

has been made during the last decade. The scope of the work may be indicated by saying that it concludes with a selection of questions taken from higher certificate and university entrance scholarship examinations.

(6, 7, 8) The remaining three books are concerned chiefly with work at about the school certificate level. Many teachers will be glad that Mr. Pearce has followed up his "School Physics" with a "School Electricity", for he writes clearly and his book is beautifully produced. The final chapter on modern developments should incline many students to continue their study of physics.

Mr. Shackel's book is the second part of his "Concise School Physics". It is a worthy successor of the first part, "Mechanics", on which an appreciative comment was made in NATURE of September 24, 1938, p. 551.

Finally, Messrs. Humby and Goddard's "A Complete Revision Physics, Notes and Questions" has already proved a useful tool in the hands of teachers during final revision for the school certificate, army entrance and kindred examinations. In the present volume, magnetism and electricity are added to the hydrostatics, heat, light and sound of the former one.

Animal Language

Animal Language

Described by Julian Huxley, recorded by Ludwig Koch and the Parlophone Company. Pp. xi+62+31 plates. (London: *Country Life, Ltd.*, 1938.) With 2 Records, 21s. net.

ALTHOUGH the noises made by animals are among the most familiar sounds in Nature, they have seldom been the subject of serious biological or psychological study. The present work is an attempt to provide a clearer understanding of the significance of animal sounds than can be obtained by the perusal of an ordinary book. The publishers explain that a 'sound-book' of this type is the natural medium whereby text, picture and gramophone records form a natural unity in which the text comes to real life through the records and vice versa. Individual readers must judge, for themselves, how far this ambition has been fulfilled.

Preliminary inspection suggests that the book is well illustrated. In a sense this is true, but it is disappointing to find that few, if any, of the numerous illustrations are really relevant in the sense that they aid materially in an understanding of the text or in an interpretation of the records. The photographs, nearly forty in number, are no doubt interesting in themselves, but they are seldom attractive; the harsh contrast of tones produces, on some observers at least, a somewhat displeasing impression.

The text of the book is full of interest, for it reveals the paucity as well as the extent of our knowledge. Dr. Huxley covers the whole animal kingdom in his survey and has collected together a wealth of otherwise scattered information. It is sad to find that we must abandon our belief in the soothing influence of the snake charmer's pipe, but it is comforting to think that the ears of the common female frog may lead her with some

certainly to the embraces of that male whose individual song is best attuned to her own fancy.

The interpretation of animal sounds is a fascinating but difficult subject, and it is therefore unfortunate that the evidence in support of Dr. Huxley's views is seldom presented in sufficient detail to enable the reader to form an independent judgment. At times, Dr. Huxley expresses his own views with considerable confidence. "What is the point of a rattle-snake's rattling? The answer is really very simple. The snake doesn't want to strike unless it has to. It might very easily get trodden on. . . . The rattle is a warning to the intruder to keep away. . . . In the same sort of way those who instal burglar alarms in their houses put up a notice to that effect outside." This may be so, but whether it is an established truth or simply an *ad hoc* hypothesis we are given no real evidence to decide.

The text of the book is of very considerable length, and one reads on in the hope of reaching eventually a detailed consideration of the gramophone records. Unfortunately, one is doomed to disappointment, although the records themselves present unique material for the study of 'animal language'. The first record is composed of isolated sounds from a variety of mammals; most of them are associated with anger, food or sex. Each section of the record must be played several times in succession before it yields its full flavour; it is, however, well worth while to educate one's ear to the 'gurgling' of a satisfied Arabian camel or to the 'whispering whinny' of an amorous panda. The 'African night' record is definitely exciting, particularly if played out of doors on a dark night.

The book is extremely well produced, and one gets the impression that a closer liaison between the three authors would have avoided some of the limitations to which this review pays, perhaps, too much attention.