

rapidly growing and important literature which indicates that elevation of the serum lipids may be controlled by pharmacological agents. A. F. Green's authoritative article on antihypertensive drugs contains a wealth of experimental data and he has succeeded in producing a concise and critical account of the important material contained in the vast flood of research papers on this subject. M. Shepherd and Lorna Wing survey the pharmacological aspects of psychiatry and describe studies in both animals and man. The growing importance of psychopharmacology has led to the production of a large series of reviews on this subject during the past few years and the present contribution is extremely valuable in bringing this series up to date.

A clear summary of the properties of anticoagulant drugs and their use in the treatment and prevention of thromboembolic disease is provided by M. Weiner. B. J. Haverback and S. K. Wirtschafter describe the effects on the gastrointestinal tract of naturally occurring indolic amines and histamine, and their metabolism in both health and disease. Finally, J. P. Green provides an account of present-day knowledge of the mechanisms whereby acetylcholine, catecholamines, hydroxytryptamine and histamine are bound to tissues or tissue components.

The book contains few misprints, and the editors are to be congratulated on their choice of subjects. All the authors are acknowledged experts in their own fields of research but, despite this, their reliable articles are fully comprehensible to the non-specialist. The book may therefore be recommended not only to pharmacologists but also to all those in related disciplines, including the more advanced undergraduates who are interested in the mechanisms of action and uses of drugs. W. C. BOWMAN

MAN AND HIS BEASTS

A History of Domesticated Animals

By Dr. Frederick E. Zeuner. Pp. 560. (London: Hutchinson and Co. (Publishers), Ltd., 1963.) 84s. net.

IN this book, which is claimed to be the first of its kind to be published in English and the first for twenty-five years in any language, Prof. Zeuner examines the origins and history of all the domesticated animals from the dog to the goldfish, the elephant to the silkworm. He brings a brain very fertile of original ideas to bear on the subject, and, with his wide knowledge of palaeontology and archaeology, has produced a work of great value not only to the specialist but also to the general reader.

The basic theme of the book is that the early domestication of animals was not a deliberate process of exploitation but was unintended and not conscious. The domestication of animals was derived from the social relationship of animal species, man being one of them. "Domestication is rooted in the natural contacts of man with beast which, in the early stages were provided mainly but not exclusively by hunting." It is significant too that all the domesticated mammals, with the exception of a few carnivores such as the cat and the ferret, are social or gregarious animals in the wild and consequently have a social organization into which man has been able to intrude and be accepted.

Many authors have assumed that domestication was invented to satisfy economic needs such as the supply of meat and skins. Prof. Zeuner points out that domestication began in the Mesolithic and that mesolithic man would have found it far easier and more economic to obtain the necessary supplies by hunting and trapping, just as his forefathers had done, instead of embarking on experiments of taming unwilling animals that would reward him for his efforts only after several generations. The fruitful approach to the problem of domestication is the biological one. If man is considered as an integral part of his physico-

biological environment the problem resolves itself into a simple and natural process: the habits of man on one hand and of certain animal species on the other made the appearance of domestication almost inevitable.

The first animal to be domesticated was probably one of the smaller geographical races of the wolf, or a closely related "wild dingo", which may have since received some jackal blood in becoming the domestic dog. Be that as it may, the relationship at first was that the beast was a scavenger of the remains left by man's hunting and a robber of his camps. Zeuner thinks that pet-keeping, too, is particularly likely to have played a part in the domestication of the dog. Man has always used the animal world as a source of food and raw materials but the domestication of the dog was an exception, for man and dog joined to form a hunting team and the alliance led in course of time to the subjection of the dog. The guest-host relationship thus evolved with the host as the exploiting species. Among other animals, such as the social insects, the relationship has evolved in the opposite direction, with the exploiting species, the scavenging-robbing guests, becoming social parasites of the hosts.

Once the dog had become a member of human society the control and later domestication of the goat, sheep, and reindeer became possible: they are all animals which had always been an important part in the diet of the ancestors of the dog. These species were domesticated before the invention of agriculture. In the early Neolithic the larger ruminants, cattle and buffalo, began to interfere with the new artificially created environment provided by agriculture. "They came as crop-robbers but ended up as domesticated beasts in the pens and stables of the neolithic farmer." So too did the pig. The domestication of the beasts of burden, the elephant, horse, ass, and camel came later, and here, although the contacts of man and beast were provided by overlaps of social media the domesticators must from the first have been aware of the advantages that were likely to accrue to them. Finally there are the pest-destroyers—the cat, ferret and mongoose. When rodents became pests of stored grain, as soon as the problem of preserving supplies from one harvest to the next was solved, these carnivores became the associates of man; it is probable that none of them was deliberately domesticated.

The final section of the book dealing with mammals discusses various rodents, and experimental and occasional domestication; it contains some very surprising information. The book concludes with a section on domesticated birds, fishes, and insects.

Prof. Zeuner has provided a fascinating account of his subject and a well-stocked source-book of great value to students in various disciplines—palaeontologists, pre-historians, zoologists, sociologists, and many others. The book is well produced, fully illustrated, and contains an extensive bibliography. There are a few printer's errors such as "salt effervescences" for "efflorescences" on page 119; although "hibernation" does literally mean "wintering" it is scarcely correct to speak of the "hibernation areas" of reindeer; and the bird depicted in a Roman mosaic (p. 471) and identified as a pochard is undoubtedly a drake teal. Such slips will no doubt be corrected in the future editions that will certainly be needed. L. HARRISON MATTHEWS

BIOLOGY FOR BEGINNERS

Biological Order

By Prof. André Lwoff. (Karl Taylor Compton Lectures, 1960.) Pp. x+101. (Cambridge, Mass.: The Massachusetts Institute of Technology Press, 1962.) 4.50 dollars.

THIS book consists of the Carl Taylor Compton Lectures at the Massachusetts Institute of Technology in 1960. The aim is to interest physicists and chemists in biological problems, starting from scratch in