THE REAL ORIGIN OF THE SPECIES

By Richard D. Alex and June 28, 1987

THE MOST mysterious and compelling unanswered question about ourselves is how we came to be.

What caused us to evolve our marvelous intellects, our unsurpassedly complex social life? Why are we so different from our closest relatives? What happened to all of our extinct ancestors, so that for five or 10 million years, while other rapidly evolving forms of life were speciating prolifically, no part of the evolving human line has survived as -- or perhaps even became -- a different species?

Why are we all alone at the pinnacle of the particular direction of rapid evolutionary change that led to such traits as a huge brain, complex intelligence, upright posture, concealed ovulation, menopause, virtual hairlessness, physically helpless but mentally precocious babies, and above all our tendency and ability to cooperate and compete in social and political groups of millions?

Biologists take it as given that all forms of life have come about through an organic evolution guided by natural selection, which implies reproductive advantage. But there are whole suites of human activities that seem to have nothing to do with reproduction. How does one explain art, music, opera, literature, humor, politics, or religion, using arguments from biological evolution? Conversely, why should we take evolution seriously, in trying to understand ourselves, if such important activities seem immune to its probings?
The theory I discuss here is a combination of previous ideas and findings from disciplines such as psychology, anthropology, biology and philosophy. Even if not correct in all its particulars, it suggests that a comprehensive evolutionary explanation of humanity may not always be inaccessible. About 10 years ago, a young Cambridge psychologist named Nicholas K. Humphrey argued that the human intellect -- our most distinctive attribute -- evolved as a means of dealing with the uncertainties of social life. Humphrey meant that the real challenge in the human environment throughout history was not climate or weather or food shortages -- not even predators. Rather, it was the necessity of dealing continually with our fellow humans in social circumstances that became ever more complex and unpredictable as the human line evolved.

Humphrey's argument is a very special one because it challenges our familiar notions of intelligence. Consider the reverence we show for great mathematicians, chess players and masters of memory who strut their stuff on TV quiz shows. Where in all of this is even a hint that humans have long been evolving toward greater cleverness in cooperation and in socially manipulating, using or besting their fellows? It seems almost perverse to imagine intelligence tests designed to give high scores explicitly for such social abilities. Yet we would all like our personal lawyers, and the politicians who represent our interests to others, to be ultimately clever in social manipulation. (But who, one may also ask, do we hold in greater suspicion and distrust?)

Humphrey suggested that variations in this ability to predict and manipulate gave advantages to some, and resulted in the step-by-step changes in intellectual complexity that eventually yielded modern humans. Biologists would wish to specify that such advantages were, ultimately, advantages in reproduction success, for that is how evolution proceeds.
Of course, social competition is by no means unique to humans. It occurs more or less throughout the animal world. What might have been different about the human line that could have made social competition paramount? And why should humans have remained social if their interactions were leading to mounting behavioral complexities and a centrality of social competition and manipulation?

Humphrey did not answer these questions. But others unaware of his theory have. Anthropologists have long described humans as the species that, rather than simply living in a certain environment, or choosing one, most explicitly creates its own. As a result, humans have long been able to live almost anywhere they pleased on the face of the earth, and have become so ecologically dominant that they can manipulate or even remove aspects of their environment -- including other living forms -- more or less at will. That is, humans have so reduced the significance of what Charles Darwin saw as the external "hostile forces of nature," or the forces of natural selection, that other humans have assumed that role -- at least most of the time -- insofar as evolution of the intellect is concerned.

Cooperating to Compete

If other humans became potentially the most detrimental force with respect to the lives and success of their fellows, then why didn't humans evolve to live apart from one another? There are thousands of species that do not live socially. With humans, ecological dominance and social
competition seem instead to have become involved in a vicious cycle in which each exaggerates the importance of the other. What could have caused this?

The answer, I think, is that humans began to use social cooperation as their principal means of competition. They began to carry out their social competition not only as individuals within groups, but in coalitions of every imaginable size and variety. Once humans started (or continued) living in groups explicitly because this enhanced their ability to compete with other neighboring groups of humans, then the possibility of living nonsocially virtually disappeared.

We usually think of cooperation as the opposite of competition -- as an alternative to it. But if cooperation works, the evolutionary effect is to cause a kind of indirect competition with everyone else who didn't cooperate quite as well. Regardless of whether one individual ever interacts with another, the two are inevitably competing in regard to which will leave more copies of its genes. And, over the long run, those who are better at it become the ancestors of whoever remains. Cooperation is always competition as well, and competition is not only inevitable but in evolutionary terms has no alternative. Thus Humphrey's scenario becomes a reality. Social cleverness becomes paramount, and the race toward a particular kind of intellectual complexity is on. This process is evidently unique to the human species. It seems to me that it would lead precisely to the kind of organism we are, and I can think of no other process that would.

What kind of intellectual complexity would this type of race yield?

