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REVIEWS OF *BIOLOGY AND FREEDOM, AN ESSAY ON THE IMPLICATIONS OF HUMAN ETHOLOGY* BY S. A. BARNETT

***Biology and Freedom, an Essay on the Implications of Human Ethology,* by S. A. Barnett. Cambridge University Press, Cambridge, U.K., 1988, XVII +376 p., $39.50.**

Biology and Freedom is a sensitive, compassionate and humane book. It is also a somewhat disappointing work. The source of disappointment is not imprecision or pretentiousness, as is so often the case when giants of science, such as S.A. Barnett, are indulging the urge to ruminate about the philosophical significance of their discipline. Rather, I find the book disappoints because it strains too hard to defeat an enemy, what I will term 'pop' biology, which has already been soundly thrashed by other worthy critical opponents in recent years. More seriously, Barnett fails to deliver on his promise to deliver ". . . a commonsense alternative" (p. 227) to the pop biology he is quite successful in skewering.

Barnett's goal is to persuade us that there is no threat to human freedom posed by the findings of twentieth century evolutionary biologists, ethologists, anthropologists or geneticists. He wants us to be very wary of attempts to draw lessons about the limits of human behavior based upon either the study of or speculation about other species. This thesis constitutes the bulk of the book and the author prosecutes the case skillfully and thoroughly.

Barnett goes full bore at those of his peers who study the behavior of ants, bees, rats or primates, as well as those who popularize their work in magazine articles, plays and movies, or who rush into print books bursting with all lessons drawn from the lives, loves and feuds of animals. 'Pop' biology sees the animal world as a kind of natural *Guide to the Perplexed.* If we want to know what we can be, what we should be, pop biology maintains we need look no farther than the closest hive, nest or troop.

Barnett will have none of the sloppy analogizing, definitional vagueness, and unfounded logical inference that characterizes the canon of pop biology—Lorenz, Ardrey, Eibl-Eibesfeldt, Dawkins, Wilson, and Trivers. Barnett insists that a careful review of what ethology, sociobiology and evolutionary theory have found concerning

animal behavior reveals that the only lessons to be learned are that animal behavior is complex as well as varied and, that speculations about human nature based on animal behavior rest on metaphors that owe far more to the biases, hopes and fantasies of the humans drawing the lessons than anything animals actually reveal to us.

So what could possibly be bad about a book that reminds us to be humble in the face of nature? Why grumble about a book that signals appropriate caution and skepticism in the face of the vehement, self-assured proclamations in a flotilla of paperback books, with eye-catching titles and authors to match, who are more than willing to discourse ad nauseum on the rotten nature of human nature to any t.v. or radio talk show host within earshot?

Well, the moon of biological determinism seems to be waning these days. Many competent scholars have launched sustained attacks on crude biological determinism and pop biology during the past decade (i.e., S. Gould, R. Lewontin, P. Kitcher, among others) and they seem to have made headway against the most egregious excesses of pop biology. This is not to say that the Dracula of crude biologism does not need the occasional stake pounded into it to keep the monster dead, but it does mean that some of what Barnett has to say about the limits of metaphor, analogy and comparison has been said elsewhere by others with equal conviction and grace.

More serious is Barnett's failure to deliver on his promise of an alternative outlook to that made familiar by pop biologists. Barnett does a wonderful job of telling us what not to expect from the study of animal behavior. But his effort to construct an alternative, by warning against crude reductionism and mechanistic determinism, and by noting the power of communication, teaching and tradition as non-Darwinian mechanisms of human sociality, does not amount to enough.

The versions of reductionism and determinism Barnett targets are so simple-minded that to describe them as strawmen seems kind. When, for example, Professor Barnett warns us that "[t]he notion that everything that can be usefully said can be said in terms of physics is indeed incoherent. . ." (p. 238) he is undoubtedly right but almost no one believes this version of reductionism. The physicists most likely to espouse this sort of metaphysics found out long ago that it was false when they traded in their union cards in the 1940s and 50s and became frustrated molecular biologists.

