inid taxa, some persistent and some seemingly new appearances, documented in the reaches of the paleo-Turkana basin within this span of some 0.5 million years, has forced workers to reassess previous conceptions both of anagenesis and cladogenesis in respect to the origin (or origins) and phylogeny of genus *Homo*.

H. habilis is here considered one consequence (the other a "robust" *Australopithecus* lineage) of a major cladogenetic event, a moment of "explosive evolution," around 2.5 to 2.3 Ma, broadly coincident with an episode of significant global climatic change inducing cooler, drier conditions and attendant environmental circumstances in equatorial and adjacent lower latitudes; this was an interval, also, when both extinctions and "vigorous autochthonous bio-evolution characterized Africa in the dying eons of the Pliocene." The source (last common ancestor) of the splitting event is surmised to have been a "derived" morphotype of *A. africanus*, that is, a descendant of *A. africanus* and its forerunner, *A. afarensis*. The proleptic progenitor, postulated on the basis of a shared derived complex (synapomorphies) of cranial features found to co-occur in (subsequent) *A. boisei/robustus* and *H. habilis*, constitutes a projected link, although Tobias considers such a link might be represented even by the Taung child or be already in hand but insufficiently recognized among Omo-Shungura (Ethiopia) hominids of the appropriate geological age. *H. habilis* is recognized as "a very early maker of stone tools to a set and consistent pattern," a species whose "cultural achievements ... imply a high degree of intelligent activity" and a "lifestyle of much greater complexity," such that "the transmission of such a culture would seem to have required speech and language," an evolutionary novelty substantiated perhaps "by the appearance on the endocasts of evidence that the cerebral bases for spoken language were already present." In sum, "*Homo habilis* was enabled by its cerebral revolution to attain a new mode of evolution, as an articulate, language-bound, culture-dependent hominid."

The author's perspective on the phylogenetic status of this species derives appropriately from overall morphological–structural–functional analysis, the species' range in geologic time, an appraisal of the fossil record of other ancient Hominidae, and behavioral inferences from archeological and vertebrate residues at some half-dozen Olduvai localities. Different perspectives lead other investigators to dissimilar interpretations. Such dissimilitude is reflected in a substantial and growing literature, a fair amount of which is not considered (cited) by the author (in part, at least, because these volumes were delivered to press almost five years prior to actual publication).

Tobias's monumental effort, essentially directed toward documenting the biological nature of an extinct human species at the unique Olduvai locality, provides as well a perspicacious, sweeping perspective relative to many aspects of hominid evolution. These volumes thus not only are a lastingly invaluable documentary reference but set forth diverse aspects of a research program that will engage students of the evolution of humankind for decades to come.

F. CLARK HOWELL
Laboratory for Human Evolutionary Studies, Department of Anthropology, University of California, Berkeley, CA 94720

Books Received

Brain Size and the Evolution of the Mind. Harry J. Jerison. American Museum of Natural History, New York, 1991. viii, 99 pp., illus. Paper, $10. James Arthur Lectures on the Evolution of the Human Brain, 59. From a lecture, New York, 1989.

Coal Science 2. Harold H. Schobert, Keith D. Bartle, and Leo J. Lynch, Eds. American Chemical Society, Washington, DC, 1991. xiv, 337 pp., illus. $77.95. ACS Symposium Series, 461. From a symposium, Miami Beach, FL, Sept. 1989.

Designing Intelligence. A Framework for Smart Systems. Steven H. Kim. Oxford University Press, New York, 1990. x, 273 pp., illus. $39.95.

The Electrical Resistivity of Metals and Alloys. Paul L. Rossiter. Cambridge University Press, New York, 1991. xvi, 434 pp., illus. $100; paper, $37.50. Cambridge Solid State Science Series. Reprint, 1987 ed.

Flux Coordinates and Magnetic Field Structure. A Guide to a Fundamental Tool of Plasma Theory. Springer-Verlag, New York, 1991. xii, 241 pp., illus. $98. Springer Series in Computational Physics.

Fossil Fuel Combustion. A Source Book. William Bartok and Adel F. Sarofim, Eds. Wiley, New York, 1991. xiv, 866 pp., illus. $99.95. A Wiley-Interscience Publication.

Genital Papillomaviruses and Related Neoplasms. Christopher P. Crum and Gerard J. Nuovo. Raven, New York, 1991. x, 230 pp., illus. $82.

Holographic Interferometry in Experimental Mechanics. Yu. I. Ostrovsky, V. P. Shchepinov, and V. V. Yakovlev. Springer-Verlag, New York, 1991. x, 248 pp., illus. $69.50. Springer Series in Optical Sciences, 60.

Inner Earth. A Search for Anomalies. A Catalog of Geological Anomalies. William R. Corliss. Sourcebook Project, Glen Arm, MD, 1991. vi, 224 pp., illus. $18.95. Catalog of Anomalies, vol. 11. Geology Series, vol. 4.

Long-Range Electron Transfer in Biology. P. Bertrand *et al.* Springer-Verlag, New York, 1991. viii, 233 pp., illus. $98. Structure and Bonding, 75.

Medical Education, Accreditation and the Nation's Health. Reflections of an Atypical Dean. Andrew D. Hunt. Michigan State University Press, East Lansing, MI, 1991. x, 162 pp. $20.

Numerical Modeling in Applied Physics and Astrophysics. Richard L. Bowers and James R. Wilson. Jones and Bartlett, Boston, 1991. xiv, 705 pp., illus. $65.

Paysages Quaternaires de L'Afrique Centrale Atlantique. Raymond Lanfranchi and Dominique Schwartz. ORSTROM, Paris, 1991. 535 pp., illus. Paper, F 200.

Quantum Semiconductor Structures. Fundamentals and Applications. Claude Weisbuch and Borge Vinter. Academic Press, San Diego, CA, 1991. xii, 252 pp., illus. Paper, $34.95.

River Projects and Conservation. A Manual for Holistic Appraisal. John L. Gardiner, Ed. Wiley, New York, 1991. xxxiv, 236 pp., illus. Spiral bound, $125.

Seafood Safety. Committee on Evaluation of the Safety of Fishery Products, Institute of Medicine. Farid E. Ahmed, Ed. National Academy Press, Washington, DC, 1991. xvi, 432 pp., illus. $49.95.