



A (eu)social conquest of the psychological and cognitive sciences?

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A book review on The social conquest of earth

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Human nature derives from the conflict between our better and poorer “angels.” This much one can glean from the pages of literature, history, philosophy, and (when read from a non-theistic perspective) theology. In *The Social Conquest of Earth* (SCE), biologist Edward O. Wilson goes on to attribute this conflict to *multilevel* natural selection, “in which individual selection and group selection act [...] in opposition to each other” (Wilson, 2012, p. 241). “[G]roups compete with groups, favoring cooperative social traits among members of the same group[;...] members of the same group compete with one another in a manner that leads to self-serving behavior” (p. 289).

According to Wilson, multilevel selection comes into play once species cross the eusociality threshold. Across the small number of eusocial species, multiple generations live together and (more or less) altruistically divide the work of survival and reproduction. For most eusocial species – such as ants, bees, termites, etc. – multilevel selection has pushed this division of labor toward large numbers of sterile workers supporting one reproductive queen. Among *Homo sapiens*, eusociality remains a mixed-motives game.

Appreciation of human eusociality could provoke new approaches to the psychological and cognitive sciences ... But, I am getting ahead of myself.

The Social Conquest of Earth is Wilson’s latest attempt to convince a popular audience of the biological basis for much of human behavior. Specifically, he elaborates on his recent theorizing (a controversial paper published in *Nature*; Nowak et al., 2010) on the evolution of eusociality through multilevel natural selection. In line with his previous pleas for consilience (a synthesis) between the natural sciences and humanities

(Wilson, 1998), Wilson “riffs off” French painter Paul Gauguin, structuring the book around the three questions – “Where Do We Come From? What Are We? Where Are We Going?” – that Gauguin asks in his culminating masterpiece. He fleshes out that structure with bluff prose that might remind the reader of Gauguin’s blunt but warm renderings of pastoral life.

As a naturalist, Wilson cannot avoid a hint of the pastoral genre as he recounts the evolutionary history (*where do we come from*) of eusocial creatures, great, and (mostly) small. Running the risk of spinning a “just so” story (Wilson avoids this), evolution toward eusociality starts when a solitary animal species builds a defensible nest, where females can “progressively provision” their young from nearby food sources. While the young usually disperse to build their own nests, occasionally some stay behind and divide the labor of reproducing and provisioning subsequent young. Group selection now kicks in, silencing the dispersal gene and hardening the epigenetic rules that govern the division of labor.

Human eusociality likely started with the control of fire, which made possible a defensible nest or campsite. Wilson lingers around the campfires of the savanna forest to witness the evolution of *what we are*, including the emergence of language, morality and honor, religion, and the creative arts. Countering accusations of innatism, Wilson disavows his previous support for Universal Grammar, in favor of Michael Tomasello’s (among others’) hypothesis that language derives from the cognitive and social skills required for “intense social interaction.” He goes so far as to say that (in the first skirmish of the cognitive revolution) “both [B.F.] Skinner and [Noam] Chomsky appear to have been right, but Skinner more so”

(p. 235). Countering accusations of biological determinism, Wilson explains cultural variation in terms of the plastic expression of genes. Genes “prescribe” a frequency distribution of traits, and society “choose[s] one or more traits from among a multiplicity of choices.” Wilson’s good-natured certitude glides over many controversies.

Some controversies he doesn’t mention at all; his disavowal of kin selection (the prevailing theory for why altruism evolved) in favor of multilevel selection has roiled the biology community. Over 150 evolutionary biologists signed onto five letters criticizing the aforementioned theoretical paper and *Nature*, itself, for publishing it. Wilson mentions none of this either in the text or in the references. In fact, he references very little work, critical or otherwise. However, in answering “where are we going,” Wilson wades carelessly into the science versus religion mud-wrestling match.

I too advocate for a naturalistic worldview, but people rarely change their minds because they were told to change. The job of a scientist is to measure the *what* (including *who*, *where*, *when*, and *how* (WWWH) of nature. Scientific answers to *why* refer only to WWWW. The religious often want the *ultimate* answer to *why*; creation aside, “ultimate” refers to *meaning* beyond simply WWWW. It seems equally foolish for one side to insist that WWWW will yield meaning as it does for the other side to insist that meaning will yield WWWW. Wilson would be well advised to look to fellow biologist Kauffman (2008) for how to repackage scientific, non-mythological wonder into a meaningful “creation myth” for post-religious tribes.

Until then, *SCE* might find a receptive audience among psychological and cognitive scientists. Wilson (1975/2000, 1979/2004)

has previously called for consilience between the biological and psychological sciences toward a joint effort for understanding the evolutionary origins of *individual* cognition and behavior. Evolutionary psychology is variously the product of that consilience. Human eusociality, as presented in *SCE*, should now provoke new approaches to psychological and cognitive research that simultaneously consider individuals and their groups (and groups among groups): a multi-scale unit of analysis.

At the very least, an appreciation of human eusociality should encourage researchers to increase social interaction in laboratory paradigms. Psycholinguistic research on dialog (e.g., Gambi and Pickering, 2011), behavioral game theory (e.g., Camerer, 2003), and the sort of cognitive sociology of Goldstone et al. (2008) all provide current examples for how to study the psychology of eusocial interactions. Interactive approaches can lead to entirely new insights or new perspectives on older

but still vexing questions such as the influence of language (or, more accurately, communication) on cognition (Voiklis and Corter, 2012) or the causal role of consciousness (Baumeister and Masicampo, 2010).

Altogether, Wilson gently introduces the concept of eusociality; psychological, and cognitive scientists can now devise uses for that concept.

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