The more interesting claim espoused by modern reductionists is that laws at higher levels of phenomena ought be consistent with, if not derivable from, those governing lower levels. Critics, ranging from devotees of punctuated equilibria theory to cladists, doubt that this sort of reductionism makes any sense since they think it rests on

a false notion of the concept of a 'level'. Yet, Barnett does not give us any advice about how he thinks we ought resolve this ongoing debate.

Similarly, when Professor Barnett is advancing his positive contribution against simple-minded pop biology he notes that, "we are accustomed to analogies between the transmission of genes and the transmission of customs . . . but the analogies are misleading" (p. 282). Again, he is surely right but he has not gone far enough. What will put pop biologists back on their heels is a non-Darwinian theory of cultural evolution. Sociobiologists such as Dawkins, Wilson and Alexander are quite willing to acknowledge the existence of culture. They simply believe it is on a short leash relative to genetics. Barnett does not tell us enough about the details of how culture and tradition are transmitted to knock this aspect of pop biology out of the ring

I have one other, smaller bone to pick with the author. In a chapter entitled "Darwinism, genetics and politics" (chapter 9, pp. 141-171), Barnett is concerned to show the horrible results pop biology can have when it is taken seriously by politicians. The chapter describes the rise of eugenics in America and England prior to the War, eugenics in Germany, and the post-War manifestations of eugenics in America and Britain in the form of debates about IQ testing and the sexism of sociobiology.

The whole chapter is thirty pages. Only 4 of these, counting generously, are devoted to the rise and flourishing of eugenics in Germany. The Soviet Union's tragic experience with Lysenkoism receives no attention whatsoever. The author seems to me to have, uncharacteristically, lost his perspective in this chapter. The fact that race hygiene theory led to mass murder in a totalitarian state should be the centerpiece of any discussion of the dangers and abuses of biologism and pop biology.

I think *Biology and Freedom* is worth reading. But it is valuable more for its boldly critical stance of sloppy thinking among those who study animal behavior than for any positive theory of how human freedom coexists with both biology and culture. But, successfully taking on a century's worth of misguided and deceiving metaphors and images can hardly be all bad!

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Biology and Human Freedom presents the reflections of a distinguished and broadly educated zoologist on the meaning of our biolog-

ical knowledge for our understanding and conduct of human life. Its principal aims are to challenge the reductionistic efforts of Darwinists and behaviorists, so prominent in this century, on scientific, philosophical, and political grounds, and to articulate a more "authentic" image of human nature, one which sanctions a political agenda more congenial to the author's democratic socialism. As such, this book belongs to the genre of works known as "Reform Darwinism," so admirably analyzed by Robert Bannister (1979), whose work is cited, but apparently not fully assimilated by Barnett. Like earlier Reform Darwinist tracts, such as Richard Hofstadter's classic *Social Darwinism in American Thought* (1955), its principal defect is its caricatured view of its opponents (ethologists, sociobiologists, behaviorists, etc.) as political thugs and moral monsters, whose works have been used to protect the rights of "the powerful, violent and selfish to kill, to coerce, to deceive or to rob others" (p. 301). Despite this defect, Barnett has succeeded in presenting an engaging and fascinating account of the myriad ways in which human abilities and practices diverge so profoundly from simplistic animal or machine analogies, while also reminding us of the real evils that such analogies have, and may still, appear to sanction.

