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Sociobiology: compromised critique

Vaulting Ambition: Sociobiology and the Quest for Human Nature. Philip Kitcher. MIT Press, Cambridge, MA, 1985. 456 pp., illus. \$25.00 (cloth).

A resurrection of the tiresome sociobiology debate? The dust jacket promises as much, with ringing praise from those battered but game old foes of adaptationism, Richard Lewontin and Stephen Jay Gould. Gould endorses the book as “The best dissection ever published on the logic and illogic (mostly the latter) of sociobiology.” But a funny thing happened to science philosopher Philip Kitcher en route to writing it: He acquired some familiarity with the field, and he was impressed. And so, expecting an attack, readers instead encounter enthusiastic, lengthy expositions of Fisher’s sex ratio theory, Hamilton’s inclusive fitness theory, Maynard Smith’s ESS (evolutionarily stable strategies), and even such problematic exercises in adaptive story-telling as Parker’s analysis of the optimal duration of copulation in dung flies. Moreover, Kitcher plays theoretical sociobiologist, offering refinements of some existing models, and (like other philosophers before him), dismisses the naive accusation of determinism. One begins to wonder if Lewontin and Gould have read the book they praise.

Nevertheless, Kitcher’s book is a critique, not of sociobiology but of what he calls “pop sociobiology.” This misnomer—Kitcher includes, for example, Lumsden and Wilson’s numbingly unpop *Genes, Mind and Culture*—refers to those speculative forays into human sociobiology that the author happens to find objectionable. Some of his criticism is sound. He takes Lumsden and Wilson to task for obfuscatory mathematicizing (though Kitcher’s critique rivals its target in its superfluity of equations).

Many of Kitcher’s other complaints are directed against glib uses of the popular “strategy” metaphor in ways that confuse fitness with proximal psychological goals. Well and good, but others have made the point more clearly. Elsewhere, the critique is much feeblere, as, for example, when he almost incoherently rejects parent-offspring conflict theory (pp. 266–269) or in his preposterous assertion that the study of adaptation is undertaken as some sort of quick-and-dirty substitute for genetic studies (p. 34).

The motivating forces behind Kitcher’s critique are politics (of which, more below) and a taxonomy that distinguishes *humans* from *animals*. Biologists will be skeptical of Kitcher’s evident assumption that there is a body of evolutionary theory that can legitimately be applied to everything from slime molds to chimpanzees, but not to folks. The nearest he comes to explicitly defending this pervasive stance is when he writes:

The problem of evolutionary possibility is primarily a puzzle about organisms that cannot adjust their actions to their perceived interests. . . . We appreciate the possibility that people may choose to behave so as to achieve nonevolutionary ends. . . . There is no puzzle about human beings that initially strikes us as comparable to Darwin’s worry about the social insects [pp. 74–75].

But of course, any organism with a nervous system pursues “perceived interests” (i.e., psychological goals more proximal than the theoretical end of fitness) and “adjusts its actions” in that pursuit. “The problem of evolutionary possibility” concerns the question of what those perceived interests are and how organisms with a history of selection can have evolved them—questions neither more nor less applicable to people than to honeybees. Kitcher’s taxonomy boils down to the futile claim that

other animals are automatons, whereas people are “free” (which, he later assures us, does not mean that their actions are not “determined”).

In order to maintain his human-animal distinction, Kitcher totally ignores the fundamentally comparative nature of sociobiological theories. The work he considers exemplary is confined to single species, and “careful” sociobiologists are lauded for avoiding generalization. What is particularly unwarranted, of course, is “extrapolating from animals to humans,” the alleged goal of sociobiologists. (It is no accident that Kitcher wrongly cites Barash’s 1977 text, which was little concerned with *H. sapiens*, as *Sociobiology and Human Behavior*,” [emphasis mine] or that he does not cite the much-improved second edition at all.) From Kitcher’s discussions, one would never guess that there are theories linking species differences to correlated characters or that efforts to reconstruct prehistoric human mating systems involve inference from human sexual dimorphism, testis size, etc., rather than simply from observing apes. Indeed, Kitcher criticizes Trivers’s account of sexual selection and parental investment for ten pages without alluding to sex differences in fitness variance, to the wealth of cross-species correlations that the theory has made sense of, or to the relevance of internal fertilization as a condition biasing toward female care. The general impression that Kitcher strives to convey is that things are so different from one creature to another that it is impossible to generalize and extract principles.

Even where Kitcher attacks a real problem in sociobiological writings, the usefulness of his critique is compromised by an extremely unpleasant mixture of sarcasm, self-righteousness, and *ad hominem* argument. One thing that the philosopher does not doubt is his own moral superiority.

