into psychology and sociology, and he became a master of the comparative branches of these sciences.

This book has been prepared in order to present in collated form some of Wheeler's philosophical beliefs which are distributed throughout the various scientific journals to which he contributed. The topics range from a discussion of instincts to a discourse about the dry-rot of academic biology, from the attractions of the field study of ants to biology and society. Reading them, one is reminded of the cogency of Prof. A. N. Whitehead's remarks about Wheeler when he described him as the only man he had ever known who would have been both worthy and able to sustain a conversation with Aristotle. Whilst the book stands primarily as a memorial to Wheeler, it represents a valuable addition to the world's scientific literature.

T. H. H.

#### Outlaw of the Air

By Leslie Brown. Pp. x+246+8 plates. (London: Geoffrey Bles, 1939.) 8s. 6d. net.

THIS is an interesting account, told in the form of fiction, of the life of the great skua, a bird which is found only on the northern islands of Britain.

The author has evidently studied his subject with care, and he gives a convincing picture of the skuas at their island home. He describes them (as the reviewer has seen them do) standing on the backs of gannets flying at full speed, and forcing them to disgorge the herring they are carrying to their young; he has seen them attacking kittiwakes and even greater black-backed gulls. From a turf 'hide' he has watched the skua brooding its eggs and hatching its chicks, and a number of interesting photographs are a record of these hours of watching, although it is a pity that almost all the illustrations are over-enlarged, and thus suffer from a want of definition.

The book is thoroughly readable, and would make an acceptable Christmas present either to young folks or to their elders, and will keep the mind focused on the beauty and charm of Nature during the dark days through which the nation is passing. The book is very free from inaccurate observations, but surely a gannet (p. 93) does not "oar itself" cormorant-fashion below the surface when it fishes, but counts on the velocity of its aerial dive to enable it to approach, with closed wings, the fish beneath the surface; and when its momentum is exhausted re-emerges, still with closed wings, on the surface? Puffins (p. 52) do not arrive on their nesting islands off the Scottish coast so early as March—not indeed until the beginning of May as a rule. But these are minor criticisms, and the book deserves to be read by all who are interested in the birds of the coasts of the British Isles.

S. G.

#### Physikochemische Grundlagen der histologischen Methodik

Von Prof. Dr. K. Zeiger. (Wissenschaftliche Forschungsberichte. Naturwissenschaftliche Reihe, herausgegeben von Dr. Raphael Ed. Liesegang, Band 48.) Pp. xi+204. (Dresden und Leipzig: Theodor Steinkopff, 1938.) 11.25 gold marks.

HISTOLOGICAL technique was once a mere rule-of-thumb affair, and there are some to whom it is so still! One stain gave red, another blue; one stained the nucleus, another cellulose; but how or why was no concern of the histologist so long as the result seemed good. But following Sir William Hardy's lead, men began to wonder how much of all their pretty preparations was artefact; and then came a growing desire to understand the rationale of fixing, staining and clearing in their chemical and physical relation to the colloids of the cell. So the histologist began to learn from the dyer the difference between an acid and a basic dye, and was some way along the road to skill and wisdom by the time he understood, for example, that a red blood-corpuscle was permeable to anions, and that eosin was, *ipso facto*, an appropriate dye.

Dr. Zeiger tells us in a couple of hundred pages the very things which the histologist now wants to know. He discusses hardening processes in relation to diffusion, permeability, shrinkage and so forth; staining as a chemical, an adsorptive, an electrostatic, or an electrocapillary phenomenon; Golgi's silver-method and its many variants and corollaries; intravital staining, including methods by which a single reagent may be made to differentiate various organs, tissues or cells; Ehrlich's methylene-blue, and its innumerable developments and consequences; pH and the ever-present need of keeping watch upon it (though without mentioning Bailey and Zirkle's work)—and many other useful and interesting things.

D. W. T.

#### CHEMISTRY

##### Revision Notes in Inorganic Chemistry

To Higher School Certificate. By E. P. Wilson and F. W. Ambler. Pp. viii+240. (London: William Heinemann, Ltd., 1938.) 4s.

THE object of this book is to provide a revision course in inorganic chemistry up to higher certificate standard. The opening chapter deals with the classification of the elements, and subsequent chapters are devoted to the chemistry of the elements, arranged in the groups and sub-groups of Mendeléeff's table, though not in quite the same sequence. Questions from higher school certificate examination papers are given at the ends of the relevant chapters, and the book is provided with an adequate index.

In the reviewer's opinion the authors have considered too many unimportant compounds, and have not compared sufficiently the same compounds of different elements. In addition, the notes on 'non-certificate' elements are too brief to be of value to university students and should have been omitted.

A. C. C.