The core of this essay is a critical examination of four powerful images of human nature put forth by some of the most prominent scientific portraitists of this century: "*Homo pugnax*" (the violently aggressive species), associated with Konrad Lorenz and his epigone; "*Homo egoisticus*" (the selfish, calculating species), attributed to social Darwinists, eugenicists, and sociobiologists; "*Homo pavlovi*" (the conditioned species), named after its creator; and "*Homo operans*" (the greedy species), as painted by B.F. Skinner and his school. For Barnett, however useful such analogies and models may be scientifically, as heuristic devices, they become both scientifically debilitating and politically harmful when raised to the level of objective truths, to be asserted uncritically rather than investigated systematically. By demonstrating how both animal and, more dramatically, human behavior diverge from simplistic models, and by reminding us of the metaphysical assumptions (primarily reductionism and determinism) upon which these models are based, Barnett reveals them to be "myths," not hypotheses: seductive images of our origins and ends designed to guide the conduct of our lives. But if they are myths, why have they been put forward so vigorously and accepted so broadly? For Barnett, the answer is simple. Such reductionist myths as the "naked ape," "man, the machine," and the "selfish gene" have served, intentionally or unintentionally, conservative, even reactionary, political functions. At best, they undermine our resolve to attack contemporary human problems and to do so humanely, while also destroying our hopes for human progress and greater human freedom.

At worst, they seem to legitimize "greed," "inhumanity" and a "lust for power" (xiv) by presenting them as fixed and permanent features of our nature.

Certainly the legacy of racism, genocide, forced sterilization, and psychosurgery which Barnett recounts is a painful reminder of the evils committed in the name of biological science. Nevertheless, there are two significant shortcomings in Barnett's presentation which, I fear, will weaken the impact of this admirable and passionately argued book. First, although the author rightly criticizes the "simplified accounts" of human action (p. 207) offered by some biologists and their popularizers, at times it is Barnett's account which unfairly simplifies their views. What ethologist speaks of a fixed, "unchangeable" human nature (p. 115), genetically controlled, which consists of "ungovernable" impulses (pp. 74, 283) expressed in uniform ways? What sociobiologist ignores the range and diversity of human behavioral and social patterns corresponding to the range of environments in which we live? What biologist would disagree that "each developmental change is influenced by the interaction of genes and environment"? Who but Barnett's own straw man believes that natural selection has "produced a species . . . with a uniform set of characteristics that fits it for a single mode of living?" (p. 115), or that "sex roles and reproductive practices are fixed and unaltered in any environment" (pp. 133, 166)? The attempts of sociobiologists and ethologists to account for human cultural diversity may indeed be ultimately inadequate, but they must at least be acknowledged.

Second, Barnett's intellectual history and sociological interpretation of such appeals to the biology of human nature does not adequately fit the facts, even as he presents them. The use of animal analogies, biological theories, and "scientifically"-based programs for social change like eugenics are not the monopoly of conservative apologists of the status quo (pp. 79, 141, 291). Barnett even acknowledges the appeals to Darwinian theory by socialists and communists and their support of eugenics (pp. 25-6, 144), yet insists on treating these abuses, including racism and sexism, as diseases unique to white, male capitalists. That appeals to "spurious biology" are the "last resort" of those who support social changes and not just those who oppose them (p. 291), that sociobiologists, in particular, are often radically opposed to the existing social and moral order (Kaye, 1986) is completely overlooked, yet amply demonstrated by Barnett's own use of the "relevant biology."

These interpretive flaws notwithstanding, *Biology and Human Freedom* remains an excellent critical survey of the modern battle over the biology of human nature, which students and laymen will find both accessible and fascinating. For professionals, its encouragement of greater care in the use of animal analogies, its call for

greater philosophical self-awareness, its reassertion of Karl Popper's distinction between reductionism as a research strategy and reductionism as a world view (p. 238), and its reminder that our conceptual language may profoundly affect our attitudes and conduct toward our fellow human beings, are vital truths which must not be ignored.

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This elegantly produced and literate volume deserves a wide audience, for it focuses attention on important scientific and social issues. Nonetheless, as an original contribution to the study of "human nature," it is a shallow piece of work, inferior in all respects (except for style!) to similar works, such as *Not In Our Genes* (Rose, Lewontin, & Kamin, 1984).

