

Short-range Guided Weapons

By J. Clemow. (Temple Press Monographs on Rockets and Missiles.) Pp. vii+79. (London: Temple Press, Ltd., 1961.) 15s. net.

THIS is the first monograph of a series, the later numbers of which will cover missile control, missile guidance, missile aerodynamics and propulsion—both solid-fuel rockets and ram-jets. This monograph is meant to serve as an introduction to the series. After considering the advantages of guided weapons and outlining the main parts of a guided missile it considers the same areas as will be covered by subsequent monographs. The last chapter deals with the hypothetical design problem of a particular ship to air missile and indicates some of the overall system problems involved in guided missile design. A selected bibliography is included.

This monograph provides a very adequate introduction to the subject, particularly bearing in mind the limitations which are inevitably imposed by security and the problem of covering a very wide range of techniques. It will be particularly interesting to those who have some scientific and technical background and as a useful introduction to the remainder of the series for any young professional missile engineer beginning his career.

In the hypothetical design problem some of the introductory general remarks are rather dogmatic and perhaps stem from the author's particular experience. Some of the remarks would certainly be qualified by other experts in the field. This chapter does give an indication of the complexity of the system problems involved, but with the limitations set by security and the allowable details it inevitably presents a somewhat oversimplified picture.

J. D. CLARE

Rhythmic Activity in Animal Physiology and Behaviour

By Prof. J. L. Cloudsley-Thompson. (Theoretical and Experimental Biology: an International Series of Monographs, Vol. 1.) Pp. vii+236. (New York: Academic Press, Inc.; London: Academic Press, Inc. (London), Ltd., 1961.) 54s. 6d.

THE rhythms with which this book is concerned are mainly the diurnal, lunar, tidal and seasonal ones, expressing themselves in an animal's behaviour or in those aspects of its physiology which border on behaviour. Prof. Cloudsley-Thompson's approach is broad and his erudition considerable. His treatment of his material is highly individual. His style is breezy rather than rigorous and some of his writing shows signs of haste (for example, "They claim these rhythms appear to be statistical rather than overt, for they become apparent only when the data of several days is averaged", p. 109). The result is a stimulating, unorthodox and somewhat slapdash review, most valuable perhaps to the outsider or newcomer to the field. Such a reader can scarcely fail to be interested by Prof. Cloudsley-Thompson's exposition and will be duly introduced not only to all the main problems on which attention is focused at present but also to the names and attitudes of the leading investigators. The ecological aspect is emphasized. On the Brown-Pittendrigh controversy, the author concludes: "Until further evidence is available it will be wise to keep a fairly open mind". The rhythms the periods of which do not happen to coincide with those of environmental cycles receive attention when relevant to the main theme. There is a useful bibliography.

G. P. WELLS

Bird Study

By Prof. Andrew J. Berger. Pp. xi+389. (New York and London: John Wiley and Sons, Inc., 1961.) 72s.

BIRD STUDY is well named, for it is a book about the study of birds from all angles, including observation in the field and anatomical details. Though written primarily for the student it will be helpful even to the most advanced ornithologists, who will find much in it to interest them and give them material for thought.

The author, Prof. Andrew J. Berger, is an American, and the background of his work is the vast bird population of the North American continent. He writes, "the emphasis of this book is on the living bird and primarily of North American birds", and he never forgets the student to whom, as already said, this volume is chiefly addressed.

It is no doubt in consequence of this that he is not very much concerned with other readers, including natives of Britain, who may occasionally find the use of American popular names a trifle confusing; for example, the many references to "the robin", which remarks do not concern the pert little red-breasted bird so familiar in England, but a handsome member of the Turdidae of similar coloration, this latter being named after the European robin by the early settlers.

However, this is of small importance where there is so much of general excellence, including a large number of photographic illustrations and many diagrams and line drawings. These are illustrations in the full sense of the word and assist the text of the eleven chapters that cover so much ground, beginning with an introduction to the bird, moving on to "Field Identification", and continuing to the last chapters on "Conservation" and "Systematics".

FRANCES PITT

Approaches to Thermonuclear Power

By Dr. R. F. Saxe. (Nuclear Engineering Monographs, No. 10.) Pp. x+65. (London: Temple Press, Ltd., 1960.) 12s. 6d. net.

THE book begins by discussing the conditions necessary to the operation of a fusion reactor, not considering problems outside the core such as losses of energy in the field coils or the regeneration of tritium in a deuterium-tritium reactor. A theoretical outline of plasma behaviour at high temperatures is then given, adequate for the purposes of the book. However, it would be better to say that instabilities grow at rates dependent on the Alfvén speed rather than on the sound speed in the plasma. Next the linear pinch is treated, the early experimental results being quite well described. The fourth chapter reviews toroidal machines and curious explanations appear. To give two examples, a typical characteristic for a symmetrical double Langmuir probe is shown, and the text describes this in detail as the behaviour of a single probe. Again, it is stated that deuterium cannot be used for spectroscopic measurements of temperature because of its large Stark effect, though deuterium is stripped completely in hot plasmas and does not radiate at all. In the last chapter, mirror machines are better handled. There is a final résumé in which ion energies seem to be regarded as equivalent to ion temperatures, a most dangerous confusion. This monograph would considerably enlighten the inquiring engineer for whom it is written; but the physics is sometimes misleading and the description of achievements optimistic.

P. F. LITTLE