

Letter From the Desk of David Challinor
December 1998

As a young man, I was challenged by an agnostic colleague who asked, "Surely, Challinor, you can't believe literally in the Adam and Eve myth?" I acknowledged that the biblical account of the origin of humans was indeed a myth¹ within the Judeo-Christian culture. Similar myths about human origins are found in other cultures. Paleontology has recently furnished additional clues on human origins, but primarily on how our physical characteristics might have evolved from our non-human ancestors. The important but still unanswered question is how and when we acquired our "humanness." This letter discusses my approach to this mystery. My conclusion must surely have been reached by others.

About 500,000 years ago in Africa lived a population of group-living bipedal creatures. They successfully collected edible plant parts, scavenged carcasses killed by the big cats, and must have hunted and fished when the opportunity arose. Within these bipedal populations, individuals, I maintain, gradually appeared who showed the first manifestations of what we today consider human behavior, such as rudiments of speech, concept of an afterlife, and elemental recording of events. Clearly, possession of such qualities are not apparent in the fossil record surviving from that distant time in human history. Therefore, we thus must look for clues other than physical appearance, such as tools more sophisticated than those used by other animals, as well as an increase in brain size and the location of the human hyoid bone².

My approach is that within these hominoids, that is the then current members of the super-family Hominoidea (includes apes and humans), were individuals who appeared over millennia with one or more of the qualities considered "human." As these individuals bred, they may have gradually selected "kindred souls" with whom to propagate. Such self-selection, if it existed, could have led to the evolution of our human ancestors, but the concept of choosing a kindred soul is itself controversial as there is considerable evidence that mate choice may be unconsciously determined by such factors as body symmetry. The process must have been slow in terms of human generations and in creating humans, quite at odds with Michaelangelo's rendition of Adam acquiring this quality as seen on the ceiling of the Sistine Chapel in Rome. The quality of humanness, however, is so intangible and its evolution so slow and complicated that its origin cannot be pinpointed.

¹ In Webster's dictionary under "myth": a traditional story that serves to explain a belief.

² A U-shaped bone at the base of the tongue that supports the tongue and its muscles. It is believed to be essential for speech.

To explain and plot how the human mind evolved is immeasurably more difficult than doing so for the evolution of our bodies. The difficulty, as enunciated by Geoffrey Miller³, is that we study evolution in two ways: firstly, by following species through a series of stages—usually from their fossil remains to their appearance today, and secondly, by considering how species adapt through natural selection to meet contingencies affecting their survival.

In the first approach to the evolution of human intelligence primatologists, paleontologists and archeologists consider how great apes now behave, how hominoid fossils illustrate such human qualities as brain size and bipedalism, and finally archeologists study stone tools, cave paintings and other artifacts to help follow the development of mental stages that could connect our hominoid ancestors with us today. This approach emphasizes the search for when, how, and where the mind became human.

The second approach is harder to follow but, I believe, more insightful. Biological adaptations necessary for an organism to survive require complex interactions of matter and energy over millennia for a selected quality to develop. During this period innumerable random mutations can appear within a population of any organism. Most disappear but some are retained that fit the conditions of climate, parasites, food supply, etc. to which the organism is subject. Thus mutations are selected to insure survival and spread through the population by the breeding of successful survivors. Clearly, to incorporate a selected mutation into a population takes a long time. It is not only time-consuming, but also wasteful in the sense that so many mutations are discarded in the selection for survival. There does not seem to be any other way to achieve the unbelievable complexity of an organism's defenses against disease and predation nor its mastery of a reproductive strategy.

The evolutionary history of hominids stretches back more than five million years, thus affecting our behavior with roots from our early development. For example, such current attributes as our social organization and the roles of sexes are much more the result of natural and sexual selection than what we tend to think of today as our culturally imposed moral values and rational, intentional behavior. Whether we accept it or not, much of our social and reproductive behavior is at the mercy of our genes and most of us will do what we are programmed to do.

As we are still not sure what clearly distinguishes us from other hominoids, it is understandable that we cannot determine when we became human; that is, recognized ourselves as different enough from other hominoids that we could no longer select them as mates. Physically some time between 50,000 and 100,000 years ago, the fossil hominids resembled us sufficiently that today we can imagine that they could have been human. What went on in their minds, however, is sheer speculation and it is the evolution of our minds even more than our bodies that I consider the crux of human evolution.

³Times Literary Supplement (16 Oct. 98), pp. 14-15.

There must be a genetic component to our humanness. Recent research indicates that only about 50 genes (out of the 100,000 that we share with chimpanzees) account for our speech, thought processes and other cognitive differences that distinguish us from them. Nonetheless, even the huge human genome mapping project now underway will probably be unable to isolate those 50 special human genes. Should this ever be accomplished, many worry that our technical ability to combine genes might tempt eugenicists to produce humans with an "ideal" combination of these genes. A concomitant concern is whether we have the discipline not to insert human genes into chimpanzees. I believe these fears are unfounded because both humans and chimpanzees are more than just their DNA. Although the genotype for such individuals has developed over millions of years by interacting with the environment, each of us is genetically complete when born. We refine our human character only by living. Despite the genetic bases for our social and reproductive behavior, individuals still develop as they live. Even were I to share one of my special "human genes" (should they ever be isolated) with another person, I would still be me, according to one school of thought expounded by Professor David Barash of the University of Washington. He postulates that our essence is ours to choose and that within the vast range of human possibilities left us by our genes and our evolutionary past, each of us is remarkably free to develop. He considers DNA to be just not that important.

The quest for our transition to humanness is as elusive as that for the Holy Grail. One can never plumb the depths of another person's mind, so that the best way to study how others are using their minds is to observe their behavior. Ethologists have been doing so for years in studying animals. Although there was no one to record the hunting and gathering techniques of our early ancestors, the odds are that they closely resembled those of today's gorillas and chimpanzees. No primate other than humans, however, cultivates plants and builds permanent dwellings. Evidence of plant domestication reaches back about 10,000 years and that of animals somewhat later. Using these two break-through activities as irrefutable evidence of our humanness, people have indeed been here a remarkably short time. Perhaps the very brevity of our existence accounts for the many contradictory behaviors we exhibit, from the triumphs of artistic expression to the numerous contemporary examples of man's inhuman treatment of others. Humans may still be evolving towards a more "human being," whatever that may be. The spark to do so is present in us all, and Michaelangelo's depiction of its acquisition is one graphic way to describe it.

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