The chapters which debunk scientific myths about aggression, sociality, etc. are written in an amusing style, but rely on timeworn examples. Aren't there others? That on racial differences sidesteps the difficult but important question, what if anything is race anyhow? All in all, however, it is a pleasure to read such a well-crafted critique.

His sections on politics, economics, or culture theory, on the other hand, betray a lamentable lack of competence in the area of social criticism. Nowhere does he discuss economic determinism, nor the idea of world economic systems, nor theories of power. A work that casts as broad a net as this must be woven of finer mesh. It's not enough to mention Marx. We must also deal with Marcuse.

As to the values he champions, they are certainly attractive to most middle-class WASPS, but this denies the very diversity of values that most writers in his ideological camp would celebrate.

The obstacle to human betterment, he pronounces solemnly, is "war." This merely begs the question. Whose war? Why? If he wants us to discard biological justifications for the human condition (and we agree with him on the need for this), why does he shy

away from examining economics, market politics, power and ideology?

Science, Barnett proclaims, is a source of myths, the most powerful of which is that biology can explain and improve society. His book would be more persuasive if it merely made this point and left the moralizing and exhorting to sociologists or preachers.

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Overall, I admired this book, both in aim and execution. Directed against mis- and over-interpretation of biological findings, it ranges widely, is gracefully written, literate but not self-consciously literary, occasionally ironic, reasonable and without bombast. I enjoyed Barnett's discussions of analogy, metaphor and the implications of classification, and found his habit of articulating hidden assumptions useful. All this means that my comments are mostly about ways in which he misses maximizing his effectiveness, rather than ways in which he is misguided or wrong. I begin with the timing of the book. A discussion of the style of argumentation follows, and I conclude with an observation on Barnett's progressivism.

My first response to the book was that, however well done, it is somewhat anticlimactic. It appears several years after an outpouring of works from a similar critical perspective, many focusing on the sins of sociobiology, but others addressing Barnett's wider complaints as well: biological reductionism, conservatism or moral nihilism buttressed by evolutionary stories. Barry Schwartz (1986) even compared, as Barnett does, models of human conduct in sociobiology, behaviorism, and economics. Unfairly, perhaps, I wished for something different—a penetrating meta-analysis of the controversies, an unfamiliar slant. I say unfairly because, despite a few quite recent references, I have the impression that *Biology and Freedom* was written in roughly the same period as these others, and thus, one could argue, should not be asked to supersede them. In any case, the virtues I refer to above are enduring, and most of the book's weaknesses could have been avoided no matter when pen was put to paper; the question of timing is thus not crucial.

I do have some reservations about some of Barnett's strategies in making his case. Although he can be measured in his criti-

cism (pointing out the uses of reduction as well as its dangers, for instance) he makes rather too much use of straw persons: sociobiologists who speak only of instinctual drives and never of love or rational calculation, who ignore variability, or wish only to justify their conservativism; behaviorists who deny individual differences and describe us as treating each other like circus animals, economists who ignore nonmonetary considerations.

Effective criticism of these traditions must begin with accurate representation. I can hear the howls of protest now, and insofar as they are justified, Barnett's position is compromised, and attention is diverted from hard issues to easy ones. Some sociobiologists, precisely to counter charges of reactionary politics, have either denied the moral relevance of science or drawn liberal lessons from biology. (One can criticize these positions as well, but one must first acknowledge them.) Most make much of learning and adaptability to circumstances, and cost/benefit calculations certainly do not rule out rational deliberation. Similarly, the behaviorist's claim is not so much that we treat each other as animals rather than as persons (p. 36), but rather (as Barnett points out on p. 199) that our notions of autonomous persons are wrong. And despite the quote about economists' silence on the issue of pleasure of work (p. 215), workers' values can be factored into an economist's equations.