Scenario-Building
Human mentality has several components, but consciousness is probably central. It is related to foresight, planning, awareness, self-awareness, fantasizing and dreaming. Consciousness implies the ability to think about times and places and events separated from our personal circumstances. It implies the ability to build scenarios -- to anticipate different possible outcomes and retain the potential to act in several alternative ways, depending on circumstances that can only be imperfectly represented at the time the plans are being made. Language is tied closely to the process, because it alone -- through the use of symbols and tenses -- enables us to communicate with others about such "displaced" events.

What circumstances should we expect to be most challenging in respect to building scenarios? Surely those involving other organisms doing exactly the same in preparation for their competitive and cooperative interactions with us. In other words, nothing would select more potently for increased social intelligence than a within-species co-evolutionary race in which success depended on effectiveness in social competition.

This view places cognition, as problem-solving ability, in a clearer light. I have argued that other aspects of human mentality -- such as linguistic ability, expression of the emotions, and personality traits -- are also parts of our supply of tools for social cooperation and competition. (Psychologists and anthropologists have suggested that mathematical ability is a special case of linguistic ability, and that linguistic ability is likely explainable only as serving a social function.)

Scenario-building, including dreaming and daydreaming as well as serious or purposeful planning, has seemed to many a kind of social-intellectual play. The most widely accepted theory of play is that it represents practice for the future which occurs under circumstances that make it inexpensive compared to the real thing. Such practice can take many forms. It can merely improve physical, social or intellectual skills. It may involve producing and trying out alternative scenarios. It may involve acquiring status or learning how to deal with dominance rankings that may be difficult to change as the playing individuals develop and begin to compete in earnest for the actual resources of reproductive success, such as mates, jobs, and status.

The theory I am developing implies that there will continually be balance-of-power races between competing groups, and scarcely anything better describes the economic, political and social interactions of internally cohesive human groups. At the same time, partial differences of interest within groups will cause continual efforts at manipulation and deception there, as well as cooperation. Everyone puzzles over the insanity of our current group-against-group competition and the international arms race with its threat of mutual extinction or the loss of civilization. Yet the theory here described seems to predict just such an outcome. It seems simultaneously to explain the rise of nations and the runaway aspects of the international arms race. Perhaps
knowing more about our history will contribute to a solution to this most pressing of all human problems.

So now, perhaps, we know why our closest relatives always became extinct, and failed to live alongside us in the way that many similar species of animals and plants do co-exist. They were extinguished -- or the collections of traits that identified them disappeared -- partly through the group-against-group cooperation to compete that we conduct so frightfully well.

I believe that our closest existing relatives -- chimpanzees, gorillas, and orangutans -- not only have been severely restricted by human predation and competition, but may have had their social structure virtually determined by humans. If they had been more like us, or perhaps less able to diverge from us in the face of evolutionary competition, they too would probably be extinct. On the other hand, if we were to disappear from the planet even now, and leave them to their own devices, I have little doubt that chimpanzees, at least, would evolve many attributes paralleling those of modern humans. Chimpanzees have already evolved specialized group-against-group competition. Their brains are most like ours, and they and orangutans alone share with us the ability to recognize themselves in mirrors, suggesting a kind of conscious self-awareness. At least among males, chimpanzees show signs of the extraordinary and complex within-group cooperativeness that, in a primate, probably represents the adequate initial kick for the runaway social process here envisioned.

Altruists and Deceivers

Philosophers and social scientists have often written as if evolution had caused us to become indiscriminate altruists who continually sacrifice our own life interests for those of others. Similarly, ecologists and animal behaviorists once supposed that the individuals of nonhuman species evolve to do things for the good of their populations or species, even at the expense of their own "genetic survival." Now we know that evolution has not been doing any such things. It only seems that way -- in humans partly because of kin-helping and partly because of the enormous importance of reputation in social success. Self-beneficial reputations can be acquired through beneficence to others, and humans alone have sorted out their common interests within groups and translated them into cultural or moral rules.

Because of our social competition, and because of the importance of reputation in reciprocal interactions, deception has also become a prominent aspect of our social lives. Sometimes it is effected through self-deception that prevents us from knowing our own true motives and allows us what the psychologist Donald T. Campbell calls "sincere hypocrisy." The pervasiveness of deception in our everyday lives can be glimpsed by anyone willing to reflect on how often he or she
bathes, shaves, puts on deodorant, makeup or artificial eyelashes, chooses clothes with concealing and flattering effects such as shoulder pads, dons shoes with elevated heels, pops a mint into the mouth or enters the workplace wearing a polite smile.

My goal is to develop a complete scenario of the human enterprise that cannot easily be discredited, regardless of the skepticism or skill of the other scientists who will inevitably try. In terms of this essay, trying to do a better job than my fellow investigators is my way of competing. Skepticism, the desire to test ideas, and skill in identifying flaws in theories is what causes the competition of science to become, as paleontologist George Gaylord Simpson once termed it, a self-correcting method of finding out about the universe. I am also the sort of optimist who believes that accuracy in such enterprises is likely to change attitudes in ways that people in general -- and I, too -- will regard as beneficial.