



BOOK REVIEWS

AN INTRODUCTION TO THE MAMMALIAN FAUNA OF THE SIWALIK SYSTEM

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For decades, the 'Siwaliks' have been a major area of research for the Indian palaeontologists. A number of research papers on the biodiversity, palaeofauna and biostratigraphy have been written by a series of authors, yet a comprehensive account of faunal diversity is lacking. Dr. K. N. Prasad has taken an initiative to compile the work on the Siwalik mammalian palaeofauna carried out by the previous authors.

The book of 295 pages contains neatly and systematically arranged 15 chapters apart from an exhaustive list of references. The introductory chapter briefly describes the geology, lithostratigraphic details and age of the Siwalik Supergroup. A summarised account of the stratigraphic succession of the Siwaliks exposed in Uttaranchal and Himachal Pradesh has been given along with the possible correlation with the synchronous Karewas of Kashmir and the Siwalik rocks of the North Eastern Region of India and Nepal. The extension and correlation of the Siwaliks have been additionally given in the form of tables and maps, which make the descriptions handy and quickly referable to the readers. In the book, the Quaternary deposits of Narmada Valley have been briefly mentioned giving a summary of mammalian palaeontology and palynology. An overview of geological and cultural successions in the Narmada Basin has also been given which may serve as an introduction for the readers interested in palaeontology-archaeology of the Narmada Basin.

Twelve chapters (from chapter III to chapter XIV) dealing with the twelve most important mammalian groups constitute the main part of the

book.

Two groups of primates viz., Anthropoidea and Prosimii have been systematically described. Their evolutionary trends especially those of dentition, skull, brain and limbs have been mentioned. The family-wise description of primates gives an introductory data of their dental and skull characters and also revised synonymy. The synonymy solves a major problem of palaeontologists especially when dealing with the fossil record of a locality as given in various literature.

The taxonomic status of the major finds of *Dryopithecus*, *Sivapithecus*, *Giagantopithecus*, *Ramapithecus*, *Amphipithecus* has been evaluated and compared on the basis of their dental remains.

The Siwalik rodents mostly represent all the genera and species present today and they have been recorded and studied by a number of palaeontologists. A sister group of rodents is the lagomorphs (includes rabbits and hares) which have also been recovered from the Siwaliks. The enormous data on rodents and lagomorphs have been compiled and illustrated in the book. Murids, rhyzomyds, soricids and leporids have been described, and their evolution documented. Some of the illustrations are excellent and clearly demonstrate the dental morphology of rhyzomoides.

The major record of the carnivores from the Siwaliks is in the form of dentition and fragmentary skulls. The dental remains of bears, dogs, bear-like dogs, hyena, sabre-toothed tigers and other members of cat family have been recovered from the Siwaliks. Their evolution and radiation in the Indian subcontinent since the middle Eocene mesonychid creodonts has been discussed and summarised by the author.

Fossil pigs from the Siwaliks are represented by as many as 14 genera and a number of species. General characteristics of their dentition and comparative account of the genera *Conohyus*, *Palaeochoerus*, *Sivochoerus*, *Tetraconodon*, *Listriodon*, *Propotamochoerus*, *Potamochoerus*, *Dicoryphochoerus*, *Hippohyus*, *Sivahyus*, *Hyosus*,

Lophochoerus, *Sanitherium* and *Sus* provides a ready reference for the fossil hunters.

The hippopotamoids from the Siwaliks are represented by *Hexaprotodon sivalensis*, *H. namadicus namadicus*, *Hippopotamus palaeindicus* (from Narmada Valley) and *H. irravaticus* (from Myanmar). An attempt to compare the skulls and mandible of Hippopotamidae, Suidae and Antracotheriidae helps the readers in differentiating the artiodactyls and pigs. In recent researches, the anthracobunids have been included in a parvorder Proboscidea under a new order Uranotheria.

The occurrence of traguloides (*Indomeryx*, *Dorcatherium*, *Dorcabune* and *Tragulus*), Giraffoides (*Giraffokeryx*, *Sivatherium*, *Indratherium*, *Bramatherium*, *Hydaspitherium*, *Vishnutherium*, *Helladotherium*, and *Propalaeomeryx*) and cervoides from the Siwaliks is very significant and it has been successfully dealt within the book.

The most common group of artiodactyls "Bovoidea" includes cow, buffalo, goats, sheep, etc. The broad classification of Indian bovids in subfamilies with their distinguishing characters is important. A number of genera referable to these subfamilies have been recovered from the Siwaliks. Their skull characters, age and stratigraphic occurrence are important and may be used as ready reference for the fossil bovid hunters in the Siwaliks.

From the Siwaliks, the members of the horse families (Superfamily: Equoidea) and rhinocerotoid families (Superfamily: Rhinocertoidea) are represented by the skulls and the dentitions. A general and basic description of evolution and migration of Equoides and rhinocerotoides will give an idea to the readers about the radiation of these two giant mammals.

The largest land mammals are represented by the animals having a proboscis and are defined under the Parvorder Proboscidea. The skull and dental morphology of the proboscideans is very complicated and difficult to understand. In the book the above details have been given with the help of simple line diagrams. Such kinds of illustrations are important to understand and follow the evolution of

Proboscidea. The chapter is very well written and includes the description, diagnostic features and dental formulae of all the proboscideans recovered from the Siwaliks. The description of evolutionary pattern is informative and easily intelligible.

The origin, evolution and migration of mammals has been presented in the form of a comprehensive story which is easily understandable.

The book has been written keeping the beginners in mind. The descriptions are simple and useful. I congratulate the author for his sincere attempt at bringing a comprehensive volume on the Siwalik mammalian fauna, which may be used as a treatise on the Siwalik mammals.

The following suggestions may be incorporated in the next edition of the book which would certainly increase the significance of the work :

- The location maps of the fossil localities may be provided in the introductory chapter.
- Generalised lithostratigraphic columns exposed in various regions may also be given in the first chapter of the book.
- The terminology used to describe dental elements and skulls may be given through simple diagrams in the beginning of each chapter.
- Scientific details of the illustrations may be enhanced by improving the quality of the figures and by adding a scale.
- Descriptive captions of the figures may be given for better understanding of the diagnostic and differentiating features of the dental and skull elements.
- The status of the Siwalik mammalian families and genera may be given using phylogenetic tree diagrams at the end of the each chapter.
- Latest work on the taxonomic classification, phylogeny, evolution and distribution of mammalian paleofauna of the World may be used for updating the book.

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