He begins (pp. 1–11) with a story about Cyril Burt and the evils of early educational streaming, linking this irrelevancy to sociobiology by innuendo rather than by explicit argument. He concludes by appropriating the “goals of justice, equality, and freedom” to himself and imputing to sociobiologists “mistakes [that] threaten to stifle the aspirations of millions” (p. 435). Nothing in between justifies these slurs.

Kitcher’s agenda is fundamentally political. He is convinced that sociobiologists (especially Wilson, Barash, and van den Berghe) are reactionary apologists for an unjust status quo, and he trots out as damning evidence a few of their musings to the effect that radical social experiments can have unanticipated negative effects. But even if I grant Kitcher the presumption that sociobiologists’ beliefs in an evolved human nature incline them to conservatism (though my experience denies it), he offers no justification for his tone of moral superiority. He is contemptuous, for example, of the suggestion that *Homo sapiens* has evolved a sexually differentiated psychology, equating the hypothesis with efforts to maintain male superiority, but he offers neither reasons to doubt it nor reasons to believe the hypothesis any more dangerous than his own. Policy makers who believe that the sexes are different may indeed perpetrate injustice and misery, acting partly on that belief; policy makers who believe that the sexes are *not* different may do likewise. We should keep a sharp eye on *all* “social engineers” and totalitarians of the left and right who claim to be acting in society’s interests.

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CELL BIOLOGY FOR HIGH SCHOOL AND UP

A Guided Tour of the Living Cell. Christian de Duve. W. H. Freeman & Co., New York, 1984. Vol. 1, 223 pp., illus, vol. 2, 102 pp., illus. \$49.50 (both volumes).

As are a growing number of books these days, this one is a detailed expansion of lectures, in this case four, given by the author to selected high school students. The book is also a collaboration between de Duve, a much accomplished biochemist, and the equally accomplished illustrator Neil O. Hardy. The text reads delightfully, as if the author were still on the podium lecturing—didactic, clear, and logical, marked with verve and occasional asides—a friendly voice imparting knowledge. The imaginative graphics include light and electron micrographs and excellent color drawings based on actual cytological and biochemical observations. Pertinent figures are not referred to in the text but appear on the same or adjoining pages, accompanied by succinct explanations. Thus, the book can be said to contain two texts, one verbal and one visual; each can be read separately but together form a comprehensive guide to the activities of the cell.

The author stresses that the cell is not only structure but also function and that this function is biochemistry. The book, therefore, lists many chemical formulas and structures in one appendix and many illustrative enzymatic reactions and chemical reactions showing the cell’s bioenergetics in another. De Duve emphasizes the cell as a biochemical machine that has evolved structure to suit biochemistry, but he leads readers gently into this realm. First, he gives a historical account of the many avenues that have led to the grand boulevard of modern cell biology. Then he takes an excursion from the outside into the inner workings of the cell, explaining a little chemistry here and there. The book covers all the major topics of cell structure and function. It is divided into the usual sections (e.g., mitochondria, chloroplasts, ribosomes, etc.), but throughout the book, de Duve mentions various facets that in other texts are subsumed under these headings. Thus, he introduces immunology in the chapter on cell surfaces and begins to explain protein synthesis in the chapter on the cell’s export machinery—all, I thought, very logical. The cell’s machinery cannot be strictly compartmentalized into chapters; protein immunology also involves cell surface phenomena, and

ribosomes are also part of the cell surface export process.

For whom was this book written? The author says “it is not specifically directed at the student, expert, or layman,” and I agree. I also think that those in any of the three categories would profit from reading it. The book is for accomplished senior-level high school students; nonspecialists would come away appreciating the complexities of the cell’s machinery (though without fully understanding that machinery); and even experts will find nuggets of insight into the workings of many cell processes. As the book is written and illustrated, high school teachers could learn enough from it to teach cell biology in their courses, using it as a text; it would also be useful for college freshman biology courses. I have but one caveat: although I applaud including the historical background of cell biology, which is sprinkled throughout the text, I miss the results and explanations of some actual experiments that led to the current formulation of the biological and chemical foundations of cell biology. This latter point is a particular bane of mine, though not greatly important, for I only wish I could have written such a lively, nondemeaning tour of the cell.

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DEVELOPING MICROBES

The Molecular Basis of Sex and Differentiation: A Comparative Study of Evolution, Mechanism, and Control in Microorganisms. Milton H. Saier and Gary R. Jacobson. Springer-Verlag, New York, 1984. 216 pp., illus. \$24.95 (cloth).

To understand sexual and biological differentiation, researchers need a variety of experimental approaches. Although mechanistic differences have evolved to accommodate changes in organismal complexity, it is safe to say that the most elementary processes in differentiation began before organisms diverged in evolutionary history. The authors therefore be-