structural differences. While the view of the Vogts may be opposed by a variety of arguments and although the view favored by the authors appears more practical in relation to certain functional considerations, it seems unsound to disregard altogether the vast amount of evidence presented by the Vogts and their adherents unless it can be shown that their finer subdivisions are mere random variations. This, however, seems quite improbable. If, on the other hand, a cortical field varies in a constant manner, then, regardless of whether such a variability is considered a characteristic of the field or is expressed by further subdivisions, as the Vogts propose, the fact itself remains, and such a gradient of morphological change is likely to be functionally more significant than the authors are willing to admit.

Despite these difficulties, the book will be of great value for anyone who wishes to familiarize himself with the cytoarchitectonics of the macaque's cortex, and every worker interested in the experimental study of this brain will find it indispensable.

JERZY E. ROSE

Johns Hopkins University

The ways of fishes. Leonard P. Schultz (with Edith M. Stern). New York: D. Van Nostrand, 1948. Pp. xii + 264. (Illustrated.) $4.00.

The purpose of this book is to share with the uninitiated a little of the enjoyment which ichthyologists have in finding out the very diverse and often surprising or impressive manner of life of different fishes.

Simply and enthusiastically written, it is well qualified to interest one in the subject. Especially to be commended to the reader's attention are passages descriptive of the author's personal experiences with fishes in various parts of the world, and those of his friend and colleague, the late Hugh M. Smith.

Sound and sight, locomotion and migration, feeding habits, electric powers and luminescence, association with other animals, breeding habits of fishes, etc. are discussed. Size and growth are considered in a chapter entitled "Giants and Dwarfs," where we also find a method for estimating the weight of a fish from its length. But the mathematics on which this is based are obscure, and we do not believe that any method which does not also take the girth into consideration will prove satisfactory. There are special chapters on fishes dangerous to man (possibly overdramatized), controllable by man, and aquarium fishes.

No attempt is made, however, to give a comprehensive picture of the behavior of fishes, of which there are an estimated 40,000 different kinds, ranging in length, when adult, from ⅓ inch to more than 45 feet and inhabiting seas, lakes, rivers, and torrents from high altitudes in the mountains to the depths of the ocean, and from the North Polar Sea to the edge of the Antarctic Continent. It is also true that the ways of any particular fish are complex, often obscure. Descriptions of them here are frequently, of necessity, brief and unqualified. It follows that some of the statements or seeming implications are open to argument, the prerogative of any enthusiastic student of fishes, or fisherman; but it should be born in mind that Dr. Schultz (who is curator of fishes at the Smithsonian Institution) is one of our soundest and most experienced of the former, and that his opinions are always worth consideration. Hence, this book as a whole, not only an appended classification of fishes, will have reference value on a serious naturalist's shelf as well as giving pleasure to the lay reader.

J. T. NICHOLS

The American Museum of Natural History

Animals alive. Austin H. Clark. Toronto-New York-London: D. Van Nostrand, 1948. Pp. viii + 472. (Illustrated.) $4.00.

From a broad background of personal experience, wide professional contacts, and intimate familiarity with the literature, Dr. Clark has compiled a fascinating volume of simple, direct description and narration. Although it was written for the nonprofessional reader, the technical scientist will here find many fresh facts sandwiched between familiar observations on habits, distribution, and habitats of a vast array of animal forms. Food habits are treated in a particularly appealing manner, as are the chapters devoted to man in his relations to the rest of nature. Domestication of animals as an influence on human culture and on history is dealt with in some detail.

No single basis of organization is followed. Taxonomic groups form the chief framework for treatment in some chapters, although habits, habitats, and distribution provide titles for others. The 38 chapters are grouped by sections as follows: Man and the Animal World; Land Animals; Fresh-Water Animals; and Sea Life.

A great amount of sound natural history is presented without resorting to highly technical terminology. Strictly scientific names are avoided so far as possible, but of necessity the author often refers to genera and other systematic names when no popular or familiar names are available. The editorial omission of initial capitals is an apparent effort to reduce technical names to a popular level. In the index, scientific names are given for all the common names listed. In fact, 38 pages are devoted to a faunal roster from "Aardvark (*Orycteropus capensis*)" to "Zebu (*Bos indicus*)."

The plates are not particularly meaningful, since there is no direct reference to figures in the text. In fact, many of them are not especially well done. Availability of cuts in the Museum files seems to have been the chief basis for selection and inclusion rather than attractiveness and appeal to the general reader.

Intimate and often weird interrelationships of animals are particularly stressed. The past and the present are woven together in considering the balances between animals and their environments. Often, provocative attention is drawn to the upset of balance in nature.

There are few direct references and no literature lists, although works of specialists are often mentioned in intimate personal references.

This book is a distinctively worth-while contribution to a wider general appreciation of "animals alive."

HARLEY J. VAN CLEAVE

University of Illinois, Urbana