Review: **JAR1405**

DENNETT'S PROJECT

a book review of

From Bacteria to Bach and Back:

The Evolution of Minds

by Daniel C. Dennett

(New York: W.W. Norton, 2017)

This review first appeared in the CHRISTIAN RESEARCH JOURNAL, volume 40, number 05 (2017). For further information or to subscribe to the CHRISTIAN RESEARCH JOURNAL go to: http://www.equip.org/christian-research-journal/

Daniel Dennett is the most philosophical member of the New Atheists and a prominent defender of Darwinian materialism. In his earlier works (including *The Intentional Stance*, *Consciousness Explained*, *Darwin's Dangerous Idea*, and *Breaking the Spell*), Dennett argued that Darwinism accounts not only for the physical diversity of life but also for the most remarkable features of the human mind: consciousness, intentionality, and belief in God.

In *From Bacteria to Bach and Back*, Dennett considers two main questions. First, how can natural selection, a blind, bottomup process devoid of foresight and comprehension, produce intelligent designers? How do we get from *bacteria to Bach*? Second, how can the intelligent designers produce computer programs like Watson, which lack foresight and comprehension but outperform human experts? How could Watson defeat two champions of *Jeopardy*? How do we go *back* from intelligent designers to systems such as Watson that seem very intelligent but have no comprehension of what they are doing?

Underlying both questions, Dennett has a larger goal. He wishes to heal the "Cartesian wound" (p. 13) that divides the cosmos into two radically different kinds of things — conscious minds and unconscious things. Dennett aims to show that there is a gradual path between blind competence and conscious comprehension (and back again), and argues that consciousness is merely a helpful illusion humans acquired, not a feature of immaterial human souls.

Emerging Reason. Unlike many naturalists who claim there is nothing special about human beings, Dennett insists that "our minds are strikingly different from the minds

of all other species….No animal creates art, writes poetry, devises scientific theories" (11). And he is quite skeptical of recent claims by Ray Kurzweil and Nick Bostrom that we are entering an age of "superintelligence" where AI systems will exceed human intelligence: "Only human beings have the capacity for controlled, systematic, foresighted, hypothesis-testing curiosity" (390). Watson, Dennett thinks, is parasitic on human expertise, and like natural selection, it finds intelligent answers without intelligence.

Dennett's Darwinism commits him to proposing a gradual path to human intelligence. First, he defends a kind of natural teleology. While natural selection has no goals or reasons, it is an algorithmic process that discovers adaptations that serve an organism's goals, and those do have reasons: "Natural selection is…an automatic reason-finder" (49). Thus we can say that birds make nests in order to protect their young. That is the reason why they do it, even though neither natural selection nor the bird *represent* these reasons. On Dennett's view, "There were reasons long before there were reason-representers — us" (50).

Second, Dennett challenges the common-sense view that competence requires comprehension. He argues that Charles Darwin and Alan Turing showed how one can have "*competence without comprehension*" (56): an organism can solve environmental problems without knowing how it does it, and a Turing machine can do arithmetic without understanding arithmetic. But there is, Dennett argues, a natural ladder to comprehension. "Darwinian creatures" such as bacteria solve problems with no comprehension. Then "Skinnerian creatures" develop that can be conditioned by experience, but still without understanding. However, learning from experience is costly (one may die from making the wrong move), so natural selection favors creatures that can simulate their environment and test moves before making them ("Popperian creatures." But even this, Dennett thinks, does not capture human understanding. For this, we need "Gregorian creatures," named for the psychologist Richard Gregory, who argued that the versatility of human intelligence is achieved through a wide range of "mind tools," including language, maps, arithmetic, experiments, and technology: "Only we human beings are Gregorian creatures, apparently" (99).

Dennett does not think that genes alone explain this kind of intelligence. The mind-tools that make us so smart are not made of DNA. They are made of something more abstract: *information*. Dennett's focus is not quantitative information (Shannon) but semantic information, which he defines as "*design worth getting*" (115). Organisms can acquire such information without comprehension by *biological* evolution, when they adjust their structure to solve an environmental problem. Information thus *in-forms* (determines the form of) an organism in a way that makes a difference (117–19). But, Dennett argues, information can also be acquired through cultural evolution: humans have developed language (and other practices) that transmit information independently of genes.

