# Cultural evolution and biological evolution

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The roots of cultural evolutionism are intertwined with the biological theory of natural selection−−a theory arrived at independently by A. R. Wallace and Charles Darwin, and made famous by Darwin's book of 1859, The Origin of Species. Yet biological and cultural evolution each have "rules of their own"; confusing the two is a grave error−−one that marred the work of thinkers such as Herbert Spencer, and that has reappeared recently among the sociobiologists (see Harris 1979).

A key difference is that once a species is intelligent enough for its ways of life to depend greatly on learning, those ways of life can change far faster than can the species' biological makeup. The steam engine, the automobile, and the computer scarcely needed to wait on biological evolution in order to transform how we live! Artifacts, customs, and ideas can spread rapidly within a generation; biological evolution happens only over generations. Biological evolution can occur rapidly, but only in simple life forms, such as microorganisms, that have very short generation times. Indeed, the rapid evolution of microbes is what causes our antibiotics to "wear out" so quickly. By filling certain microbes' environment (our own bodies) with drugs, we wipe out all those that have no resistance to that drug; but if even a single "bug" contains a gene making it resistant to the drug, that is precisely the one that will survive and reproduce, giving rise to a new strain−−a resistant strain for which a new antibiotic will have to be sought. No end is in sight to this war between bugs and drugs, in which they fight with the weaponry of biological evolution, we, of cultural evolution!

Yet biological evolution is a continuing process even within large, slowly−reproducing species like our own. No generation has exactly the same genetic makeup as did the previous generation; chance alone is sufficient to guarantee this. Life, Darwin wrote, is somewhat like a great, ancient tree in which existing species are the green buds. Wherever the tree is growing, evolution is occurring.

But are biological changes taking human evolution in any particular direction? This is a tricky question indeed. Some biological anthropologists have speculated about humans of the distant future, and the picture is not one we would consider attractive: wimpy−bodied, swollen−headed, toothless and hairless creatures with senses so weak that everyone requires extensive artificial assistance of the kind pioneered by eyeglasses and hearing aids. But how realistic is this prediction? Already we can see a new way in which cultural evolution is overwhelming biological evolution: genetic engineering is beginning to bring our genetic makeup, as a species, under the direct influence of science and technology−−a "sobering and disquieting prospect," in the words of astronomer Carl Sagan (1985:26).

It is tempting to believe that history could have developed in a way quite different from what it has−−that if things had been just a bit different in the past, we would not confront the problems facing us in the present. According to this view, we would not now face the "sobering and disquieting prospect" of engineering human genes, for example, if Darwin had died−−as so many in his time did−−of some childhood disease. Cultural evolutionism, however, offers a different perspective. It is well to remember, after all, that another biologist of the time, working quite independently of Darwin, hit on basically the same theory. And in fact history presents many examples of similar occurrences. Indeed, cultural evolutionists have the impression that cultural conditions "make use" of individuals. We find this is a more illuminating perspective than the usual one−−conveyed explicitly and implicitly to schoolchildren−−according to which great individuals mysteriously "produce" history and culture as if by magic. In a related vein, we regard cultural evolution as a process that defies conscious control by individuals or groups (White 1949). This insight was well expressed as early as 1767 by the Scottish writer Adam Ferguson:

Every step and every movement of the multitude, even in what are termed enlightened ages, are made with equal blindness to the future; and nations stumble on establishments, which are indeed the result of human action, but not the execution of any human design. [Ferguson 1980:122]

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