It seems to me that the problem is not so much that everyday constructs like love, satisfaction or duty are denied or ignored by these theorists, but that they are preempted: that they are treated as epiphenomenal, as mere means (love as a "proximate mechanism" to ensure advantageous mating) or cover stories (genetically useful self deception), or are simply engulfed by an all-encompassing definition (dignity becomes just another job incentive, while boredom is a disincentive that can be offset by better medical benefits). To counter instinct with learning, or external reward with intrinsic satisfaction, then, is not only to accept the very polarities that have sustained these acrimonious exchanges for so long, but to miss the theoretical problems posed by what I have called "black hole definitions" (1989a). Reproductive advantage, reinforcement and economic calculation can all be used to define all other categories away, so that ordinary motives and feelings, while they may be present, are subordinated to a single scheme that subverts their usual meanings. Barnett occasionally touches on these questions, but often ends up letting his points be shaped by old oppositions. This is puzzling because at other times he devotes some effort to rejecting just such oppositions.

Not only can one attack straw men, one can also *be* one. (In fact, one often leads to the other.) At times, Barnett seems to offer

himself as an easy target. He speaks of "autonomous man" long before he quotes Skinner, so at first it is easy to miss the reference. When he does discuss Skinner, however, Barnett almost seems to accept exactly what he should be challenging: Skinner's pitting of external controls against causally mysterious internal ones. To use "autonomous" in this context without clearly giving an alternative meaning is to invite confusion. In much the same way, Barnett speaks of the "validity of environmentalism," only later disavowing the position that the biologically oriented (including himself—see above comment on individual differences) have always attributed to "environmentalists": that "all are created equal" (p. 109) or can be made so. Those who hold, as Barnett does, that it is more practical to focus on changing the environment than on manipulating genes, do not usually call themselves environmentalists—any more than sociobiologists and behavior geneticists usually call themselves reductionistic biological determinists. I may be missing a rhetorical ploy here, but it seems to me that if one is trying to bring reason to an area that has been marked by exaggeration and wild shots, one should not play with loaded terms.

Traditional dichotomies reappear in the contrast between genetic and cultural transmission. As Barnett points out, traits are transmitted only by gross metaphor; they must develop by complex interactions. But neither are ideas and customs mechanically "transmitted" (Oyama, 1989b), and to attribute cultural continuity to training and imitation is to suggest mindless replication rather than the mindful construction of the world that Barnett calls for. (I did appreciate his mention of children as teachers [p. 279], and wish he had recognized that other children are not their only pupils.)

Finally, despite Barnett's disclaimers about perfectibility and progress, I occasionally found his vision of improvement a bit on the sunny side. I am not convinced that racism has steadily lost support in this century (p. 287), or that men are generally so appreciative of changes in women's status (p. 170) or that communities always benefit from the "growth of individual abilities" (p. 107)—unless those abilities are simply defined by community benefit. One could apply the sardonic point he makes on p. 130 about genetically encoded information—that anything that occurs is in some sense "encoded"—to the concept of abilities. Whatever we become, that is, we must have had the ability to become. If one keeps that point in mind, it is hard to maintain the pleasant conviction that the "growth" of abilities is necessarily a good thing. Lurking behind some of these blandly liberal statements are some largely unexamined notions of human potential and needs (p.

297). I wish Barnett had used his considerable skills in investigating them further.

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This is a textbook about human behavior that tries to avoid projecting any single, totalizing model of human nature. This Barnett achieves by using the bulk of his book for criticizing various erstwhile and currently popular perspectives, such as the Freudian, the behaviorist, the Piagetian, and, particularly, the sociobiological. His attitude seems to be that we must preserve options on human freedom, but this he tries to achieve from within a biological perspective despite his warning that we must be on guard against the "use of the prestige of science to shore up a prejudice." The level of the book is undergraduate or possibly even upper grade high school.

