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Fuzzy Data, Random Drift, and a Theoretical Model for the Sequential Emergence of Religious Capacity in Genus Homo

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Abstract : The ancient ape ancestral population from which living great ape and human species evolved had demographic features affecting their evolution. The population was large, had great genetic variability, and natural selection was effective at honing adaptations. The emerging populations of chimpanzees and humans were affected more by founder effects and genetic drift because they were smaller. Natural selection did not disappear, but it was not as strong. Consequences of the 'population crash' and the human effective population size are introduced briefly. The history of the ancient apes is written in the genomes of living humans and great apes. The expansion of the brain began before the human line emerged. Coalescence times for some genes are very old – up to several million years, long before Homo sapiens. The mismatch between gene trees and species trees highlights the anthropoid speciation processes, and gives the human genome history a fuzzy, probabilistic quality. However, it suggests traits that might form a foundation for capacities emerging later. A theoretical model is presented in which the genomes of early ape populations provide the substructure for the emergence of religious capacity later on the human line. The model does not search for religion, but its foundations. It suggests a course by which an evolutionary line that began with prosimians eventually produced a human species with biologically based religious capacity. The model of the sequential emergence of religious capacity relies on cognitive science, neuroscience, paleoneurology, primate field studies, cognitive archaeology, genomics, and population genetics. And, it emphasizes five trait types: (1) Documented, positive selection of sensory capabilities on the human line may have favored survival, but also eventually enriched human religious experience. (2) The bonobo model suggests a possible down-regulation of aggression and increase in tolerance while feeding, as well as paedomorphism – but, in a human species that remains cognitively sharp (unlike the bonobo). The two species emerged from the same ancient ape population, so it is logical to search for shared traits. (3) An up-regulation of emotional sensitivity and compassion seems to have occurred on the human line. This finds support in modern genetic studies. (4) The authors' published model of morality's emergence in Homo erectus encompasses a cognitively based, decision-making capacity that was hypothetically overtaken, in part, by religious capacity. Together, they produced a strong, variable, biocultural capability to support human sociability. (5) The full flowering of human religious capacity came with the parietal expansion and smaller face (klinorhynchy) found only in Homo sapiens. Details from paleoneurology suggest the stage was set for human theologies. Larger parietal lobes allowed humans to imagine inner spaces, processes, and beings, and, with the frontal lobe, led to the first theologies composed of structured and integrated theories of the relationships between humans and the supernatural. The model leads to the evolution of a small population of African hominins that was ready to emerge with religious capacity when the species Homo sapiens evolved two hundred thousand years ago. By 50-60,000 years ago, when human ancestors left Africa, they were fully enabled.

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