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# Evidence from facial morphology for similarity of Asian and African representatives of *Homo erectus*

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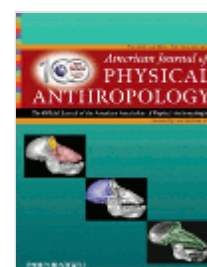
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## Abstract

It has been argued that *Homo erectus* is a species confined to Asia. Specialized characters displayed by the Indonesian and Chinese skulls are said to be absent in material from eastern Africa, and individuals from Koobi Fora and Nariokotome are now referred by some workers to *H. ergaster*. This second species is held to be the ancestor from which later human populations are derived. The claim for two taxa is evaluated here with special reference to the facial skeleton. Asian fossils examined include Sangiran 4 and Sangiran 17, several of the Ngandong crania, Gongwangling, and of course the material from Zhoukoudian described by Weidenreich ([1943] *Palaeontol. Sin.* [New

Ser. D] 10:1–484). African specimens compared are KNM-ER 3733 and KNM-ER 3883 from Koobi Fora and KNM-WT 15000 from Nariokotome. Hominid 9 from Olduvai is useful only insofar as the brows and interorbital pillar are preserved.

Neither detailed anatomical comparisons nor measurements bring to light any consistent patterns in facial morphology which set the African hominids apart from Asian *H. erectus*. Faces of the African individuals do tend to be high and less broad across the orbits. Both of the Koobi Fora crania but not KNM-WT 15000 have nasal bones that are narrow superiorly, while the piriform aperture is relatively wide. In many other characters, including contour of the supraorbital torus, glabellar prominence, nasal bridge dimensions, internasal keeling, anatomy of the nasal sill and floor, development of the canine jugum, orientation of the zygomaticoalveolar pillar, rounding of the anterolateral surface of the cheek, formation of a malar tubercle, and palatal rugosity, there is variation among individuals from localities within the major geographic provinces. Here it is not possible to identify features that are unique to either the Asian or African assemblages. Additional traits such as a forward sloping “crista nasalis,” presence of a “sulcus maxillaris,” a high (and massive) cheek coupled with some flexion of the malar pillar, and a posterior position for the incisive canal are present in all groups. These characters seem to be plesiomorphic, in comparison to the derived states evolved in later humans.

Much or all of the variation in facial form can be attributed to sex dimorphism and/or local differentiation of populations within the Asian and African geographic regions. Metric differences among the fossils are comparable to those documented in a subset of recent *H. sapiens*, and there is no evidence that the Pleistocene specimens show greater dispersion than expected within a single species. This finding is generally in keeping with observations made on other parts of the cranium, lower jaw, and teeth. All of the hominids can be placed in *H. erectus*. Although its phylogenetic origins remain obscure, this lineage must be rooted in Africa. The species flourished for a long time. At several sites in China, *H. erectus* is known from deposits of the later Middle Pleistocene, while at Ngandong in Indonesia, archaic people may have survived even into the Late Pleistocene (Swisher et al. [1996] *Science* 274:1870–1874). The Ngandong fossils may record the last appearance of the lineage. *Am J Phys Anthropol* 106:61–85, 1998. © 1998 Wiley-Liss, Inc.

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