

### Perspectives in Human Evolution

S.R.K. Chopra Festschrift Volume

Edited by Ashok Sahni and Rajan Gaur  
279 pp., Figures, Tables, Bibliographies, Index.  
Renaissance Publishing House, Delhi (1989).

Professor S.R.K. Chopra's interest in the Siwaliks of India is of long standing. During the last thirty years, he has published many significant articles and reports. This book has been dedicated to him by the Editors.

It is not the intent of this review to point out the typographical errors (though few) or to disagree at length with any of the author's interpretations. Certainly total agreement or disagreement with every segment of the book is not a valid prerequisite to adoption. More important criteria in judging the merit of this felicitation volume would be its readability and competent coverage of the theme.

The editors state that this collection of ten papers provides a 'synthesis of recent ideas and data on hominid evolution'. The papers serve different purposes. P.V. Tobias's 'Relationship Between Apes and Humans' reviews the molecular evolutionary data in relation to the time separation of the hominids from the last common ancestor shared with any of the great apes. The author begins his chapter with the typical sociological concept of love-hate relationships of modern human beings to their nearest living relatives, the great apes. Tobias develops the discussion and lays emphasis on cladogenesis. As a consequence, there is no mention of DNA polymorphisms and or chromosomal homology between apes and humans. He concludes that the evidence of both fossils and the molecules agrees in pointing to a relatively recent date (5-9 m.y. B.P.) for the birth of the Hominidae. The emphasis here is on the divergence between the apes and humans rather than on the relationship

between the two. Even this lengthy disquisition of the fossils and the molecules would have become more meaningful had it been treated to statistical synthesis using cluster analysis. G.G. Pope examines the phylogenetic link between the Asian *Homo erectus* and the *Homo sapiens* in the next chapter. The relatively greater world wide morphological homogeneity of the modern populations leads one to accept the replacement model for the emergence of the anatomically modern humans. Pope views the Pan-Old World cline model and the morphological variation to document the exploitation of the environment vis-a-vis the hominid evolution. Sinking archaic *Homo sapiens* into *Homo erectus* obscures the traits which diverge toward modern humans. Yet the other classification to sink *Homo erectus* into *Homo sapiens* is equally arbitrary too. The bewildering variety of nomenclature used leaves it for the reader to decipher the fossils thereby referred to. The distinguished scholar, Professor Charles E. Oxnard, provides a vivid description of the sexual dimorphism between the various fossil hominoids in the third chapter. He discusses, in distinctly and deliberately statistical ways, a whole series of morphological and dental variation to the study of sex differences and sex ratios in the higher primate fossils. The biomathematical approach used therein demonstrates that a great deal can be determined about sexual dimorphism and sex ratios even when the sexes of the individual specimens cannot be evaluated. It is remarkable that though *Gigantopithecus* has the similarity of equal sex ratio with humans, it is clearly not similar to any ape because even its large sexual dimorphism exists in several canonical axes beyond the third. Particularly illuminating are the detailed illustrations of the dental morphometrics of the various higher primate fossils.

K.N. Prasad's contribution 'Some Observations on Hominid Evolution' provides evidence,

based on early Cenozoic records, to suggest that Burma and Africa offer clues so vital for differentiation of later hominids. This fourth chapter is of immense importance as it not only examines the status of Dryopithecines, *Gigantopithecus*, *Ramapithecus* and the evolution of the hominids, but it provides description of the submontane Siwalik sediments and its fossils with which are associated Professor S.R.K. Chopra's achievements. He goes on to argue that the Siwaliks probably played a vital part in the cradle of human evolution but what is lacking is the detailed exploration in the promising sedimentary belts in India.

Origin and biochronology of the Miocene hominoids from China is examined by Dennis A. Etler in the next chapter. It provides an insight into the valuable palaeoanthropological treasures. As Etler leads us to believe that the hominoid presence in East and South Asia is older and more widespread than previously believed, the evidence indicates their closer affinities with the East African taxa. He goes on to state that there exists a possibility that the initial differentiation of the modern Hominoidea may have been an Asian event. The sixth chapter 'Observations on the Fossil Hominid Site at Hathnora, Madhya Pradesh, India' provides an insight into the cultural evolution and the biostratigraphy of the only fossil hominid site, so far, in India, i.e., Hathnora. The crisp though short description by G.L. Badam of the Narmada stratigraphy and the lone discovery of the partial cranium of *Homo erectus narmadiensis* from Hathnora in India strengthens Prasad's contention that India played a vital role in the cradle of human evolution. The following chapter on Siwalik Adapid Primates by one of the editors, Ashok Sahni, discusses the possible palaeobiogeographical constraints resulting in the survival of an hitherto Eocene ranging family into the Neogene of South Asia. Sahni catalogues the status and distribution of the enamel ultrastructure in interpreting the phylogenetic relationships of hominoids and or other hominids. The Siwalik relicts were most pro-

bably derived from the late Eocene Adapid taxa of Europe. These also suggest the continuation of the subtropical rainforest conditions before the advent of the climatic variations at the end of the Pliocene.

Gaur and Vasishat review the 'Hominoid Palaeoecology of the Indian Siwaliks' in the subsequent 27 pages. This is a very welcome and useful addition to the growing list of references on human evolution as it documents the habitat and ecology of the fossil apes in the Indian Siwaliks, separately for each locality. The review of the faunal assemblages from the five fossil hominoid localities in the Indian Siwaliks indicates a more or less similar palaeoecological environment for them. The multiauthored 'Quaternary Palaeoenvironmental Changes in northwest India' summarises the palaeoclimatic and the palaeoenvironmental changes from the Arabian Sea, Western India and Kashmir. A. Azzaroli's last chapter in the edited book 'On the Affinities of a Fossil Suid from the Hominoid Bearing Siwalik Deposits of the Indian Subcontinent' deals briefly with the anatomical characteristics of the fossil species *Sus giganteus* from the Siwaliks.

Though published in the year 1989, the subject matter cited in this book is till 1985. Obviously, some material and or discussion they include has become dated in this interval. Also missing, and I am aware that I should be reviewing the information that exists, not that I think ought to exist, is a broad discussion of the works of the distinguished Indian scholar, S.R.K. Chopra. It would have been indeed a befitting felicitation to the pioneering Indian palaeoanthropologist had a list of his scientific publications been included in this festschrift volume. A publication outlet devoted to the Siwalik fossils is unquestionably needed, as archaeologists excavate more and more. It is appropriate that most chapters deal systematically with this. While it is acknowledged to be far from complete, yet this book *Perspectives in Human Evolution* provides a wealth of new information so vital for students of palaeoanthropology in particular.

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