

THE EVOLUTION OF HUMAN INTELLIGENCE: A REPLY

Seymour W. Itzkoff
 Smith College
 Wright Hall 119
 Northampton, MA 01063

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ABSTRACT: A reply to a recent EVOLUTIONARY THEORY review of my four-part series on the evolution of human intelligence. It is presumed that the criticism involved four contemporary controversies: 1) mitochondrial DNA chronologies of human evolution; 2) evolutionary relationship of Homo and Australopithecus; 3) the origin of Homo sapiens; 4) north and south human evolutionary dynamics.

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Reviewer "vcm" of my four-volume series on the evolution of human intelligence (EVOLUTIONARY THEORY, July 1989) apparently concentrated on Volume 2, TRIUMPH OF THE INTELLIGENT (1985), which did attempt to lay out the progression toward sapiency in a more chronological and explanatory manner than in Volume 1. It was based primarily on the more topical and technical analysis presented in Volume 1, THE FORM OF MAN (1983), which utilized the mainline scientific evidence and research available.

The reviewer did present my basic sequence. The errors claimed to be made were never specifically cited by the reviewer. Presumably they arise from this basic sequence, which, as with any evolutionary perspective, involves controversial questions. It is my belief that the most recent research continues to support my general position, and in the particulars of the issues.

For example: (1) I have not been a supporter of the mitochondrial DNA hypothesis. The startlingly recent separation of the proto-hominids and pongids in this scenario has been pushed farther back in time, under continuous critical pressure. It is now at six to eight million years ago. The reader may remember the claims made by Cesare Emiliani back in the 1950s about the foreshortened Pleistocene, 300,000 years (now 1.9 million years). Emiliani's time frame was deduced from the rate of organic sedimentation of the ocean floor. As with mitochondrial DNA, it was a deduction. On mitochondrial DNA, see, for example, the discussion in SCIENCE, Vol. 247, pp. 798-801, 16 February 1990; also Michael Brown, THE SEARCH FOR EVE (New York: Harper & Row, 1989), for the direction of critical commentary.

(2) The relationship of the hominids Australopithecus and Homo is also controversial. I placed my bets with Richard Leakey and against Donald Johanson as to the nature and placement of A. afarensis. My estimate of the time of separation of both lines was thirteen to ten million years ago. Recently A. Hill and S. Ward, in the YEARBOOK OF PHYSICAL ANTHROPOLOGY, 31:49-83 (1988), postulated the origin of the hominids to be sometime between fourteen and four million years ago. However, the actual fossil evidence for the existence of the hominids is placed at six to eight million years ago. Whether or not my estimate of the separation of the proto-hominids from the other anthropoids thirty to twenty-five mya (Bernard Campbell plus others) holds, it certainly places hominid origins further back than either Johanson or the mitochondrial DNA people have postulated. G. C. Conroy, M. C. Vannier, and P. V. Tobias, in a recent analysis of Australopithecus africanus fossils through two-three computed tomography (SCIENCE, Vol. 247: 16 Feb. 1990), pp. 838-841), argue that "gracile and robust australopithecines evolved different cranial venous outflow patterns in response to upright postures." Further, they group Hadar (A. afarensis), A. robustus, and A. boisei together as contrasted with A. africanus and Homo. Such significant morphological differences could not have developed momentarily and probably indicate a distant phylogenetic point of origin, perhaps signifying the fragmentation of the proto-hominids well within my dating parameters.

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Seymour W. Itzkoff

(3) The Neanderthals, Cro-Magnon, and the origin of Homo sapiens: I did not and do not hold to the view still prevalent 1983-1985 that a) Neanderthal and Cro-Magnon were polar exemplifications of a highly variable population gradually shifting toward Cro-Magnon type dominance, or b) the Neanderthals were the linear ancestors of the Cro-Magnons, over a continuous time frame, c. 150,000-30,000 B.P. Trinkaus, in his 1983 study, SHANIDAR NEANDERTHALS (New York: Academic Press, p. 469), had already put aside these views considering the homogeneity of the cro-magnids at the extreme ends of their geographical range. Today the consensus seems to be that these two Caucasoid sapients were distinct subspecies, that there is evidence for their coexistence (Homo sapiens sapiens-Qafzeh at 92,000 B.P.), and as Vandermeersch and Bar-Yosef have argued (see SCIENCE, 16 February 1990), Homo sapiens populations might have wandered widely into and out of Africa, western Asia, and Europe with the glacial rhythms, which could account for the scattering of modern skulls found in Africa along with more regressive forms. Carleton Coon long argued that modern Africans are products of an ancient hybridization between northern wanderers and the indigenous hominid populations. The point is that the proto-civilization of Cro-Magnon in Europe (32,000 B.P.) is a direct product of their modern morphology.

(4) North and South: Unfortunately, this issue is a highly volatile political as well as empirical and scientific question. L. L. Cavalli-Sforza, et al., "Reconstruction of human evolution: Bringing together genetic, archeological and linguistic data," PROC. NATIONAL ACAD. SCIENCE, Vol. 85, August 1988, pp. 6002-6006: "The first split in the phylogenetic tree separates Africans from non-Africans — and the second separates two major clusters, one corresponding to Caucasoids, East Asian, Arctic populations, and American natives, and the other to southeast Asian (mainland and insular), Pacific islanders, New Guineans and Australians." (p. 6002). Another interestingly confirming study is M. Kaiser and V. Shevoroshkin, "Nostratic," in ANN. REV. ANTHROPOLOGY, 1988, 17, 309-329. Kaiser and Shevoroshkin attempt to trace language family relationships. Nostratic has long (since 1903) included six major families (macro-family) including Indo-European and Dravidian. Recent research now places Eskimo-Aleut and Athapascan (Amerind) into this grouping. The conclusions of these two articles completely mesh with my theoretical presentation of ethnic relationships over time. Were space to permit, I would be able to document further the independent research, 1985-1990, that makes my model even more persuasive today.

Correction: Volume 4, THE MAKING OF THE CIVILIZED MIND (1990), along with the first three volumes, is now available from Peter Lang International Publishers, New York.

Reply

The points raised by Itzkoff in his reply merely emphasize the dubious nature of the "facts" on which he builds his theory. Itzkoff consistently fails to address why he chose one view over some plausible alternative, the existence of which is typically ignored as well. Such lack of analysis renders these books merely another point of view on how and why intelligence evolved in the human lineage. Much of his thesis seems to depend on the particular version of uncertain 'facts' he selects. Puncture these and the whole collapses. Yet Itzkoff may not be entirely wrong in his conclusions; he may just have arrived at the right place by the wrong path. But it's the path that interests evolutionary biologists.

-- vcm