

Book Reviews

On the Track of Unknown Animals.

Bernard Heuvelmans. Translated from the French by Richard Garnett. Hill and Wang, New York, 1959. 558 pp. Illus. + plates. \$6.95.

This is a book about animals that *might* exist, in contrast to the ordinary zoological treatise on animals that *do* exist. Heuvelmans calls it an "excursion on the frontier of science and fantasy." In exploring the subject—the emergence of species in the realm of human awareness—from the vague legends or hunter's tale to the point of acceptance by taxonomists, the author treats the early concepts of many real and many imaginary animals. Among the mammals discussed are the anthropoid apes, several monkeys, various apemen, the abominable snowman; pygmy species of elephant, rhinoceros, hippopotamus, and lion; and kouprey, marsupial tiger, *Diprotodon*, and a host of others. The birds include the moa, dodo, kiwi, and cahow; the reptiles include the giant anaconda, crocodiles, and even dinosaurs and pterodactyls.

This is an interesting area that is generally avoided by zoologists. Much field investigation of ethnozoology, much library research on the history of science, and much psychological analysis of human gullibility could be carried on here. I was disappointed to find that Heuvelmans was interested only in the superficial and sensational aspects of the subject. An impressive bibliography of technical books and papers is provided for each chapter, but the passages quoted from these sources are not the passages the original authors would consider most significant. Tales of travelers and accounts from local newspapers are given much credence. One must read carefully to find the author's disclaimers of the tales that even he cannot profess to believe.

Quotations from reliable sources are used to support very doubtful theories.

For example, although there are no records of pterosaurs since Cretaceous times, the following statement is quoted from J. Z. Young's *Life of Vertebrates*:

"Nearly all specimens have been found in marine deposits and they seem to have been fish-eaters, but this does not prove that none lived on land, where the chance of fossilisation would have been much less."

This quotation precedes, and is made in such a way that it seems to support the following statement by the author:

"Thus it is not impossible that flying lizards might have survived until today in places inland without leaving the least trace of a fossil."

The phrase "not impossible" is the key to most of the author's conclusions. Throughout the book, evidence has been selected to support two prevailing themes. The first might be summarized thus: Some real species were first heard of through reports at which leading scientists scoffed, and some supposedly extinct types of animals have recently been discovered alive; therefore, it follows that any animal tale may be true, and that any type of animal may still survive, because how can one have absolute proof to the contrary?

The second theme is more positive: Established scientists have reactionary minds that are closed to new concepts, and they stubbornly refuse to recognize a new species long after sensible people have accepted it. These scientists are particularly unreasonable when they require that a specimen be found and studied.

Now, in regard to this latter theme, I know many systematic zoologists, and their minds are quite open to the possibility that new species exist; in fact, they spend much time searching for and describing new species. Unlike the author of this book, they try earnestly to distinguish truth from fantasy, and they do not think that the existence of

a species can be proved by argument. As a result of their integrity on this score, the current checklists of animals pretty faithfully reflect what is known of the real faunas.

I noted with regret that five names of doubtful validity have been tossed into the already crowded taxonomic hopper. In an earlier French edition of the book (*Sur la Piste de Bêtes Ignorées*, Paris, 1955), Heuvelmans provided generic and specific names, *Dinopithecus nivalis*, for the general concept of the abominable snowman that is supposed to inhabit the Himalayas, and the names *Leo maculatus* and *Melivora ratel maxima* for African carnivores, also with vague application. *Dinopithecus* is a preoccupied name, and in the present work it is replaced by *Dinanthropoides*. These names are well hidden in the text, and I may have overlooked others. Based on animals that may not exist and lacking diagnoses, comparisons, type specimens, or type localities, such names are anachronisms in 20th-century nomenclature.

Hoaxes, which are common and which contribute largely to the scientists' skeptical attitude that so exasperates the author, are passed over lightly. I find no mention of Piltdown man in the book. Heuvelmans admits that the tale of modern dinosaurs in New Guinea is beyond belief, but only after the full flavor of the story has been extracted.

A tremendous amount of reading must have gone into the preparation of the book, and a broad understanding of world fauna is apparent. The book's essential shallowness is evidenced, however, by many errors—such as the placement of the American marsupial *Marmosa* in Australia, and the statement that the only rats in Australia were brought in by man. Actually murine rodents that were not introduced by man make up about one-fifth of the known kinds of Australian mammals.

As popular entertainment, much can be said for this book. It is obviously designed and written to appeal to uncritical and not-too-well-informed readers. It is up-to-date, and it includes such recent discoveries as *Neopilina*. It is easy to read and well-illustrated. The chapter on the abominable snowman brings together a vast amount of otherwise scattered material on a currently popular subject. The bibliography is thorough and well-arranged.

