ers laboring for a little over two weeks, the results should be described as monumental. It is more reasonable to conclude, as Soffer ultimately does, that the archeological remains reflect a level of social-political integration somewhere between simple egalitarian bands and ranked societies. In any case Soffer is correct that good ethnographic analogues do not exist for these Russian Plain sites and that fluctuations in social complexity and levels of integration must be expected over the long course of late Pleistocene times. After more than a century of excavation it is clear that many challenges await archeological investigation on the central Russian Plain. Soffer has clearly delineated many of the problems, and her work will surely influence the direction of investigation for years to come.

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Paleoanthropology Today

Hominid Evolution. Past, Present and Future. PHILLIP V. TOBIAS, Ed. Liss, New York, 1985. xx, 499 pp., illus. $38. From a symposium, Johannesburg and Mmabatho, South Africa, 1985.

Ancestors. The Hard Evidence. ERIC DELSON, Ed. Liss, New York, 1985. xii, 366 pp., illus. $49.50. From a symposium, New York, April 1984.

These volumes are composed of papers presented at two major research symposia, the first commemorating the 60th anniversary of the publication of Dart's description of the Taung Child and the other the "Ancestors Exhibit" of original fossil specimens held at the American Museum of Natural History during 1984. They share a concern with the general subject of hominid evolution and a significant proportion of contributors. They differ primarily by constitution: *Hominid Evolution* contains more numerous but far briefer contributions, amounting in a majority of cases to lengthy abstracts: *Ancestors* is composed of more complete papers. The volumes are otherwise similar and provide an opportunity to "feel the pulse" of paleoanthropology in the 1980's.

Paleoanthropology has always been a composite discipline. This has become accentuated by the multidisciplinary nature of fieldwork adopted during the last two decades. A large proportion of the contributions are by scientists in supporting disciplines and concern the taphonomic, geological, archeological, and paleoecological contexts of major sites. In fact, one can easily subdivide contributions to these volumes into two categories, those that improve our understanding of geochronology and site ecology, and those that are *prima facie* studies of the fossils themselves.

Many of the papers in the first of these categories are significant and useful. A number of contributions to *Hominid Evolution* add to our understanding of the contextual evidence from the South African caves. Maguire presents the interesting observation that at least portions of Members 1 through 4 at Magapansgat may have accumulated simultaneously. Though only one taxon is generally recognized at this site, her paper points to the generally complex nature of these caves and to the great difficulty of sorting their contents chronologically. Despite application of a variety of novel methods, it would appear that faunal correlation (see the contribution by Vrba) is still the most reliable. Brain, as usual, presents (in both volumes) intriguing results from his ongoing work at Swartkrans, pointing out that though bone refuse is abundant in Members 1 and 2 (around 100,000 pieces), no cut marks have yet been identified on any of the material, which is associated with *Australopithecus robustus*, *Homo erectus*, stone artifacts, and 25 to 30 bone artifacts that he concludes (on the basis of scanning electron microscopy) were used as digging tools. In the overlying "Early Stone Age member" an Acheulean horizon is accompanied by clear evidence of cut marks. Careful analysis of the contents of these special-nature sites continues to be highly rewarding.

In *Ancestors* Brown *et al.* provide a very useful update of radiometric chronology of the major East African sites, including their work on tuff signatures and correlations to Indian Ocean deep sea cores, and de Vos provides a useful brief review of faunal stratigraphy and correlation of the Indonesian *H. erectus* sites. A number of papers in both volumes deal with specific details concerning middle and upper Pleistocene specimens, usually single finds. We are thus provided updates on work at Heidelberg and Cueva Mayor (*Hominid Evolution*) and at Steinheim (*Ancestors*) and on the middle Pleistocene of Morocco and Algeria, Florisbad, and Zhoukoudian (*Ancestors*), as well as a preliminary report on the first *H. erectus* (Narmada Valley) from the Indian subcontinent (*Ancestors*).

The majority of contributions devoted strictly to the fossils themselves are, as usual, craniodental in subject matter and taxonomic in orientation. The former is not surprising, since the known hominid postcranium exhibits considerably more Plio-Pleistocene stasis, and the latter is not striking because of the preoccupation with "objective" classification that has plagued recent paleoanthropology. As it is reasonable to suppose that virtually no two morphological criteria can either have identical genetic background or be subject to exactly the same selective intensity, all must differ in taxonomic valence. Taxonomic statements will therefore always be subjective and require attendance by logicodeductive, functional arguments. Many of the papers in these volumes continue to reflect a stubborn refusal to face this difficult reality. There are no shortcuts to meaningful taxonomic statements; detailed, analytical study of phenotypic plasticity must always precede classification, but few papers in either volume actually present such an analytical context. Significantly, moreover, there appears to have been an almost wholesale abandonment of one (formally popular) typological method for another; a decade ago, one would open similar volumes to see the specimens in question perning in multivariately dimensioned gyres. Such presentations have been replaced by a plethora of homoplastic autoapomorphemes and phenograms forged from dimensionless traits ("premaxilla less expanded," "radial head rounded," "variable sized second lingual cusp"). This trend was noticed by several participants in the symposia, including Alan Walker, who in response to a cladistic query replied that "he understood this method of analysis" but preferred to "think of things as animals, not as traits" (quoted in *Ancestors*, p. 11).

Phenograms are simplified, linear clusters turned 90 degrees. In attempts to address relational problems of the middle and upper Pleistocene, the matter becomes truly serious, since such methods are a priori inconsistent with multilineal evolution as a hypothesis (one that has substantial support from available data). Fortunately a strong minority of authors in both volumes have allowed biological relevance to supersede classificatory pedantry. A strong sign of maturity in any scientific discipline is ability to replace a preoccupation with jargon and continual redefinition of data by the postulation of novel relational and causal mechanisms, and the latter are what evolutionary theory is all about. Wolpoff and Nkini reach the same conclusion and provide a succinct observation on the effects of typology on paleoanthropology: "Popper wrote, after all, that without theory there are no data. If the superstructure of theory is lifted away, there is no answer to the question of what 'the hard evidence' is evidence for" (*Ancestors*, p. 204).

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