

Further Readings

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SOCIOBIOLOGICAL THEORY

In 1975, Harvard biologist Edward O. Wilson published *Sociobiology: The New Synthesis*, wherein he outlined a framework for investigating the biological basis of social behavior. As a branch of evolutionary biology, sociobiology aims to use demographic parameters (e.g., growth and mortality rates, gender and age distributions) and the genetic structure of populations to predict patterns of social organization across species. One of the conceptual tools sociobiology contributes to investigations of social behavior is an analysis of ultimate causation. Whereas proximate causal analyses focus on, for example, the behavioral, developmental, physiological, or neural mechanisms operating within an individual's lifetime to produce a particular phenotype, an ultimate causal analysis focuses on the selective forces that operated over generations and led to the evolution of the specific phenotype manifest in the individual. In this way, proximate explanations answer the question of how mechanisms operate (e.g., the catalog of hormones, neurotransmitters, and brain regions governing behavior); ultimate explanations answer the question of why they were

selected for (i.e., how a particular trait affected the probability of survival and reproduction).

Sociobiologists have made progress in understanding a wide range of behaviors, both their proximate mechanisms and ultimate functions, including altruism, patterns of communication, aggression, mating systems, and parental care of offspring. Such behaviors have been investigated in a wide range of species including ants, birds, frogs, and chimps. Wilson's volume sparked heated controversy regarding his last chapter, which extended the principles of evolutionary ultimate causation and population genetics to explain the social behavior of humans. Among the many reasons for this controversy were (a) misunderstandings about sociobiology and genetic determinism and, (b) the long-held view in the social sciences that social behavior in humans is the product of cultural forces, rather than biological ones. Many opponents mistook sociobiology for arguing that social behaviors are genetically fixed and immutable when, in fact, much of sociobiology focuses on how evolved social behavior is capable of adapting to different environmental situations (e.g., morphological and behavioral change given particular environmental cues). Controversy also occurred because sociobiology ran counter to the prevailing view in the social sciences. Indeed, one goal of sociobiology is the reshaping of the humanities and social sciences to make them consistent with the principles of modern evolutionary biology.

Though based on many of the same principles, sociobiology is distinct from *evolutionary psychology*. Although both disciplines consider ultimate causal explanations, evolutionary psychology uses this level of analysis to construct models of the information processing circuitry (i.e., the cognitive programs) required to produce an adaptive response. In contrast, sociobiology steps from selective forces (e.g., limited resources) to social behavior (e.g., aggression) without making explicit the kinds of cognitive programs required to produce a particular behavior. So, though related, there exists a set of non-overlapping goals distinct to each field. Nevertheless, sociobiology and its related disciplines take seriously the claim that principles derived from the *modern synthesis*, which united Darwin's theory of evolution and Mendelian genetics, can be used to explain the constellation of behaviors in humans and nonhumans alike.

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See also Evolutionary Psychology; Genetic Influences on Social Behavior; Sociobiology

Further Readings

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SOCIOBIOLOGY

Definition

Sociobiology is an approach to studying the biological bases of social behavior that focuses on applying evolutionary theory and the principles of genetics to explain specific instances of social behavior in a wide variety of species.

Background

John P. Scott coined the term *sociobiology* in 1948, but it was not until 1964 that William Hamilton laid the theoretical foundations of the field. Hamilton introduced the idea that, in the evolution of species, the transmission of genes from one generation to the next matters much more than any individual organism's success in survival and reproduction. He and others went on to conclude that, because social behaviors may aid in the passing on of genes, such behaviors may have evolutionary, and ultimately biological, bases.

The modern era of sociobiology effectively began in 1975, however, with the publication of entomologist E. O. Wilson's *Sociobiology: The New Synthesis*. Wilson's prominent yet controversial work advocated the integrative and systematic application of many disciplines, including evolutionary theory and genetics, to the study of social behavior. With the release of Wilson's book, the amount of work in this area increased dramatically. Many of the core principles of sociobiology persist today in the field of evolutionary psychology.

What Sociobiologists Study

Sociobiologists try to identify the evolutionary origins of social behaviors in all species. To do this, they examine specific social behaviors and the environments in which they occur, and then infer how such behaviors may have been adaptive in enabling species to pass on their genes. Although most sociobiological research has focused on behavior in nonhuman animals, sociobiologists have also examined the evolutionary bases of human social behavior. Research on

helping, for instance, has shown that the likelihood that people will aid those in distress depends partly on how genetically related the helper is to the person in need. This supports the idea that altruism has an evolutionary basis in aiding the survival of those who share one's genes.

Constraints on Human Sociobiology

Although many interpret sociobiological research on humans to suggest that people's behavior can be explained using evolutionary theory, others have argued that this approach is limited because the precise influence of genes in most human behavior is difficult to pinpoint. This is because most of the social behaviors sociobiologists attribute to genetic influence also can be explained by the influence of cultural norms and learning. For example, cultural norms promote helping one's close relatives over helping strangers. In addition, sociobiologists have difficulty specifying the adaptive value of complex cultural phenomena such as art and religion. Nonetheless, study of the evolutionary bases of human behavior has proved a novel, and increasingly influential, approach to understanding human social behavior.

Spee Kosloff

See also Evolutionary Psychology; Genetic Influences on Social Relationships; Sociobiological Theory

Further Readings

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SOCIOECONOMIC STATUS

Definition

Socioeconomic status (SES) is an indicator of an individual's social and economic standing in society and often is determined by a combination of ratings on occupational status, income level, and education. Individuals