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Michigan Discussions in Anthropology

COMMENT:

On Boucher, *et al.*

by Richard D. Alexander

Boucher, *et al.* (*Michigan Discussions in Anthropology* 3:169-183) refer to my arguments about human behavior and evolution (*Michigan Discussions in Anthropology* 3:154-166) under the heading "A New Determinism?" Since I suggest that most cultural variations are likely determined by environmental variations, they cannot give to my arguments the usual Science-for-the-People pejorative label "genetic determinism." So they conclude that my arguments are "in fact non-Darwinian."

Their conclusion is nonsensical. To achieve it involves a sleight-of-hand which may not be apparent to nonbiologists. Two sentences show the hoax: "...Emlen's and Alexander's....assume that fitness will be maximized, as in the Darwinian theory of evolution by natural selection. But fitness is, by definition, measured by gene frequencies in future generations; if the behavior *arises and is transmitted nongenetically*, there is no theoretical link between behavior and fitness" (emphasis added).

No behavior of any living organism can both "arise and be transmitted nongenetically," and that phrase is not equivalent to saying that *variations* in behavior may be owing to *environmental variations*. Boucher, *et al.*'s argument is parallel to saying that if differences in the forms of trees are owing to differences in patterns of light, then such growth differences have nothing to do with a history of organic evolution.

Genes and environment both always contribute to all behavior. Even if behavioral variations are learned, and transmitted by learning, the involved ability and pattern of learning, as with all aspects of all phenotypes, are necessarily products of both genes and environment. If learning cannot evolve, then what theoretical alternative for its appearance and nature would Boucher, *et al.* offer? If learning can evolve, then a knowledge of evolution may feasibly predict certain things about patterns

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of learning and culture, and about human tendencies and motivations. (The point should not be missed that any such predictions themselves, and the results of testing them, then become parts of the environment in which every human subsequently aware of such ideas and information develops and expresses its behavior.) Boucher, *et al.* suggest that the current investigations of biologists provide neither hypotheses nor tests in these regards, but my cited references show that they are wrong.