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Biology After the Sociobiology Debate



WHAT INTRODUCTORY TEXTBOOKS
SAY ABOUT THE NATURE
OF SCIENCE AND ORGANISMS

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INTRODUCTION

In 1975, E. O. Wilson synthesized much of the then-current work on the biology of the behavior of organisms under the banner of “sociobiology” in his book *Sociobiology: The New Synthesis* (Wilson, 1975; see also Wilson, 1980, 2000). Wilson’s aim was to subsume under biology the things traditionally studied by disciplines such as ethology. The last chapter of his text was the most controversial, as it laid out the basis for applying this framework to human behavior and human society. Within this framework, those behaviors, cultures, social relations, and formations, which had been the sole purview of the social sciences, were given “genetic and evolutionary” explanations. His work generated a great deal of interest and controversy.

The most controversial elements within sociobiology have been the claims made about the relationship between genetics, evolution, and human behavior. Wilson claimed that this new paradigm could account for many complex human behaviors, and, to some extent, even the subsequent inequalities between people of different sexes, races, classes, and ethnic groups. This new paradigm also seemed able to naturalize these differences and structured inequalities and to transform them into simple biological and genetic evolutionary adaptations. Moreover, Wilson seemed as well to have had, as a general project, both the assertion of genetic and biological influences as the

ultimate controllers of many human behaviors, and the relegation of the social sciences to second-class status in the articulation of human nature and the motivations of human behavior.

Sociobiology has been a major force in the organization of a paradigmatic position that advocates a strong role for the influences of genes on human behaviors. Despite the numerous critiques and controversy surrounding it, human sociobiology and its derivations have attracted scholars and money. There has been a very long and sometimes acrimonious debate around the ideas presented, especially in human sociobiology. This debate changed the course of the development of sociobiology and influenced the development of parallel disciplines such as evolutionary psychology and behavioral ecology. Through this debate, some scholars and scientists moved beyond the polarizing positions of “nature vs. nurture” and instead moved toward more complex ideas about the nature of organisms and the nature of science itself.

This book is about the sociobiology debate that began with the publication of *Sociobiology: The New Synthesis* (Wilson, 1975). It is about the content of this debate and about the effect that this debate has had on biology. It also is about the ways in which this debate has influenced some of the content in selected introductory biology textbooks. Although I discuss some of the history around the debate in Chapters 1 and 2, this is not a formal historical account. Neither is it an attempt to add new material to the work developed by critics. Rather, this material is introduced and analyzed as a way of highlighting important themes that emerged from the debate. I am interested in highlighting the important issues that emerged from the mature debate around human sociobiology, as I believe they are still important in constructing and maintaining a non-reductive discourse on the relationship between human biology and human behavior.

The articulation of these themes is intended to help future researchers develop nondeterministic formulations and also is used to inform my textual analysis of the textbooks. I also am interested in the ways in which biology textbooks have presented sociobiology and the controversy it has generated. As well, I am interested in how changes in our understanding of the nature of science theory and practice have filtered into biology textbooks and how all of these issues can be used to help foster more critical and reflective thinking within science education as we approach the difficult issues embedded in emerging biotechnologies. As is evident in Part II of this book, this opportunity has begun to be taken up in the most recent textbooks I examine.

In this regard, throughout this book I use a number of terms to refer to sociobiology and related texts. If I am speaking specifically about Wilson's work, and to work that is similar to and sympathetic to Wilson's project, I use the term "sociobiology" or "human sociobiology." If I am referring to conceptualizations that may begin or take inspiration from Wilson's organizing texts but have proliferated now into many forms in many directions, I use the term "sociobiological discourse" or "Wilsonian sociobiological discourse."¹ When I am speaking more generally about the project of creating conceptualizations that embody a strong genetic program with respect to human behavior, I also use the terms "neurogenetic determinism," "genetic determinism," and "biodeeterminism."

Why the Sociobiology Debate Now?

One might ask why it is useful to study this debate, especially in light of Lewontin and Levins' (2007) observation that at this point, "sociobiology has become a term of some opprobrium in biology" (61). At the same time, developments in molecular and developmental biology have moved in unexpected directions. For example, E. Keller (2000) has indicated, with surprise, that as a critic of the Human Genome Project she had expected that

so exclusive a focus on sequence information was both misguided and misleading....Contrary to all expectations, instead of lending support to the familiar notions of genetic determinism that have acquired so powerful a grip on the popular imagination, these successes pose critical challenges to such notions. (5)

