



Is Evolutionary Psychology a Pseudoscience?

Evolutionary psychology is the most current incarnation of what started out as sociobiology, a branch of evolutionary theory aimed at explaining the behavior of animals (and in particular, humans) as the result of evolutionary processes, especially natural selection. The turning point for this research program was the publication in 1975 of *Sociobiology: The New Synthesis*, by Edward O. Wilson, a first-rate student of social insects. Wilson's book would have raised little controversy, if it were not for the last chapter, where he extended his approach to human beings, which he did more fully in 1978 with his *On Human Nature*.

The debate that ensued was ideologically and politically biased on both sides, and it included ugly episodes such as Stephen Gould publishing two negative reviews of Wilson's book (a behavior that borders on the unethical), and of course, the famous instance of Wilson being treated to a shower of cold water and ice by an activist student attending a scientific meeting.

On the other side of the divide, sociobiology's cause has not been helped by the publication of borderline intellectually sound works such as Herrnstein and Murray's *The Bell Curve: Intelligence and Class Structure in American Life*, with its largely unsubstantiated claims about genetic determinism of human cognitive traits, and Thornhill and

Palmer's *A Natural History of Rape: Biological Bases of Sexual Coercion*, which fared only slightly better, both in content and critical reception.

From a purely scientific perspective (insofar as is possible with such an emotionally and politically charged issue), the question can be asked: Is evolutionary psychology a legitimate branch of evolutionary biology, or does it approximate more the status of a pseudoscience, as its critics have often contended? To be sure, the overarching idea that behaviors (and therefore cognitive traits) *can* evolve, and sometimes do so as the result of natural selection, is a truism that is hard to challenge. The question, rather, is whether we can have sufficient evidence that natural selection has shaped any *particular* human behavioral pattern. To quote one of the most preeminent critics of evolutionary psychology, geneticist Richard Lewontin, "I must say that the best lesson our readers can learn is to give up the childish notion that everything that is interesting about nature can be understood. . . . It might be interesting to know how cognition (whatever that is) arose and spread and changed, but we cannot know. Tough luck."

Raising the question of whether evolutionary psychology is a pseudoscience in turn naturally leads us to ask what the characteristics of a pseudoscience are, which philosopher Karl Popper famously referred to as the "demarcation problem" between science and nonsense.

Unfortunately, the simple solution proposed by Popper, falsificationism, doesn't work for a variety of reasons (see "Thinking about Science" May/June 2004 and September/October 2004). John Casti, in his marvelous *Paradigms Lost*, tackles the same problem and lists a series of characteristics of pseudoscience that may be used as a reference point. These include anachronistic thinking, the glorification of mysteries, the appeal to myths, a cavalier approach to evidence, an appeal to irrefutable hypotheses, the emphasis on probably spurious similarities, explanation by scenario ("story telling"), "literary" rather than empirically based interpretations of facts, extreme resistance to revising one's positions, a tendency to shift the burden of proof, and sympathy for a theory just because it's new or daring.

Based on these criteria, the verdict for evolutionary psychology is a mixed one. Let us take as a paradigmatic example Thornhill and Palmer's idea that rape may be a selected strategy for lower-ranking males to "sneak in" some reproductive fitness, considering that they

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would otherwise not have access to females. Regardless of how distasteful the idea is from a moral perspective, it is of course perfectly sound from a biological one. After all, there is in fact well-documented evidence that “rape” (defined more neutrally as forced access to females) is present in a variety of animal species. The trouble starts when one looks for corroborating evidence. To begin with, there is actually convincing data out there to show that rape certainly doesn’t pay as a reproductive strategy in today’s society. This is because of abortion and because the risk to the perpetrator is very high. (If caught, he can be locked away for a long time, dramatically reducing his chances of passing genes to the next generation.)

Evolutionary psychologists then resort to a typical strategy to salvage their theory: the modern behavior did not evolve in response to the highly derived current environmental conditions, but rather to the conditions prevalent during the crucial period of human history that occurred in the

Pleistocene. The irony here is that this explanation is both reasonable and essentially untestable. It is certainly reasonable to think that natural selection acted for a long time in premodern populations and affected both their appearance and behavior; on the other hand, unfortunately, behaviors have an annoying tendency not to leave a fossil record, and neither do the details of the (largely social and cultural) environment under which natural selection allegedly operated throughout recent human evolution. This makes resorting to Pleistocene scenarios a “just-so story,” with very little scientific content or relevance.

The other major route available to evolutionary psychologists is the so-called comparative method, i.e., the possibility to study the evolution of a characteristic by comparing a focal species (humans) to their close relatives (the great apes). But once again, we run into the same problem that, while this approach is indeed widely used in evolutionary biology, it simply doesn’t work in the case of our own species. The reason is

another unfortunate accident of history: for the comparative method to work properly, one needs many closely related species to compare (to achieve statistical power). Alas, we have only a handful of living relatives (one or two species of chimps, and one or two of gorillas), and they are actually separated from us by several millions of years of independent evolution. As Lewontin remarked, it would be nice to know, but it looks like we simply don’t have enough historical traces to make much progress.

While all of this doesn’t make evolutionary psychology a typical example of pseudoscience, say like astrology or parapsychology, it certainly moves it away from mainstream evolutionary biology and into a territory uncomfortably close to purely historical research, where reasonable scenarios are the best one can hope for and hard data are difficult to come by or interpret. Did Napoleon lose at Waterloo because he had indigestion and was not feeling too well? It’s a reasonable hypothesis, but we aren’t likely to find out. □

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