

of less than 2 MW. are not included. Information is presented for each reactor under the following headings: general, reactor physics, core, fuel element, heat transfer, control, reactor vessel, fluid flow, shielding, containment, turbo-generator, cost and staff. In almost every case diagrams are also provided of the fuel element, two sections of the reactor, and the fluid-flow sheet for the system. The information is as up to date as can be hoped for; in every case, except one, it is dated between December 1958 and April 1959. Useful conversion charts and space for notes are also provided. The directory is comparable with a similar compilation published a month earlier by the American Society of Mechanical Engineers. It is better than the American publication in that the information on any particular reactor is fuller and more reactors are covered; for example, the Russian reactors are included.

The book is very good value for its price, but a more substantial backing would be an improvement as the present one is very liable to damage. A minor point is that a conversion scale from mills to pence would also be a help. The few mistakes noted were all trivial. In general, such a directory is required, the International Atomic Energy Agency appears to be the best organization to carry out such work, and the first volume is a good start. A. J. SALMON

The Birds

By Oskar and Katharina Heinroth. English edition prepared by Michael Cullen. Pp. 175. (London: Faber and Faber, Ltd., 1959.) 18s. net.

ORNITHOLOGY provides many fascinating problems, such as how birds mate, migrate, eat, sleep, and so on, which are a source of interest to an increasing number of people. Lack of easily available and authoritative information has given rise to a number of popular misconceptions. Mr. Cullen states that Oskar Heinroth knew this because of his contact with people at the Berlin Zoo, where he was curator for many years. That is the reason given for the book which Heinroth published in 1938 and which was revised by his wife in 1954 after his death in 1945. It is said that in this English edition certain parts of the text have been brought up to date.

Though mainly and intentionally limited to certain aspects of bird biology in which Heinroth was particularly interested, for example, the development of nestlings, a wide range of information is provided which will satisfy the curiosity of many who want to know more about birds than merely their names. There is ample scope for works of this kind, which are singularly lacking among the numerous bird-books. Although appreciating the value of this one and the skill of the translator, one regrets that a need should have to be satisfied in this way, for translations, inevitably, lack the freshness of original thoughts. It is a pity that the wealth of present-day photography was not used to give the illustrations a modern look.

Mineralogical Study on Clays of Japan

By Dr. Toshio Sudo. Pp. vii + 328. (Tokyo: Maruzen Co., Ltd., 1959.) 2,000 yen; 10 dollars.

THOSE who have followed the recent literature on the clay minerals of Japan will be aware of the outstanding contribution made by Dr. Sudo and his collaborators. They will probably welcome, as does the reviewer, this collected account of his researches. Although much of this material has

already been published in various Japanese and foreign journals, its re-publication in volume form is justified on grounds of convenience in reference.

The author has been quite uninhibited in his approach, and this book, being a report on research in progress, will inevitably be found wide open to criticism on many points. Numerous details will have to be revised later, by the author himself or other workers. But in its imaginative application of up-to-date techniques, the book is almost a model. In most chapters, the reviewer found things to set him thinking along new lines, as well as things to disagree with.

Most of the book is devoted to specific minerals and clay deposits. The first seven chapters are general in nature, and the reviewer feels less happy about them. Arguments, at times hard to follow, often seem to tail off inconclusively.

The presentation is excellent, but the book needs an alphabetical index, even though there is a very full table of contents. The language is, alas, only adequate at best, and at worst verges on unintelligibility. The number of printing errors is more than would be tolerable in an English or American book. We cannot expect authors to be expert linguists. Surely the blame rests with the publishing house, which is one of international repute. If they publish in English, they should ensure that adequate linguistic assistance is available. D. M. C. MACEWAN

Progress in Organic Chemistry

Vol. 4. Edited by Dr. J. W. Cook. (Progress Series.) Pp. ix + 256. (London: Butterworths Scientific Publications; New York: Academic Press, Inc., 1958.) 50s.; 8.80 dollars.

THE choice of subjects for this volume is significant in that it reflects the present dominating position of natural products in organic chemistry. Also symptomatic of current thinking is the inclusion of biogenetic considerations in both a predictive and interpretative role. Of the four chapters devoted to natural products the most extensive is a very fully documented account by A. H. Cook and G. Harris on the degradation and synthesis of peptides and proteins. F. D. Gunstone reviews naturally occurring unsaturated fatty acids. Notable here are the stereospecificity of recent synthetic procedures and the large emerging group of acids from compositous plants and micro-organisms, presenting a spectrum of ethylenic, acetylenic and allenic unsaturation.

2-Acylcyclohexane-1:3-diones from sources as diverse as the male fern, hop resins and certain essential oils are discussed by C. H. Hassall in a chapter which also includes the widespread lichen constituent usnic acid, the recent synthesis of which underlies the probable role of oxidative phenolic coupling in biosynthesis. That this concept may have wider significance is apparent from recent work on the spirocoumaranones griseofulvin, geodin and erdin which, together with methylene quinones, chromenopyrones and depsidones, are included in a chapter by W. B. Whalley on oxygen heterocyclic fungal metabolites. F. G. Mann surveys recent syntheses of phosphorus, arsenic and antimony heterocycles, mostly from his own laboratory. B. and A. Pullman contribute a theoretical discussion of free valency and correlate it with a selection of physical and chemical properties in aromatic hydrocarbons. Once again the chapters of this book reflect the erudition and enthusiasm of experts discoursing within their chosen fields of interest. K. H. OVERTON