I was impressed by the scope of this book, and it could give undergraduates an engaging introduction to several fields at once, in particular ethology, evolutionary biology, human evolution and areas of psychology, and it has a strong, and interestingly developed, historical orientation. The book is well produced, has charming photographs (many by the author), and a useful glossary.

Barnett's book is relaxed, agreeable reading, and well-meaning. Its lack of sophistication seems good, but may be bad in an area of subtle implications. Despite failing to reference, for just a few examples, such obvious allies as the Boyd and Richerson book, Lynda Birke, Ruth Bleier, the Cavalli-Sforza and Feldman book, Mae-Wan Ho, the Levins and Lewontin book, Elaine Morgan, Susan Oyama, Henry Plotkin, Jeffrey Pollard, John Odling-Smee, T.C. Schneirla, Ardea Skybreak, Nancy Tanner, or Ethel Tobach, he does manage to construct an argument critical of sociobiology, and that seems to be the main point of the book.

Despite some good arguments, Barnett leaves out some strong ones he might have used (for example, that sociobiology, like most

science, constructs knowledge based on average properties only, and these are what his *bête noir*, "fixed human nature," amounts to), and deploys some excessively weak ones. Among these is one where he questions the validity of all behavioral homologies. In order to detoxify some rather conventional caricatures of the sociobiological position (made *by* them, to be sure), Barnett quite intentionally throws out the baby with the bathwater by radically emphasizing the gap between animals and humans. This he does by denying homology of human behaviors with those of other animals. This Cartesian move is a major strategy of his text, used again and again—almost a leitmotiv. Animals are said to have species-specific characteristics but humans are all variability. The resulting incoherence in a book centered around biology was perhaps an understandable result of arguing from no position within biology at all. His forthright identification of his broader political position in the last chapter and elsewhere is little help given that he does not avail himself of any biological position derived from it, which he might have constructed, for example, out of the heterogeneous authors listed above.

Other kinds of weak arguments, again rootless and frequently used, include the deconstructive elaboration of so many subclasses (e.g., human variability) within a scientifically constructed class (say, territoriality among animals) as to make that class seem meaningless, as well as the deployment of counterexamples against theories. One theory he does *not* question, however, is the Neo-Darwinian theory of evolution as applied to nonhumans.

Could natural selection work among animals without variability? Is human variability of a kind different from that upon which natural selection feeds? Are humans *not* animals? Can their behavior not be described in any general sense? These are the sorts of questions I would suppose a bright undergraduate might come to upon exposure to this book. I think these are serious questions for biology as one of society's discourses, and that there perhaps may never be final answers to some of them. Given that Darwinism is enthroned in the highest places of honor in our scientistic society, one set of answers will continue to be those of the sociobiologists. It is not that sociobiologists are either stupid or particularly vicious, which, by implication, tends to emerge from this book. Their basic theory leads, by way of the field of life history studies, ineluctably to the kinds of conclusions Barnett, along with others of us, is unhappy about. Indeed, if those conclusions were somewhat different—for example, that humans are basically friendly and supportive creatures—other groups would no doubt be dissatisfied because final characterization of people is itself somehow invidious. But science leads necessarily to characterization, and Darwinian science leads to certain characteristic kinds of characterizations.

What claims to knowledge about us do sociobiologists minimally make? They claim they can construct average characteristics across cultures. This amounts to defining a "fixed human nature." In doing this they use the principle of parsimony to the effect that what is most commonly observed is most characteristic and deeply embedded. In today's jargon that becomes genetic predisposition. They claim that genetic predisposition is at least a weak force—always potential and waiting to emerge if stronger forces, including environmental ones, do not push the developing system in other directions. For an example, Barnett argues that violence is learned rather than being a genetic predisposition. But he adds (p. 71), that this is true "especially among boys." Well, that is exactly what sociobiologists would predict, and it is just the kind of prediction concerning the steady presence of weak predispositions—here, that boys are especially predisposed to "learning enmity"—they want to be able to make about people. Traits considered characteristic of a species (or race or sex or age class) are those that environmentally linked forces have not, as a rule, modulated. That does not mean that in the future they might not come under stronger or different environmental regulation. Darwinian approaches to the world, fundamentally linked to historical contingency, can *never* authentically predict what will, and only little of what will not, be the case in new environments. Furthermore, there must always be variability in characteristics that can evolve by natural selection, and so the traits of "fixed human nature," including the common predisposition of young males to violence, can be constructed only at the modes of population distribution curves—whence definable predispositions can never be more than 'common.'