Science fiction writers should find

here many points of departure for their flights into fantasy. The already great gullibility of the reading public will be increased by the book, and some eager amateur zoologist just might be so stimulated by it that he will go out and blunder onto a new kind of animal. As the author would say, it is "not impossible."

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Purchase Guide for Programs in Science, Mathematics, Modern Foreign Languages. Prepared by the Council of Chief State School Officers with the assistance of Educational Facilities Laboratories, Inc., and others. Ginn, Boston, Mass., 1959. vii + 336 pp. Paper, \$3.95.

Under Title 3 of the National Defense Education Act, elementary and secondary schools (grades 4 through 12) will be able to purchase equipment for science, mathematics, and foreign language classes in far greater quantities than their present abilities allow. Educational administrators, teachers, and supervisors who need assistance in selecting equipment may turn to this publication for helpful suggestions.

The *Guide* consists of a subject list of the items recommended for use in teaching biology, chemistry, elementary science, general science, physics, mathematics, and modern foreign languages. Each item suggested for use in science is classified under one of the following headings: "Basic," "Standard," or "Advanced." This classification, with one exception, is the same for mathematics: "Additional" replaces "Advanced." In the section on modern foreign languages, special functional designations are used. Definitions of these terms are included in the *Guide*. The reader should study these terms carefully in order to interpret the recommendations and intentions of this list.

Each item of the alphabetical list is coded in one or more of the subject areas. The descriptions include brief specifications which generally provide enough information to assist substantially in making a better decision for purchasing equipment. There is no mention of cost, nor is there a commercial publisher or manufacturer associated with the items.

A most interesting feature of this

publication is the guidelines offered through the use of essays. In general, these essays explain and clarify the modern trends in science, mathematics, and language education. Readers who are not familiar with these ideas will enjoy the essays and will find good suggestions for improving the physical setting of instruction in the various courses. For example, the description of a modern foreign language laboratory presents a new concept in the teaching of this subject. The description includes sketches and charts illustrating the use of a language laboratory.

The final items in the *Guide* are a bibliography of books for the school library and a directory of publishers and book dealers.

The foreword points out that all of the lists are necessarily incomplete and that they are to be regarded as open at both ends. Thus, the writers of the *Purchase Guide* recognize the dangers inherent in such a project and publication. Ways must be found to keep this *Guide* up-to-date, else in only a few years, it may become actually harmful, because it might serve to perpetuate the use of old equipment and traditional method and course content. Scientists should welcome the invitation from the Council to provide this assistance on a continuing basis.

The Council of Chief State Officers is to be congratulated on this significant contribution to education. It seems almost certain that this *Purchase Guide* will contribute greatly to the success of the National Defense Education Act of 1958. It is also a most encouraging sign in that the council sought the active support of scientists and language and library experts in this effort. Evidence of this is seen in the contribution of the National Bureau of Standards, the fact that the education officers of the American Association for the Advancement of Science, the American Chemical Society, and the American Institute of Physics, and persons nominated by the American Institute of Biological Sciences and the Modern Language Association were members of the advisory Committee of Seven, and in the participation of such agencies as the School Mathematics Study Group (sponsored by the National Science Foundation).

The project was organized and administered by Edgar Fuller, executive secretary of the Council of Chief State School Officers. The foreword was written by George E. Watson, state super-

intendent of public instruction in Wisconsin and president of the council. As Watson states, "This *Purchase Guide* is a pioneering effort in American education."

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Catalogue of the Type Specimens of Microlepidoptera in the British Museum (Natural History) described by Edward Meyrick. vol. 3. *Tortricidae, Olethreutidae, Noctuidae*. J. F. Gates Clarke. British Museum (Natural History), London, 1958. 600 pp. £6.

It is a pleasure to announce the appearance of volume 3 of Clarke's monumental work; volumes 1 and 2 were reviewed earlier [*Science* **122**, 1274 (1955)]. In volume 3 the species of Tortricidae and Olethreutidae are covered, as well as one species of Noctuidae. As in the previous volumes, all of the species are illustrated, and dissections show the taxonomically essential characters. The illustrations are superbly reproduced photographs, microphotographs, and, in some cases, drawings. The text comprises full bibliographic citation of the original publication and type locality, as well as the present taxonomic disposition of each species, citations of type specimens, and captions for the illustrations. The volume is produced in the same sumptuous manner as the earlier ones. It will certainly serve for a long time as the point of departure for future taxonomic studies of the families and genera treated.

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Eskimo Prehistory in the Vicinity of Point Barrow, Alaska. *Anthropological Papers*, vol. 47, part 1. James A. Ford. American Museum of Natural History, New York, 1959. 272 pp. Illus. + plates. \$4.75.

Ford's monograph reporting on the 1931-32 and 1936 excavations, mainly on the Birnirk culture site near Point Barrow, Alaska, is a work of major importance in Arctic prehistory. Excavation of frozen refuse mounds was limited to the time during the short summer when the ground thaws. Ford