

# Designing Minds

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*When Nature her great masterpiece designed, And framed her last, best work, the human mind, Her eye intent on all the wondrous plan She formed of various stuff the various Man.* -Robert Burns

Many observers view the debate over intelligent design as a clash between homogeneous and non-overlapping intellectual camps: creationists and evolutionists. That these camps represent two opposing perspectives concerning the nature and value of science seems clear. But are there broader considerations that blur the sharp distinctions usually drawn between these groups? In particular, are we certain that all evolutionists truly appreciate the core insight provided by Darwin's brand of selectionist thinking? In fact, as evolutionists and psychologists, we have been struck by the number of natural scientists who profess allegiance to the precepts of evolutionary thinking when considering animal *body*, only to stumble into the trap of creationist thinking when considering animal *mind*.

Our concern is not new; it was vigorously voiced by the 20th century's most influential psychologist and the boldest selectionist theorist since Darwin: "So far as I'm concerned, cognitive science is the creationism of psychology. It is an effort to reinstate that inner initiating or originating creative self or mind that, in a scientific analysis, simply does not exist." B. F. Skinner made these critical remarks in his last public speech before his death in 1990, building on a theme developed by the 18th century philosopher David Hume. In his *Dialogues Concerning Natural Religion*, Hume dramatically outlined the parallel between divine creation and mental activity: "And if we are not contented with calling the first and supreme cause a GOD or DEITY, but desire to vary the expression, what can we call him but MIND or THOUGHT?"

Skinner's criticism of cognitive science, although perhaps overly general, raises legitimate concerns about explanations of human and nonhuman behavior that invoke inner forces which cannot be substantiated and that downplay the roles of the environment and prior experience in selecting adaptive action. Those who appeal to such inner causes — particularly cognitive ethologists — posit intention, reason, belief, agency, executive function, and conscious awareness as causes of behavior. Adherents to such mentalistic approaches propose that the complexity and adaptability of behavior only can arise from a creative mind crafting its own actions to suit an environment of daunting intricacy and variability. Intelligent design is thus invoked to explain not only the origins of diverse life forms, but also how the behaviors of individual organisms change throughout the lifespan. In the former case, the intelligent designer is an omniscient deity; in the latter case, the intelligent designer is the organism's own rational mind. In neither case, however, can natural science confirm or deny the existence of the hypothesized minds or designers. But it can provide objective evidence of the biological and experiential processes that produce adaptive action.

A century ago, America's first comparative psychologist, Joseph Jastrow, noted that, when you observe only the final behaviors of animals without any knowledge of how the behaviors were acquired, you are likely to marvel at those acts. You may even be tempted to believe that true creative genius is at work, as

with a clever horse appearing to count. But the truth may be far less miraculous; the horse may simply have learned to respond to inadvertent cues afforded by its trainer. Here, science can fill the historical gaps and render natural those very actions that might otherwise seem supernatural.

What about human ingenuity? Do we design our own behavior? At least one celebrated case of human creativity suggests greater humility. Dick Fosbury stunned the sports world in 1968 when he won the Olympic Gold Medal in the high jump by soaring *backward* over the bar. His World Record bound of 7 feet, 4 1/4 inches revolutionized the event thanks to his innovative technique — the *Fosbury Flop*. Intelligent design? Doubtful. Fosbury's now-famous flop gradually unfolded over a decade. Until he reached high school, Fosbury used an antiquated, upright style called the "scissors." His coach suggested that Fosbury could never excel with that style and urged him to learn the more conventional "straddle" or "belly roll." But that technique failed to work for the lanky Fosbury and he reverted to the "scissors." When he began to lift his hips in an effort to attain greater height, his shoulders were forcibly flung back, thereby producing the flop. The flop thus emerged from a decidedly trial-and-error process, one that blended repeated effort with the biomechanics of Fosbury's gangly physique.

What about the more tangible products of human creativity, like the watches and mousetraps that have become the evidential centerpieces for critics of evolution, from William Paley to Michael Behe? The engineer Henry Petroski has studied extensively the origins of both mundane and marvelous human contrivances and his perspective diverges from the romantic portrait of the lonely inventor creating novel contrivances using little more than reason and inspiration. Instead, he argues that invention is more often a trial-and-error process in which each iteration of an artifact is achieved through the addition of effective elements and the removal of ineffective elements. Like evolution, functionality weeds out the unfit, yielding a final artifact that appears to be the product of intelligent design. As Thomas Edison put it, inventors fail their way to success; as Petroski puts it, form follows failure.

Analogously, evolutionists hold that natural selective forces — climate change, predation, mate choice — work over the immensities of time to shape remarkable modifications in the form and behavior of organisms. Seeing such changes unfold in real time is difficult; yet a wealth of paleontological, anatomical, genetic, and observational evidence strongly supports evolution by natural selection. A casual observer, however, sees only the grand final product and glibly infers the handiwork of a designer. For some, that designer is a deity; but, as Evelyn Fox Keller has noted, others thoughtlessly ascribe similar creative powers to DNA. For example, despite their moniker, evolutionary psychologists are among those who appear to be oblivious to the creationist specter looming behind their fantastic theories of human behavior. As well, within the field of developmental psychology, nativists are equally oblivious to the lurking presence of creationism.

Invoking an intelligent designer — whether it is an omniscient creator beyond the organism or a rational mind within the organism — can be said to be the first resort of the intellectually indolent. Rather than do the hard work of discovering the natural causes of adaptive behaviors, some proclaim that such behaviors must be the result of intelligent design and contentedly cease their inquiry. Such complacency was premature when Charles Darwin boarded the *H.M.S. Beagle* in 1831 and it remains premature today as natural science continues its relentless quest to understand behavior in its myriad forms.

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