



When Philosophy Matters

Philosophy is often accused of being out of touch with reality, the esoteric pursuit of a vanishing academic elite that all but forgot about Socrates' habit of roaming the streets of Athens and talking to the local youth about the "love of wisdom." Philosophy of science, perhaps, suffers from an even worse image problem, being often shunned even by that *other* out-of-touch, academic elite—scientists themselves.

It was therefore refreshing to see that a few months ago, philosophy of science was the deciding factor in a landmark legal decision in defense of science, the Dover, Pennsylvania, case against the teaching of so-called intelligent design in public schools there. Not only were there two philosophers (Barbara Forrest, of Southeastern Louisiana University, and Robert Pennock, of Michigan State University) among the chief witnesses at the trial, but even scientists like Ken Miller, a cell biologist at Brown University, made ample use of philosophical talking points.

The result was a 139-page decision handed down by Judge John Jones (a conservative appointed by George H. W. Bush, and hence beyond suspicions of "liberal activism"), which revolves around a core section, titled "Whether

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ID is science" (section 4, pp. 64–89). Jones's decision is compelling, and possibly a fatal blow to the legal aspirations of the ID movement; more to the point of this column, it is a fine example of how philosophy matters in everyday life, considering that it will affect the education of countless children in Pennsylvania and likely, eventually, around the country.

Jones found that ID fails to be science based on three points: a) it violates the centuries-old ground rule that science cannot entail supernatural explanations; b) the central argument of ID, the so-called "irreducible complexity" of biological structures, is an example of the logical fallacy of false dichotomy; and c) ID's attacks on evolution have not only been refuted by the scientific community but, for philosophical reasons, would not matter even if successful, because they do not represent a positive argument in favor of ID.

Concerning the first point, the ground rule that disallows supernatural explanations in science, Jones cites the philosopher Robert Pennock as an expert witness to the fact that the scientific revolution of the sixteenth through seventeenth centuries has been successful precisely because it permanently excluded the supernatural realm from the sphere of scientific discourse. Jones is very careful in repeating several times that this isn't an argument against the existence of God (an important philo-

sophical point in its own right, often ignored by philosophically naïve scientists such as Richard Dawkins). Indeed, the judge explicitly invokes the crucial concept of methodological naturalism, the idea that supernaturalism is kept out of science not as a result of an atheistic position but as a pragmatic device that allows science to proceed in its quest. Supernatural "explanations" are, as Miller puts it in his testimony, a "science stopper." (Amusingly, in a cross-examination, Michael Behe was forced to admit that if science were to be broadened sufficiently to encompass ID, astrology would qualify too.)

Second, Jones notes that the idea that irreducible complexity is a challenge to evolution is built on a logical fallacy. In particular, the judge refers to a previous landmark decision, *McLean v. Arkansas Board of Education* (1982), in which standard creationism was defeated on the grounds that it is based on a "contrived dualism": even if Behe and company could convincingly show that current evolutionary theory cannot explain sufficiently complex structures, that would do precisely nothing to advance the ID cause, since there are many other possible alternatives, including scientific theories that improve on or supersede the Darwinian one. As paleontologist Kevin Padian (another expert witness for the plaintiff) put it, "absence of evidence is not evidence of absence." (This is deliciously ironic, since it is a favored

argument of supernaturalists and pseudo-scientists, and betrays a fundamental misunderstanding of science: scientists are not rejecting, say, paranormal phenomena because they can demonstrate that they don't exist, but rather because the positive claim for their existence is not sufficiently backed by empirical evidence.)

Finally, Judge Jones noted that ID's attacks against evolution have been refuted in the academic arena. For example, Miller explained to the court how scientists have in fact discovered simpler structures related to, and functionally distinct from, the infamous bacterial flagellum—exactly as evolu-

tionary theory predicts. Plenty of peer-reviewed studies have also shown that there are, in fact, simpler versions of the blood-clotting cascade, another staple of “(not quite so) irreducible complexity.” And finally, Behe's claim that there isn't a single paper explaining the evolution of the immune system has been (metaphorically) laughed out of court. But Jones's crucial third argument here is, again, philosophical. All these examples show that the concept of irreducible complexity is, in fact, falsifiable (and has been falsified). But these are tests of *evolution*, not of ID (as even the witnesses for the defense had to admit

during the trial), which means—again—that ID isn't science for the philosophically sound reason that it has failed to provide a single empirically testable hypothesis. Indeed, Jones nails the coffin by saying that “the ID argument is dependent upon setting a scientifically unreasonable burden of proof for the theory of evolution,” a classical type of logical fallacy.

Judge Jones has handed down a crucial legal victory to science education, which has largely been a courtesy of a sophisticated philosophical understanding of the debate. And you thought philosophy was irrelevant. □

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