This same sentiment is reiterated by Fausto-Sterling, who has noted that as a consequence of knowledge gained in the past decade, "developmental biologists who study the role of genes in development are busily dethroning the gene" (Fausto-Sterling, 2000b, para. 1). She also notes that

the important story is that the search for genes that control development has shown us that our initial idea that genes control processes within an organism is wrong. Instead genes are one set of actors within a developmental system. The system itself contains all of the pre-existing contents of the cell, organ and organism....What the last decade of research on genes in development reveals is that...the system and its history control development. Genes are but one of many crucial components of the process. (para. 4)

This sentiment is upheld by Craig Venter and his colleagues, who successfully mapped the human genome and who warn that we must avoid the dual pitfalls of reductionism and determinism and the mistake of discussing human variability as we gain increasing knowledge of the human genome (Venter cited in Lerner, 2004, 4). This shift also has been accompanied by the call for more balanced conceptualizations of the relative influences of nature and nurture (Ridley, 2003).² Despite these developments and the fall from grace of the sociobiology name, many of the key ideas and the core of the human sociobiology project remain active. Although alternative conceptions have emerged, they are not yet dominant (Kaplan and Rogers, 2003, 5). Evidence for this comes from a number of areas.

In the late twentieth century there has been much support and interest in the academic world for the aims and ideas of human sociobiology, and support remains strong within a number of disciplines. Ruse has documented data taken from the *Science Citation Index* that indicates that between 1975 and 1995, Wilson's *Sociobiology: The New Synthesis* has been cited 2,040 times by authors (Ruse, 1999, 148). Likewise, Segerstråle's more recent search of the Wilson Index alone (as different from E. O. Wilson) yielded 13,000 entries under "sociobiology" (Segerstråle, 2000a, 314). In a survey of books in print in September 2000 using only the keyword "sociobiology," I found 150 titles published in the preceding nine years, and 80 of these had been newly published or republished in the preceding three years.³ The focus of these titles has been very wide-ranging. In the past twenty-five years people have written about the "biology of love," the "genomics of selfishness," "altruism," "desire," and "homosexuality," to name a few.

Second, while the term "sociobiology" is in decline, the general project has been taken up by newer disciplines such as behavioral ecology and evolutionary psychology (Pinker, 2002). For example, as of August 2009, the online Human Behavioral Ecology Bibliography (HBEB) listed well over 1,000 books and articles published, in press or in process since 2000.⁴ Evolutionary psychology has become an important subdiscipline and, while many take pains to try to ensure that it is not a deterministic focus, critics insist that it is falling into the same paradigmatic positions as were present in the early human sociobiology formulations (McKinnon, 2005; Kaplan and Rogers, 2003). The proliferation shows no signs of abating. These contemporary formulations cross a wide spectrum. There are new directions and more balanced accounts of the interconnections between nature and nurture; nonetheless, there are more of the same old biodeterminist formulations. For those advocating a strong determin-

ist program, the talk may be about control by hormones or brain structures rather than by genes, but in the end these more recent formulations rely on conceptual underpinnings that are similar to Wilson's original work. One could say that the sociobiology debate is still ongoing, and, while in this book I confine myself primarily to discussions about sociobiology and related discourses that emerged around the same time, I do discuss some of the more recent developments and offshoots in Chapter 1.

A third reason to pay attention to the lessons of the sociobiology debate is that sociobiology and related determinist discourses also have had success in entering the popular imagination. A great deal of both popular and academic research and writing continues on and about sociobiology and the general issue of evolution, genetics, and human behavior. Most significantly, the resonances among determinist discourses, advancements in biotechnologies in the past twenty years, and the promises of future innovations sometimes act to reinforce and support determinist claims, especially in the popular imagination (Allen, G., 2002).

The advances in biotechnology began in the mid-twentieth century with the deciphering of the nucleic acid structures of genetic materials and with the first successful clones of amphibian organisms. This was followed in the 1970s and 1980s with early mapping of sites of significant genetic material in simple organisms and with the successful deciphering of some of the ways in which these sites operated in the production of specific proteins. In the past three decades, we have witnessed the continued technical development of genetic mapping techniques. This technical development has been coupled with research that has begun to reveal the connections between genotypes and specific diseases. Advances in the 1980s and 1990s in the deconstruction, mapping, and reconstruction of DNA led to the development of the Human Genome Project. The Human Genome Project proceeded faster than expected. It has led to discoveries of genetic markers that are implicated in diseases. Garland Allen (2002) talks about the influences of mechanistic materialism on our conception of the gene and about the influence of the Human Genome Project on reinforcing these reductionist and simplistic conceptions. Concurrent development in the biotech industry has spurred on all facets of genetic mapping and research. And, as well, pre-implantation genetics diagnosis has now begun to move toward the "engineering" of children.

We are increasingly immersed in a world in which references to genetics are being used to explain illness, health, well-being, and even behavior (Allen, 2001). Often, this is done by referencing intermediary factors such as brain mor-