

“Just So Stories:” Richardson Against Evolutionary Psychology

Evolutionary psychology as maladapted psychology, by Robert C. Richardson. Cambridge, MA: MIT Press, 2007. Pp. xi + 213. H/b \$30.00

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Why do men find young women more attractive than older women? Why do women find high status men more attractive? The answer from recent evolutionary psychologists is that younger women are more likely to be fertile and healthy, and their progeny are more likely to survive. Thus, natural selection, acting primarily on our Pleistocene hunter-gatherer forebears, has led men's preferences to be driven by genetic makeup to optimize the chances of their genes being preserved. Women's preferences, by contrast, have been selected by the need to insure long-term care for offspring.

The book at hand is a critique of such explanations, written by a philosopher of science, and directed at the weakness of evidence that such arguments display. The arguments, says Richardson, are “just so” stories, perhaps plausible but lacking in the kind of evidence required by biological accounts of evolution by natural selection. Evolutionary psychology is poor science, by the standards of evolutionary biology.

Richardson is not the first philosopher of science to undertake a critique of evolutionary psychology. Starting with Phillip Kitcher's (1985) attack on sociobiology through David Buller's (2005) attack from the standpoint of psychology, philosophers of science have been withering in their criticism of evolutionary psychology. Richardson joins this literature using the standards of *biological* explanation as the ground for his attack. He brings to the task a wide knowledge of biology and a critical eye for the kinds of accounts that can count as explanation supported by empirical evidence.

What's wrong with evolutionary psychology's explanation of men's and women's preferences? The short answer,

according to Richardson, is that the kinds of evidence needed to test the claim are absent and that alternative explanations are not given sufficient weight. Thus, “if men preferred older women, that could be ‘explained’ by pointing out that older women are ‘proven’ as mothers” (p. 143). Further, evolutionary psychology is criticized for being excessively adaptationist, ignoring “spandrels,” developmental alternatives, and other, non-selectionist, mechanisms. Instead, the presence of complexity in human behavior, cognition, and language is assumed to be the result of evolution by natural selection, usually with reference to selection factors that operated in the Pleistocene. Richardson does not deny that natural selection is important (as he makes clear in the Introduction and throughout the book), nor that all human characteristics are ultimately the product of evolution. Still, he claims that an adaptationism results from the exclusive focus on just one mechanism of evolution (see especially pp. 53–59).

Adaptationism is a bias because it rules out explanations based upon, for example, the emergence of complexity from the dynamics of simpler processes played out in developmental time. For example, rules of inference could be based on natural selection of “cheater detection” modules, as Cosmides and Tooby claim, but they could also arise as a byproduct of early learning, which could establish social rules for reasoning about social contracts. Cosmides and Tooby have not ruled out the alternative explanation, according to Richardson.

The adaptationist bias is, in turn, accompanied by characteristically weak evidence provided in support of a natural selection account. For example, differential mate preferences among men and women are assumed to have resulted from selection as the only available explanation. But, says Richardson, there has been a failure to specify what the presumed adaptations are adaptations for, nor are

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they based upon relevant evidence about the historical course of evolution of the to-be-explained preferences.

To illustrate Richardson's approach, consider his account in Chapter 2 of reverse engineering, which uses the design features of an organism to extrapolate backwards to the presumed function of the features and to provide evidence for their origin in some functional achievement. Thus, fossils of *Archaeopteryx*, long thought to be the "first bird," possess feathered wings, but it is now known that the species could not really fly. Feathers certainly aid flight, but they were not originally selected because they were adapted to flight. Rather, the details of the evolution of flight are not simple. Only a detailed reconstruction of the evolutionary history of *Archaeopteryx*, and of its ancestors and successors, allows one to see that it is a transitional species between earlier theropods and later birds. Richardson's point is that simply reasoning backward from the design to the function is insufficient—you must also have the relevant historical data to make the reverse engineering argument work.

Within evolutionary psychology, David Buss's work on the evolution of jealousy is used as one example of the reverse engineering approach (see pp. 59–64). Jealousy in men is primarily triggered by sexual infidelity, whereas emotional infidelity is a more powerful trigger for women. Buss attributes the difference to the natural selection of an adapted response; for men, paternity is unsure, so it makes sense that jealousy would operate to prevent sexual infidelity, whereas for women, there is no doubt about maternity, but there is doubt about long-term commitment. Jealousy is thus a reaction to the differing evolutionary problems of men and women. Richardson describes the evidence offered by Buss as "social psychological" in character: surveys of men's and women's preferences, differing responses to jealousy "scenarios," cross-cultural studies, and the like.

Still, the critique is not centered on the adequacy or inadequacy of the psychological evidence offered by Buss (ground that has been more extensively covered by Buller 2005), but rather on the failure to demonstrate that natural selection is the explanation. Thus, Buss has shown consistency between the evolutionary model and the psychological data, but he has not shown that the data follow from the constraints provided by the environment in ancestral times. According to Richardson, Buss, and other evolutionary psychologists, "Having assumed the 'fact' of design, they 'explain' the complex structures and behaviors we see as the consequence of natural selection, often without independent evidence. They do not argue *for* design but *from* form to function and then again *from* function *to* form" (p. 86, emphasis in original).

Richardson describes in detail two other approaches to the evidence needed for evolutionary psychology's explan-

ations. In addition to arguments from "reverse engineering," in Chapter 3, he considers arguments based on inferences to effects from relevant causes (as is done in population biology) and in Chapter 4, arguments designed to disentangle historical ancestry from existing structure (as is done by cladistics). While all three kinds of analyses are important in biology (and many examples are given), Richardson argues that they are misused or not used at all in evolutionary psychology.

In the end, Richardson does not argue that evolution by natural selection is unimportant for understanding psychological aspects of human functioning. Instead, he argues that the specific cases are under-supported and that the evidence given does not justify them as explanations; they must therefore be regarded as speculations. Speculation is important in science, but it is just as important to know when to confess that something is not tested and hence must be regarded as mere speculation. For Richardson, most of evolutionary psychology falls in that category.

Because of the subtlety of the arguments and the depth of biological argument given, the book is most suitable for those with some prior familiarity with evolutionary biology and evolutionary psychology. The writing style is sometimes dense and the arguments can be hard to follow. Occasional text "boxes" are used to develop some technical points, but these seem hastily constructed and even include some errors. For example, Galton's "regression to the mean" is defined as a decline in variance over generations (p. 102), which is misleading for modern readers. Instead, it is the tendency (for example) for taller than average parents to have shorter children and for shorter than average parents to have taller children. Such "regression" is an inherent statistical property of correlated distributions and occurs whether or not overall variance stays the same.

In spite of such minor flaws, the book is an important addition to the literature on evolutionary psychology. It will not answer the question about sexual preferences posed at the beginning of this review, and it suggests that the question may never be answered. But the book does pose a serious challenge to evolutionary psychologists who must address the shortcomings, real or perceived, in their arguments.

References

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