

## CAUCASIAN MAMMALS

### The Mammals of the Caucasus

A History of the Evolution of the Fauna. By N. K. Vereshchagin. Edited by A. A. Strelkov. Translated from the Russian. Pp. iii+816. (Israel Program for Scientific Translations: Jerusalem, 1967. Distributed by H. A. Humphrey: London, 1968.) 235s.

THIS important volume by one of the leading Russian workers in the field of natural sciences is an English translation; the original work in Russian was first published in 1954, after which a revised edition was produced in 1959, containing much new material. First reactions on reading this book were a mixture of amazement at the enormous detail of the work entailed in producing over 800 pages, and alarm in the knowledge that the assimilation of so much information would be a major task in itself. A very extensive bibliography (only a fraction of works consulted by the author) took up 100 pages; this alone gives some indication of the wide scope and varied subject matter of the text.

The book is divided into three main parts, all of which are profusely illustrated with many maps, graphs, tables, figures and photographs. The first section, "Palaeontological and Archaeological Background of Fauna Formation", opens with a description of the geological background and processes relating to mammalian fossil deposits in the area; the Palaeogene is represented only by the Middle Oligocene, in which land mammals are rare. A far more extensive land mammal fauna occurs in beds of Middle Miocene age, which can be related to faunas of the same age in Eurasia and North America; the Quaternary faunas of the area appear to originate mainly from the Upper Miocene. The glaciations and climatic fluctuations in the Caucasus had an important influence on the make-up of the fauna during the Pleistocene, as in Europe and North America at the same time, although the author stresses that attempts to correlate the glacial and interglacial stages in the Caucasus with those of the Alps were far from proved.

The faunas of the area throughout the Quaternary are extensively listed, site by site, with non-mammalian and floral remains having an important place in the interpretation of the palaeo-ecological and palaeo-climatological character of each area at any one time. The effect of the advent of man on the land and landscape, and the subsequent changes (mainly detrimental) to the flora and fauna, are also considered.

Part two is entitled "Analysis of the Origin of Caucasian Quaternary Mammals in Relation to their Distribution, Ecology and Morphogenesis". This section gives taxonomic coverage of the mammals found in Caucasian deposits during Pleistocene and Holocene times; a second chapter covers the phylogeny, and stratigraphic and geographic ranges of the mammalian groups living in the area since the Pleistocene.

The third and final section, "Geographic Zonation and Latest Evolutionary Trends of Mammalian Fauna of the Caucasian Isthmus", concerns the variations and trends to be found in faunal complexes of the present day, in relation to evolutionary trends and changes in land form that are presently occurring. The principal difficulties in any accurate estimation of these trends are those caused by man and his activities since "Acheulean times". The author cites many examples, with photographs, of the effects on fauna from hunting, changes to habitat and indirectly to the introduction of alien species either deliberately or accidentally; examples of the latter include the rabbit, the nutria and *Rattus norvegicus*. The author has several suggestions on the maintenance of a natural faunal balance and how this could be obtained by careful conservation.

A concluding chapter summarizes the content of this very detailed study, and ends with ideas for further study and immediate investigation.

The greater part of the book pertains to mammalian history during the Quaternary. Tertiary events in this area are little known, and are described as a background to the developments of subsequent times.

The English translation tends to lack idiomatic phrase and to be rather literal, making reading a little stilted and lacking smoothness. Certain terms and phrases which have clearly been translated literally could make for confusion and ambiguity, such as the use of the word "burial" to describe Oligocene fossiliferous sediments; these discrepancies, however, are rare, and the translation as a whole is a very remarkable achievement.

Although the maps and charts have reproduced well, unfortunately the same cannot be said for the photographic reproductions and to a lesser extent the line drawings. Some photographs of landscapes in particular are so dark as to be almost unreadable.

These criticisms of reproduction do not, however, detract from the admirable and very detailed coverage of mammalian history to be found in this book. It is the first time that the history of this fauna has been examined from the point of view of many disciplines, and the content will be of interest not only to mammalian palaeontologists but also to ecologists, geomorphologists, zoogeographers and many others. The incentive that the book will give to further research in any of these related fields must be of very positive value, not only to workers in the problems of the Caucasus, but to many scientists whose interests border on the many facets, disciplines and geographical areas that Vereshchagin has brought together in this remarkable and important volume. S. C. CORYNDON

## FUNGI FROM SOIL

### The Genera of Hyphomycetes from Soil

By George L. Barron. Pp. xiii+364. (Williams and Wilkins: Baltimore, Maryland. Distributed in the UK by Livingstone: Edinburgh, 1968.) 140s.

THIS book should prove outstandingly useful in any mycological laboratory. While the title suggests that the genera described have originated in soil, the second sentence of the preface makes it clear that the fungi which are described are not necessarily natives of, or growing in, soil. It is seldom that such a well illustrated book on taxonomy has become available to the student and the research worker. The author is to be complimented on the wise way in which he has used excellent photomicrographs and line drawings to illustrate the text. From time to time there has been criticism of the use of photomicrographs for illustrating taxonomic features, but with the Hyphomycetes photomicrographs of the quality published in this work are of great value, because they place before the reader the real appearance of the fungi which he may examine under a microscope. The line drawings are of the highest quality and interpret the structures of particular species in genera clearly and simply.

The book has another outstanding claim for the attention of laboratory mycologists. In an introductory chapter the criteria for classification of Hyphomycetes which are available to mycologists are critically reviewed, the major part of the chapter being a recapitulation of the system of classification outlined by Hughes in 1953. Thereafter a second chapter deals with ten series of genera segregated upon the method of development of the conidia. In itself this chapter should be most warmly welcomed by mycologists as a unique attempt at a modern classification of the Hyphomycetes.

The fifth chapter consists of keys to genera which are based upon the developmental characters accepted by the author mainly from the works of Hughes and Tubaki. Trial of these keys has shown that it is easily possible, once the developmental type of a particular species has