

## Book Reviews

NEW INTERPRETATIONS OF APE AND HUMAN ANCESTRY. Edited by R.L. Ciochon and R.S. Corruccini. New York: Plenum Press. 1983. xxiv + 888 pp., figures, tables, references, indices. \$95.00 (cloth).

Human ancestry and our relationship to living apes are dominant themes in physical anthropology. These subjects are the focus of much wider interest as well: Apes have long been known to link us to monkeys and lower primates, making evolution relevant for humans as well as other animals. Apes have long served as a conservative background for interpreting humans in comparative anatomy, making human specializations stand out more sharply. Then too, in recent years, the relationship of humans, apes, and monkeys has been fertile ground for testing theories of molecular evolution.

Fossil apes and humans have been known for more than a century, but these were at first so rare and so different from each other that they shed little light on human evolution. Evolution as a fact of history is based on fossils. Early in the 19th century the cumulative evidence of fossils in stratigraphic sequence made evolution an integral component of biology. However, the fossils contributing to our initial understanding of evolution were neither ape nor human. Early fossil apes and humans were interpreted in the light of evolution, but they contributed little evidence compelling acceptance of this idea.

Today fossils are collected by the tens, hundreds, and thousands. Fossils reveal evolution not only as a fact of history, but, for ever-more groups of organisms, fossils outline the actual course of this history. There are today hundreds if not thousands of fossil apes and humans. We have a reasonable outline of human history going back 3-4 million years. Fortunately or unfortunately, the morphological diversity, geographic distribution, and temporal range of apes is much greater than that of humans. It is fair to say that little of an outline of the history of apes can yet be drawn from fossils, although new discoveries have obviously changed how one imagines this outline might be drawn in the future.

*New Interpretations of Ape and Human Ancestry* is a large book comprised of 30 chapters plus a substantial contributed "appendix." It is impossible to do justice to each in a thousand word review. For the record, the book includes contributions by P. Andrews; R. Bernor; N. Boaz; L. de Bonis; S. Chopra; R. Ciochon; R. Corruccini and R. Ciochon; J. Cronin; R. Dehm; D. Falk; J. Fleagle; J. Fleagle and R. Kay; D. Gantt; M. Goodman, M. Baba, and L. Darga; L. Greenfield; R. Kay and E. Simons; A. Kluge; G. von Koenigswald; A. Kortlandt; L. Mai; H. McHenry and R. Corruccini; M. Morbeck; M. Pickford; K. Prasad; M. Rose; V. Sarich; A. Walker and M. Pickford; S. Ward and D. Pilbeam; T. White, D. Johanson, and W. Kimbel; M. Wolpoff; and A. Zihlman and J. Lowenstein.

According to the editors' preface, this book is the outgrowth of a symposium organized by the editors entitled "Miocene Hominoids and New Interpretations of Ape and Human Ancestry." At this symposium paleontological and biomolecular views of human origins are said to have been reconciled, this rapprochement being based on compromise—a more liberal presentation of the molecular clock hypothesis, and the view that no known Miocene hominoid (including *Ramapithecus*) could be considered a hominid. Apart from Bernor's chapter on geochronology and zoogeography, there is little in the way of a general review of Miocene hominoids in this book (although many of the chapters describe and compare details of Miocene hominoid specimens).

In the concluding chapter, Ciochon states retrospectively that the major purpose in assembling this volume was "to provide a forum for the presentation of alternative viewpoints on the subject of ape and human ancestry." In this the book succeeds admirably—a wide range of alternative viewpoints is presented. There is something in it for everyone. For those interested in taxonomy, one new genus and species, *Sivasimia chinjiensis*, is proposed. For those interested in cladistics, Miocene hominoids are alternatively or sometimes simultaneously referred to as Dryopithecidae, Dryopithecinae, Dryopithecini, dryopithecines, dryomorphs, Dryopiths, small Dryopiths, larger Dryopiths, Proconsulinae, Proconsulini, Kenyapiths, Proconsulmorphs, Sivapithecinae, Sivapithe-

cini, a "sivapithecine complex," sivapithecines, Ramapithecidae, Ramapithecinae, Ramapithecini, ramapithecines, ramamorphs, Ramapiths, dryomorph Ramapiths, and ramamorph Ramapiths. What can all this mean?

I personally was most interested in the chapters on molecular studies, studies that have proven very important in corroborating and refining sequences of phyletic branching inferred from fossils. Goodman et al. again interpret molecular results in terms of deceleration or slowdown over time (also discussed by Corruccini and Ciochon). Sarich's contribution (included as an appendix to Cronin's chapter for reasons that are not at all clear to the reader) is a somewhat defensive review of his personal role in developing a molecular clock applicable to human evolution. He need not be so defensive. This clock will, I think, have considerable value when its proponents abandon the simplistic idea that molecular change must scale linearly with time—the relative rate test is not an absolute rate test (and divergence times are, of course, a function of absolute rates). Empirical studies show that molecular scaling is nonlinear (supporting Goodman's idea of a molecular slowdown), but a nonlinear clock has the same potential for dating branching times as a linear clock. In short, real reconciliation of biomolecular and paleontological views of human origins is likely to come through better mutual understanding of biomolecular and paleontological evidence, not through compromise. Surprisingly, little but taxonomic confusion is made of the

great diversity of Miocene apes revealed by the fossil record—diversity that no comparison of living apes, molecular or morphological, would reveal.

Finally, after reviewing an 888-page book selling for \$95, I am left wondering who can afford such a lavish publication. Few people have access to such expensive books, and an author with something important to say will certainly want to say it in a journal article (as many contributors to this book have already done, or will do shortly). Few with access to this book will ever find time to read it, and when they do they will often find themselves engaged in comparative textual analysis trying to determine how a chapter here differs from one by the same author published elsewhere. The editors and the publisher are to be congratulated for producing a beautiful book, but I feel we as professionals would have been better served if the contributions had been selected more carefully. Many contributions published in books like this would be much more useful to everyone if they were thoroughly reviewed and published in society journals like the *American Journal of Physical Anthropology*. In my opinion, books like this should be carefully written 400-page reviews costing \$40. Eliminating or condensing 500 pages of "alternative viewpoint" would have saved readers \$55 and a lot of unrewarding reading.

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#### SOCIAL BEHAVIOR OF FEMALE VERTEBRATES.

Edited by S.K. Wasser. New York: Academic Press. 1983. xiv + 333 pp., figures, tables, references, index. \$37.50 (cloth).

The early 1970s witnessed a shift in orientation for primate field studies. Rather than viewing primate groups as "male-dominated," primatologists began to document the fact that females, rather than males, are more frequently the stable core of many social systems. The edited volume *Social Behavior of Female Vertebrates* is a reflection of the relatively recent awareness in animal behavior and primatology that females are competitive, aggressive, cooperative when

necessary, and sexually assertive. The traditional female-as-mother role is being dramatically revised. As Wasser and Waterhouse state in an introductory chapter, this change in perspective probably results from both an influx of female researchers into the field and the influence of the women's movement.

The volume is divided into three sections. The first introductory section includes a chapter by Blaffer Hrdy and Williams that describes the social and scientific atmosphere surrounding this new interest in females and presents a cogent discussion of sociobiology's contribution to the study of female behavior. The second introductory chapter by Wasser and Waterhouse outlines