

cycling; it is also regrettable that the book contains so many not altogether trivial typographical errors and has no index. With these very minor reservations, however, this volume will be warmly welcomed by everybody interested in carbohydrate biochemistry, and not least by final year undergraduate and postgraduate students who may thereby gain some insight into the present problems of intermediary metabolism.

C. I. POGSON

Dog's Life

Behaviour of Wolves, Dogs and Related Canids. By M. W. Fox. Pp. 214. (Jonathan Cape: London, September 1971.) £3.60.

A book of this title is likely to arouse interest among students of animal behaviour and pet-keepers alike; it is probable, however, that the first of these two groups will be disappointed by this volume.

It touches on many problems of social behaviour and organization, and of the evolution of behaviour, and discusses some of the consequences of domestication, all in an easy flowing style. But too often the author is carried away by his writing, and the book leaves the impression of a series of arguments put together in a somewhat haphazard fashion, with many non-sequiturs. For the dog-enthusiast, however, these objections are to some extent compensated for by the presentation of several interesting observations, by the nice illustrations and the excellent layout.

The first chapter, "Evolution and Classification of Canids", provides a detailed discussion on the classification within this family, but little on evolution of behaviour.

In the next chapter the occurrence of various categories of behaviour in different canids is discussed. The comparison of the facial expressions of these carnivores with those of primates is of special interest here, and this is considered in detail. I missed, however, an evaluation of the function of behavioural differences between the canids from an evolutionary point of view. This is indicative of a general shortcoming of the book, which is the lack of reference to ecological studies and behavioural field observations. This shortcoming is irritating especially where the author writes, for example, about the "gradation of sociability from the solitary fox-like species to the more dog-like species". The fact that one can keep several individuals (for example, *Otocyon*) together in a cage does not signify that they are gregarious in their natural environment (*Otocyon* lives in pairs).

The seventh and eighth chapters are probably the best sections of the book,

and although they lack any quantitative information, they are interesting because of the author's many years experience in rearing wolves. They deal with development of social relationships and wolves as parents, and it is here that a good background will be found by those interested in the behaviour of domestic dogs. Again, there are fine illustrations.

The tenth chapter, on the comparative ethology of the domestic dog, states differences and similarities between domestic dogs and several other canids, and considers the effects of domestication. There is a long discussion of scent marking and territory, in which the author states "... territorial marking, through which one pack (of wolves) or one individual (a red fox) acquires information as to the population density of like-species in a given region". It is one of the many places where the author makes bold statements on a subject which has been extensively discussed by others previously, in a fashion which makes one doubt whether he gave it a great deal of thought.

It would have been useful to have an index, and I was sorry to see the excellent presentation of this book marred by spelling mistakes in almost all the German titles of the list of references. On the whole it is rather an unsatisfactory book to the behaviourist, yet certainly worth the effort of borrowing it from a library.

H. KRUK

Go to the Ant . . .

William Morton Wheeler, Biologist. By M. A. Evans and H. E. Evans. Pp. xii + 363. (Harvard University: Cambridge, Massachusetts; Oxford University: London, July 1971.) £5.25.

THE biography of a scientist who died nearly 35 years ago might either be deemed to be too late to excite interest, or too soon advantageously to rekindle it, but the large number of Wheeler's old students will find it a delight. Others like myself who were influenced directly only by Wheeler's writings will be glad to learn more of the makings of this man, born in 1865 in Milwaukee, whose working life spanned so many of the formative years of American university development and of American science.

Wheeler's early education was at the German-English Academy in Milwaukee, where there flourished a highly cultured community largely of immigrant German stock. He left with a lifelong interest in the classics and in music, a fluency in the German language and a passionate interest in natural history.

When Milwaukee staged an industrial exposition in 1883, an especially attractive exhibit came from Ward's Natural Science Establishment in Rochester, New York. This included a large collection of animals, fossils and casts of fossils. Young Wheeler, still

Animals of the Arctic



Seven species of phocid seal are found in the Arctic, though their patterns of distribution in the region differ widely. They and all other species of Arctic wildlife are documented and illustrated in *Animals of the Arctic: The Ecology of the Far North* by Bernard Stonehouse. Pp. 172. (Holt, Rinehart and Winston, New York, November 1971.) \$10.95.