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EVOLUTIONARY THEORY IN ANTHROPOLOGY: PROVIDING ULTIMATE EXPLANATIONS FOR HUMAN BEHAVIOR

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This short essay will elucidate one of the main benefits of using an evolutionary approach when studying human behavior; the ability to answer questions ultimately.

While conventional methods in cultural anthropology undoubtedly produce useful findings, they are often proximate and difficult to apply in general, pan-specific, ways. Over the last few decades, the incorporation of evolutionary approaches in anthropology has begun to help the field over this hurdle. In the (1992) paper Archaeology and Evolutionary Science, R.C. Dunnell explores the nature of archaeological method and theory using a bottom-up reevaluation of the ways archaeologists collect and analyze data. Although his paper is directed towards archaeologists, many of his ideas are equally applicable to all anthropological sub-disciplines.

Dunnell describes a quandary familiar to all anthropologists when he points out that archaeology has failed to gain "scientific" (i.e. "hard science") status over the last one hundred years. In reality, this lack of acceptance has had less to do with the scientific community as a whole failing to "accept" archaeology, and anthropology as a whole, than it has with our own confusion regarding what type of science anthropology really is (Dunnell 1992). This epistemological misstep has led to the under-use of certain methods and models in cultural anthropology, most notably, evolutionary theory.

To clarify what anthropology is, Dunnell provides an outstanding overview of the nature of science. First and foremost, he explains that science uses theory to explain phenomena. Second, he notes that science "employs a uniform epistemological standard, an empirical or a performance standard" (ibid). In other words, scientists develop and test hypotheses via a universally accepted set of procedures e.g. the scientific method. Furthermore, he reports that there are two distinct types of science; essential and materialistic. Examples of essential sciences are physics and astronomy. Examples of materialistic sciences are anthropology and psychiatry. The key difference between the two is that essential sciences attempt to ascertain "how" things behave while materialistic ones try to discover "why" things are (ibid). For example, physicists can tell us, with great precision, how nuclear fission functions, but not necessarily why it exists. There are even physicists who propose that certain quantum events actually do not have causes (Ebert 2003). Of course, it is impossible to ascertain why something happens if it does not have a cause.

Essential sciences like physics fundamentally possess the ability to predict the behavior of their "subjects" (i.e. subatomic particles, planets, et cetera) with a high degree of certainty because the circumstances under which these behaviors can occur are finite and

(usually) directly observable. Materialistic sciences deal with subjects that are more diverse in their behavior than those studied in the essential sciences -- biological entities. Humans demonstrate an infinite array of behaviors. Because of this, the materialistic scientist's ability to predict human behavior pales in comparison to the essential scientist's ability to predict a planet's. For this reason, there are no laws in the materialistic sciences as there are in the essential sciences (Dunnell 1992).

Because anthropology is a materialistic science, it has always been theoretically possible for researchers to explain behavior ultimately. However, with the exception of large-scale cross-cultural surveys, conventional methods of data collection and analysis in cultural anthropology have been relatively unsuccessful doing so. One of the great benefits of evolutionary approaches such as human behavioral ecology (HBE) is that they have wholeheartedly embraced this previously untapped ability. There are three central tenants of HBE are:

1. Behavioral diversity is largely a result of diversity in the contemporary socioecological environment (rather than in contemporary variation in genes or cultural inheritance, or in past environments).
2. Adaptive relationships between behavior and environment may arise from many different mechanisms; hence HBE is generally agnostic about mechanisms (including the question of cognitive modularity).
3. Since humans are capable of rapid adaptive shifts in phenotype, they are likely to be well-adapted to most features of contemporary environments, and exhibit relatively little adaptive lag (Smith 2000).

To summarize, HBE posits that; 1) people act differently largely because they live in different types of social and physical environments, 2) the cognitive, proximate, framework that affects behavior is already in place (this assumption is known as the "phenotypic gambit") and, 3) humans are relatively well-adapted to their current environments, whatever they may be.

The first point is the most crucial to this essay. It concerns the way environment affects behavior. Behaviors are often measured in terms of "effort". These efforts are weighed against one another in terms of costs versus benefits in a zero-sum game. That is to say, the effort that one provides him or herself cannot, at the same time, be given to others (Cronk 1991). The individual must weigh the costs and benefits associated with the allocation of their effort because it will ultimately affect their genetic fitness. This is where the real power of HBE becomes evident. HBE views environmental stimuli, both physical and social, as precursors to behavior. The "success" of a behavior is ascertained by measuring its effect on the actor's genetic fitness. In both HBE and evolution generally, fitness is the dependent variable. This confluence is the reason HBE can provide ultimate explanations for human behavior and why so many useful models, methods, and hypotheses have stemmed from it (for a detailed listing see Cronk 1991). HBE is just one of several approaches that embrace evolutionary mechanisms as explanations for human behavior.

Others include evolutionary psychology, dual-inheritance theory, and cognitive ethology. The combined understanding these approaches provide us may soon revolutionize the way we view culture.

This essay details where evolutionary approaches in anthropology can be classified in the scientific world writ large. Using human behavioral ecology as one example, it illuminates one of the major benefits of incorporating such approaches in cultural anthropology; the ability to resolve questions ultimately.

References Cited

Cronk, Lee
1991. Human Behavioral Ecology. *Annual Review of Anthropology* 20:25-53. Annual Reviews Inc.

Dunnell, Robert C.
1992. Archaeology and Evolutionary Science. In Quandaries and Quests: Visions of Archaeology's Future, edited by LuAnn Wandsnider. Center for Archaeological Investigations, Occasional Paper No. 20.

Ebert, Ron
2003. The Ghost in the Universe. Skeptic 10(2): 23. Skeptics Society; Millennium Press, Inc.

Smith, Eric A.
2000. Three Styles in the Evolutionary Analysis of Human Behavior. *In Adaptation and Human Behavior: an Anthropological Perspective*, edited by Lee Cronk, Napoleon Chagnon, and William Irons. Aldine De Gruyther, New York.