

Comments

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This essay brings into sharp relief a ubiquitous confusion that has dogged discussions of cultural evolution, one deriving, I suspect, from a subtle misreading of Darwin's original use of artificial selection (deliberate animal breeding) and "unconscious" selection (the unwitting promotion of favored offspring of domesticated animals) as bridges to his concept of natural selection. While it is true that Darwin wished to contrast the utter lack of foresight or intention in natural selection with the deliberate goal seeking of the artificial selectors in order to show how the natural process could in principle proceed without any mentality at all, he did not thereby establish (as many seem to have supposed) that deliberate, goal-directed, intentional selection is not a subvariety of natural selection. The short legs of dachshunds and the huge udders of Holsteins are just as much products of natural selection as the wings of the eagle; they simply evolved in an environment that included a particularly well-focused selective pressure consisting of human agents. These phenotypes fall under the same laws of transmission genetics, the same replicator dynamics, as any others—as special and extreme cases in which the default "randomness" or noisiness of selective pressure has been greatly reduced.

Applied to cultural evolution, the implication is this: here is no conflict between the claim that artifacts (including abstract artifacts—memes) are the products of natural selection and the claim that they are (often) the (foreseen) products of intentional human activity. I

have no direct acquaintance with the works of evolutionary archaeology discussed by the authors, but assuming that their account is fair it seems that the evolutionary archaeological theorists think that the only way to be hardheaded and scientific about the Darwinian evolution of culture is to deny all intention, all rationality, on the part of human culture makers. They opt for "selection rather than decision making." That is simply a mistake, for the same reason it would be a mistake to say that the fancy plumage of prize pigeons is the result of decision making rather than selection. But Boone and Smith seem to fall into the same trap. For instance, they are surely right that the adoption of snowmobiles by the Cree cannot be accounted for in terms of the differential biological replication of the snowmobile users, but they misread the more interesting meme's-eye view (Dawkins, 1976, Dennett 1995). They say: "The alternative that 'snowmobile memes' were transmitted more effectively than 'snowshoe memes' to nondescendant Cree (as well as offspring), while plausible, *is not natural selection* [emphasis added]; more significant, it requires precisely the kind of adaptive decision making that evolutionary archaeology is dedicated to eliminating from archaeological explanation." On the contrary, from a meme's-eye perspective in which the snowmobile meme is seen as the replicator with *its own* fitness, just like the fitness of the domesticated horses that spread so quickly among the Native Americans after their introduction, then cultural evolution can be seen to be due to "adaptive decision making" while also being a variety of natural selection.

Some memes are like domesticated animals; they are prized for their benefits, and their replication is closely fostered and relatively well understood by their human owners. Some memes are more like rats; they thrive in the human environment in spite of being positively selected against—ineffectually—by their unwilling hosts. And some are more like bacteria or viruses, commanding aspects of human behavior (provoking sneezing, for instance) in their "efforts" to propagate from host to host. There is artificial selection of "good" memes—such as the memes of arithmetic and writing, which are carefully taught to each new generation. And there is unconscious selection of memes of all sorts—such as the subtle mutations in pronunciation that spread through linguistic groups, presumably with some efficiency advantage but perhaps just hitchhiking on some quirk of human preference. And there is unconscious selection of memes that are positively a menace but prey on flaws in the human decision-making apparatus, as provided for in the genome and enhanced and adjusted by other cultural innovations—such as the abducted-by-aliens meme, which makes perfect sense when its own fitness as a cultural replicator is considered.

The antagonism between the evolutionary archaeological and evolutionary ecological camps is perhaps then due to an overshooting by both sides: the former sees the prospect of an evolutionary account of artifacts and ideas that treats human beings as "mere" vectors,

and the latter sees the prospect of providing evolutionary accounts of the adaptive strategies made possible by the plasticity of the human phenotypes, and neither side sees how the two perspectives can be put together—but they can be. The genetic evolution of basic behavioral capacities and dispositions and preferences creates highly versatile human phenotypes whose norms of reaction are immense and *largely* fitness-enhancing. But these developments bring into existence a medium of cultural transmission that engenders a new genre of replicators, and while some of these are favored by and in turn enhance the adaptive strategies already laid down, others exploit them “for their own benefit.” Evolutionary archaeology should pursue all these phenomena together. Both sides win; both sides have a contribution to make.