Sociobiologists, like other scientists, tend not to question the historical or logical sources of their theoretical frameworks. Natural selection maximizes fitness just as competition in neoclassical economics maximizes profit. The connotations here lead any Darwinian to preferentially examine characters that could be thought of as furthering competition between like kinds. The result is a spectrum of traits, like 'aggressive,' 'nepotistic,' 'spiteful' (or their opposites, if forced to it) for *all* organisms, including plants—are people not organisms? To argue against a "fixed human nature" is to argue against applying science to humans at all. To argue against the particular components of a fixed human nature listed here is to argue against applying Darwinism to that end (Neo-Darwinism simply replaces biologically determined invidious characteristics with more precisely genetically determined ones). Sociobiologists "take primitive violence for granted" or "wish to make a case for aggressiveness as a human instinct" because that seems to be required by Darwinian theory, and, moreover, it all feels quite natural in a capitalist setting. They are not misusing their theory but simply applying it. How, in a society

such as ours, could we have avoided using science to investigate ourselves? And how, in a capitalist system, could we have avoided using Darwinian approaches in that investigation?

Richard Lewontin, in a brilliant article in the *Journal of Human Genetics*, in 1974, showed how an important scientific tool, the analysis of variance, as commonly used, could be deconstructed. His motivation was that this tool had been used by genetic determinists to construct fixed IQ differences between human races. In a subsequent television appearance he defended political motivation in science because, he claimed, all science has a political role. I believe it will eventually be necessary to subject Darwinism to an even more fundamental reexamination because what is at stake here is not a single method but an encompassing world view, one quite compatible with the subjugation of peoples and the attempt at domination of nature which fewer and fewer people are really content with.

As an example connected with Barnett's book of why a reexamination of Darwinism becomes more and more imminent, we might note that B.F. Skinner, in 1981 (*Science, 213,* 501-504) relegated his operant conditioning to a subspecies of "selection by consequences," of which natural selection is the most widely understood case. Selection is becoming a leading principle in more fields, it seems, every day ("neural Darwinism," clonal selection theory, evolutionary epistemology, etc.). Armed with a deeper critique of it, Barnett could have dealt with several of the models of man that he otherwise had to handle piecemeal. Of course, he could not really have been expected to take such a line in a textbook. Indeed, had he broached an argument against Darwinism itself, the book would very likely not have gotten published. Yet, having failed to do this, he was forced into driving the wedge of difference between humans (unselected) and other organisms (the results of natural selection). This essentially Judaeo-Christian notion is an integral part of the worldview that affords the environmental destruction that is driving more people, from their resulting discontent, to examine scientific mythologies like Darwinism more closely. What is needed today is to reinstate humans into nature in a humane fashion. In order to do that it will be necessary to tackle head-on received theories which purport to do this, but in an inhumane fashion.

So, Barnett has written an engaging but deeply incoherent book, whose title might better have been *Biology* or *Freedom*. I think the incoherence was forced upon him by his (probably necessary) failure to criticize Darwinism itself. After that, there may have been considerable wisdom in his decision to make the book critical of all local theories about human nature as a way of leaving open the most possibilities. Perhaps it would be a good thing to face undergraduates, so desirous of "the facts," with the possibility that there never will be

any settled facts about human nature (and eventually we might want to expand that essentially reverential stance to nature at large).

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