Review of: *Abusing Science: The Case against Creationism* (by Philip Kitcher, Boston: MIT Press, 1985. 212 pp.) first appeared in *California Review* November, 1985.

Some conservatives lately have urged that evolutionary theory is somehow antithetical to conservatism. It appears that these antievolutionist conservatives reason that a strong form of Christianity is a prerequisite for a consistent conservative outlook, and that evolutionary theory is incompatible with a strong form of Christianity.

Both premises of the argument are dubious. There are, after all, conservative Jews, Moslems, even agnostics, so a strong Christian orientation evidently is not a necessary condition for conservatism. Moreover, such an orientation seems to be not even a sufficient condition for conservatism—witness the all-too-numerous leftish Catholics and Protestants.

But of more interest here are the issues surrounding the second premise: is evolutionary theory true, and is it really incompatible with a strong form of Christianity? These are the issues which Philip Kitcher addresses in his fine little book, *Abusing Science: The Case against Creationism.*

Kitcher is extremely well qualified to examine the evolutionist/creationist debate. He is a highly respected and much published philosopher of biology. Thus it is not surprising that he shows exceptional understanding of what constitutes genuine science, and what constitutes mere pseudoscience.

Such an understanding is necessary when dealing with the issue about whether evolutionary theory is true. We must distinguish the question of whether it is true that species evolve over time, from the question how such evolution takes place. As regards to the first question, the evidence from a wide variety of sources is absolutely overwhelming that species do alter over time, or more exactly, that new species arise over time. We know the existence of gravity is a fact, even though we cannot see it. We accept it as a fact because of the huge number of other facts gravity explains: the motion of the planets; the behavior of moving bodies on Earth; the tidal movement of the oceans; and so on. Similarly, the diversity of fossil forms, the results of radio-carbon and other dating techniques, and many other data together lead virtually all biologists to accept evolution as a fact.

Of course, less clear even now is the exact explanation of evolution, Darwin's theory was that species evolve solely because the environment selects favorable variants ("survival of the fittest"), and that this struggle for survival results in a slow evolution of new species better adapted to specific environments ("niches"). Naturally, in the hundred years since Darwin wrote *The Origin of Species*, biologists have learned much more about the nature of genes and populations, and have developed more sophisticated theories about evolution. But that being so no more means that biologists doubt the fact of evolution, than the uncertainty among physicists about what causes gravity (i.e., whether or not there are gravity "particles') means that physicists doubt the existence of gravity.

Kitcher explains these and other points with great clarity. Along the way he discusses a number of interesting topics: the nature of scientific research; the basic concepts of genetics; the history of creationism; the major criticisms of evolutionary theory put forward by the creationists; and the inconsistencies and inaccuracies inherent in the creationist "theory."

These discussions are invariably interesting and often witty. For example, the phenomenon of coprophagy is used to point up the difficulties of creationist theology; would an omnipotent being create animals which have no other way to fully digest their food but by eating their own droppings? Yet evolutionary theory accounts for the existence of such animals easily.

Thus as regards the issue whether evolution is true, Kitcher presents a clear and compelling presentation of the case for evolutionary theory. Most scientists, of course, are surprised to hear that many people have doubts about evolution, which is why the recent creationist critics have such an easy time of it. The scientific community rightly feels that the whole issue was settled more than a century ago.

About the issue whether evolutionary theory is incompatible with strong Christian faith, Kitcher has less to say. That is understandable, given that he is not a theologian. Of course, evolutionary theory is no theological threat whatsoever to those Christians who do not believe that the Genesis story is literal truth. Such Christians need only say that at a certain point in the evolutionary process—namely, when. Homo sapiens first appeared—God chose to reveal himself.

But there are many fundamentalist Christians who do hold the Genesis account to be literal truth. Kitcher quite rightly does not say that those fundamentalists should be forbidden to accept that view on faith. He just denies that that faith constitutes some kind of scientific theory, to be taught in schools on a par with genuine biology.

Conservatives who are tempted to side with the creationists in forcing schools to teach creationism really ought to read Kitcher's book. I, for one, would hate to see the conservative movement suffer the same loss of face in opposing evolution that the Catholic Church suffered in opposing Copernican astronomical theory. Conservatism should be about how to maintain and protect a virtuous society, and not about biology.

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