But how did this transition from biological to cultural evolution happen? First, Dennett thinks, brains developed from the bottom-up as collections of neurons, each of which "is always hungry for work…seeking to network with its neighbors in ways that

will be beneficial to *it*" (163). Physically, our brains are like "*termite colonies*" (165), yet, unlike them, we comprehend our actions and act for reasons. This is because our brains have been invaded by "*memes*, culturally transmitted items that evolve by differential replication" (176).

The term *meme* was coined by Richard Dawkins to mean a discrete, memorable unit — such as an idea, catch phrase, aphorism, marketing slogan or jingle — that propagates by imitation, and may be more or less successful in colonizing minds and other storage media. Many have criticized the scientific value of memes, arguing that they cannot be observed and add nothing new to such ordinary concepts as "idea." Dennett devotes a whole chapter to defending memes and argues that the most obvious example of memes is words: "Words are the *lifeblood* of cultural evolution" (179). The idea is that infants first imitate words without comprehension and then come to learn their meaning from a context that provides semantic information.

But words are part of language, so how did *that* arise? Dennett admits that scientists do not really know (248, 252), but speculates that language may have developed from unconscious cries and gestures, from words not recognized *as* words. He concludes that humans later became aware of words and developed language as a useful means to communicate. Somehow, Dennett thinks, "the meme invasion" of words generated conscious, rational beings, turning "our brains into minds…capable of accepting and rejecting the ideas we encounter" (315).

Dennett is committed to denying that consciousness and rationality are fundamentally different than other aspects of nature. He suggests that what we call the self is analogous to a user-interface. Just as one can manage files using the illusion that they are stored in visible folders on a desktop, so our minds are designed to "make our competences (somewhat) accessible to users…who can't know, and don't need to know, the intricate details" (341) of how those competences work. On this view, the self is not a real entity in its own right — a distinct mind or soul — but a "user-illusion" that has developed so that humans can monitor their own states and communicate without giving too much information away to competitors. It is "explaining ourselves to others" that "generates…human consciousness" (344).

But does that mean that consciousness and its contents — words, reasons, and free will — do not really exist? Dennett believes he can have it both ways. Adopting a distinction due to Wilfrid Sellars, he sees all of these items as parts of "the manifest image" — they are "real" according to our pre-scientific perspective — even if they are not recognized by our scientific theories (the "scientific image").

Fault-lines in Materialism. Dennett's clever explanation of human intelligence faces a number of serious objections. His account helps itself to items that are not a good fit for materialism, such as information and words. Dennett agrees with Norbert Wiener that "information is…not matter or energy" (136), but he does not explain how a nonphysical entity can be part of the material world. Organisms cannot derive information from their environment if it is not there.

Likewise, Dennett's theory of cultural evolution appeals to words, and he says that "words are…made of information…and are individuated by types, not tokens" (187). The problem is that a word, say *dog*, is an abstract object: as a type, it can be inscribed in a potentially infinite number of tokens, but it is not reducible to them. The tokens are clearly physical (they are located in space and time), but the type is not. And to understand a word is to know what the word means as a type; we know what dog *in general* stands for.

Dennett is right that information *in-forms*: it gives reality a coherent form. But if it is part of reality that we can extract, there is an underlying, intelligible order to the world. This is credible if our world is a *cosmos*, a coherent whole governed by rational laws, which science must assume. But this points to an intelligent creator.

Further, if we can know the world, our words must be able to capture reality. If words are merely part of our manifest image, we should only expect them to describe the world as it seems to us, like the prisoners of Plato's cave describing the shadows on the cave wall. How, on Dennett's view, is the scientific image even possible? How can scientists hope to describe the world as it really is if words are merely mind-tools, useful for getting around in the manifest image (Plato's cave), but not oriented to objective truth? Dennett does not consider the competing theistic view on which language as *logos* transcends particular human languages, and is reflected in the mathematical structure of the universe.

Dennett is also right that there can be reasons without humans representing them. But this surely points to an inherent, rational structure of the world. Dennett tells us that "the space of reasons is bound by *norms*" that tell us how things ought to go (41; emphasis in original). But, before humans, how can there be norms in Dennett's materialistic universe? Absent God, there is no reason for anything to happen, no way that the world *ought* to unfold.

Finally, the idea that the conscious self is a "user-illusion" is simply incoherent. Only conscious selves can *have* illusions. An illusion requires a subject: a point of view according to which the world seems a certain way although it is not. It makes no sense at all to say that the subject of the illusion is part *of* the illusion.

Angus Menuge, PhD, is professor of philosophy at Concordia University, Wisconsin.