

Faces of hominid evolution

Peter Andrews

The Australopithecine Face.

By Yoel Rak.

Academic: 1983. Pp. 169. \$45, £33.

It is curious how different lines of evidence assume greater or lesser importance at different times in our search for evidence on human ancestry. Teeth used to be considered of the utmost importance, then the postcrania, but most recently it has been the face. In this sense Yoel Rak's book on the australopithecine face is timely. It will set new standards for the comparative description of fossil hominids, both because of the breadth of the study and because of the rigour of the analyses of facial characters.

The face is one of the two main components of the skull (the other being the vault). It is described here for the species of *Australopithecus*, the group of fossil hominids most nearly related to our own genus, *Homo*. The essence of the book is the description, partly comparative, of each species of australopithecine, which is followed by interpretation of the morphology on functional and — to a lesser extent — phylogenetic grounds. It is shown that, contrary to widespread belief, the face of *A. africanus* is extremely specialized and widely divergent from the hominoid ancestral pattern. Far from providing a good model for human ancestry, it is in many respects very different from the common pattern shared by *Homo* and the African apes, the chimpanzees and gorillas. Moreover, many of these characters are shared with the robust australopithecines, especially *A. robustus*, and the third species, *A. boisei* (formerly *Zinjanthropus*), is interpreted by Rak as even more derived.

The similarities in structure between the species of *Australopithecus* are interpreted functionally in a novel but plausible way. What is really striking about this book is the way the functional changes are shown to be the products of the different combinations of characters. For instance, the buttressing of the face, represented by several distinctive characters, is related to facial projection and tooth size. This trend begins in *A. africanus* and is carried to its functional extreme in *A. robustus*, while in *A. boisei* there is another trend leading to advancement of the peripheral parts of the face associated with retractions of the lower face and reduction of central buttressing. Whether these trends are seen as sequential, which is Rak's view, or whether they could occur in parallel, with *boisei* and *robustus* as independent offshoots of an *africanus*-like morphology, is not yet clear.

So far I have only mentioned three species of australopithecine, but Rak also

describes the more fragmentary remains of the fourth species, *A. afarensis*. No complete face or skull of this species is known. A considerable proportion of the face can be reconstructed from several less complete specimens, however, and the interesting thing here is that none of them show any sign of the functional complexities described for the other three species of *Australopithecus*. By comparison with other hominoids, especially the African apes and *Homo*, Rak interprets the *A. afarensis* condition as primitive and the other species of *Australopithecus* as derived. I think he demonstrates this well. What he does not show, or even question, is why he puts *afarensis* into the genus *Australopithecus* at all. If it lacks the derived characters that are present in the other species, why group it with them? Based on the plesiomorphous characters of its face, but with clear adaptations to bipedality, it would seem more likely that *afarensis* is the sister group to both *Australopithecus* and *Homo*, the position accorded to it by its describers, in which case of course it could not be referred to either genus without making that genus paraphyletic.

There is no doubt, however, that this book will be central to discussions on human evolution for many years to come. It contains a wealth of information that is well described, well analysed and well interpreted. It will be an essential acquisition for all libraries and all individuals interested in human evolution. □

Peter Andrews is in the Department of Palaeontology at the British Museum (Natural History), London.

One Piaget

M. Scaife

Piaget: Critique and Reassessment.

By David Cohen.

Croom Helm/St Martin's Press: 1983.

Pp. 163. Hbk £13.95, \$25; pbk £6.95.

A WORK on Piaget which concludes that "this really ought to be the last book to assess him as a contemporary psychologist" is unlikely to be much concerned with the problems of constructing adequate developmental theories. David Cohen's presentation of Piagetian theory supports this surmise. Partly because Piaget invoked work from several disciplines, there is some confusion as to what label he should be given: was he "really" a psychologist for instance? Piaget's own answer was that he was a genetic epistemologist and that this term defined his work. Cohen does not seem to have grasped the significance of this point and thus fails to comprehend the distinction between the "epistemic" and the "psychological" subject as an object of

investigation. This leads to the bizarre criticism that, in contrast to Freud's vivid descriptions of individual patients, Piaget "never leaves one with a feeling that he has given any portrait of [an individual] child" (p.82). This may be bad journalism on Piaget's part but it is scarcely a fault from the viewpoint of genetic epistemology.

Another crucial relationship in Piagetian theory that the author has trouble discussing is that between the biological and the psychological "realm" of explanation, especially between phylogenetic and ontogenetic processes, a link that Piaget captured in the phrase "Intelligence is an adaptation". Here we are told that "one of [Piaget's] key suggestions was that the development of the child's mind recapitulated the development of the species as a whole. Modern four year olds might, therefore, think like adult Neanderthals" (p.78). But this is a misrepresentation of Piaget's view and is exactly the kind of simplistic argument that he specifically cautioned against. What hope, then, is there for understanding Piaget's formulations on the relationship between structure and function or on the concepts of equilibration, homeorhesis, the phenocopy and so on? Cohen solves the problem by not mentioning them, perhaps a blessing since the book is already replete with inexact usages of terms. The needless misuse of "egocentric", for example, in common with so many other authors, makes one see clearly why Piaget eventually felt forced to stop using the word.

As a useful critique, then, this book is of little value and it is unsurprising that the omissions are serious. There is no mention of critics such as Pierre Mounoud or Anthony Wilden. Even Henri Wallon, who spent years in debate with Piaget, gets but a single line.

Instead of serious theoretical argument, Cohen offers a mixture of largely familiar experimental data presented in an astonishingly patronizing manner: Piaget "need not be blamed for not being the perfect experimenter of today" says Cohen (p.97) since his work occurred before we knew that subjects may be confused or act irrationally or to please the experimenter. Nor was there anyone to point out the error of his ways for Piaget, we are told, was "le patron", the undisputed boss, a Freud without the fractious disciples egged on by their egos" (p.81). Cohen's naive and cosy vision of Genevan life is supported by long quotations of honeyed phrases from special Piagetian issues of journals and obituary notices. All of this is intended to lead the reader to conclude that Piaget's genetic epistemology is nothing more than a second-rate developmental psychology. Yet the most dispiriting aspect of this volume is that such superficiality will find favour with so many psychologists. □

M. Scaife is a Lecturer in Psychology in the Cognitive Studies Programme, University of Sussex.