

Case Study 2: Creation “Science”

- Since 1981, numerous school districts/ counties/ states legislatures/ have successfully¹ passed similar version(s) of **Arkansas Act 590**, essentially demanding that “*if one teach[es] evolution, then one must also teach creation-science.*”
M. Ruse, “Creation Science Is Not Science”-CC1998, n.1, p.45.
- Judge William Overton ruled unconstitutional the Arkansas State Legislature’s passing of Act 590, in *McClellan vs. Arkansas Board of Education* (1982). His decision was based on the following major criteria:
 1. The statute must have a *secular* purpose.
 2. The statute’s principal/primary effect must neither inhibit nor advance religion.
 3. The statute must not foster “excessive government entanglement with religion.”

The three-part test was devised in accordance with the interpretation of the constitutionality in question of the statute, in accordance to the Establishment Clause of the First Amendment:

Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof.

- Failing *any* one of the three criteria above is sufficient grounds for the unconstitutionality of Act 590. **Yet Overton’s decision argued that all three were violated by Act 590.** “To accomplish this, Judge Overton thought it necessary to establish that creation-science is not a genuine science...entering the philosophical debate over the criteria for genuine science.” (CC1998, 76). He relied on the testimony of expert witness Michael Ruse, philosopher and historian of biology, to employ the appropriate **demarcation criteria.**

(*Pace*² Thagard): “It is simply not possible to give a neat definition—specifying necessary and sufficient characteristics—which separates all and only those things that have ever been called ‘science’...[s]cience is a phenomenon that has developed through the ages—dragging itself apart from

¹ E.g., one that (literally!) close to home for me at the time: Cobb County, GA. (1997).

² “With all due respect to...” signaling respect to an opponent’s position.)

religion, philosophy, superstition, and other bodies of human opinion and belief.” (ibid., 39)

...Nevertheless, the following ‘rough and ready’ criteria of demarcation are offered which could easily distinguish extremes (e.g. evolutionary biology versus creation science.) However, “as with most things in life, some items [inevitably] fall on the borderline between science and non-science (e.g., perhaps Freudian psychoanalytic theory.” (39) **Nevertheless**, “although there may be many grey areas, white does seem to be white and black does seem to be black...there do appear to be clear-cut cases of real science and of real non-science.” (55)

1. **Science is “an empirical enterprise *about* the real world of sensation.” (39)**

Note1: (As we’ll examine in greater detail subsequently in the course, this does *not* mean that all scientific theories can be reduced to some hypothetical language consisting of purely observational terms. Recall August 30th lecture...theories inevitably contains some unobservable entities...both in a practical sense [e.g. ‘dark matter’] and in an in-principle sense [e.g. ‘wavefunctions,’ ‘gravitational metric’ etc.]

“Science attempts to *understand* the empirical world.” (39)

Note 2: Arguably, other traditions outside of science within religion attempt to do the same (e.g., ‘natural theology.’) **Natural theology** (when conducted properly) does not selectively pick and choose elements of scientific theories in an effort to deconstruct them and set it up as some alternate version of ‘science’, as the Biblically Fundamentalist version of creation science attempts to do, which Ruse excoriates (44-45). Nevertheless, as in the case of the Kantian ethical claim concerning ‘treating people as ends, rather than means,’ (40), no amount of scientific theorizing/evidence gathering could ever settle natural theology’s essentially metaphysical/ speculative cosmological claims (recall August 30th lecture...philosophy of science and science is *not* speculative metaphysics.)

Recall Popper: Science’s claims must be testable *against* the empirical world. (See 3.)

2. **Science Must make explanatory reference to natural law, i.e., essentially make use of “unbroken blind, natural regularities.” (39)**

Duane Gish: “ ‘We do not know how God created, what processes He used, *for God used processes which are not now operating anywhere in the natural universe.*’ ” **“By Gish’s own admission, we are not dealing with science.”** (42)

Note 3: By the same token, are cosmologists admitting defeat when they speak of the first instances (i.e. $0 < t < \text{Planck Time}$) after the Big Bang, when the initial singularity was devoid of structure and law (e.g., a ‘quantum foam’?) A first response here is that whereas creationists, seeking to preserve their Biblical literalism at all costs (see ‘tentativeness’) *stipulate* this metaphysical dualism (‘before 20,000 years’) whereas cosmologists *infer* this claim based on the *empirical* results of large-scale phenomena like background radiation and small-scale particle phenomena.

3. Testable against the natural world (vis-à-vis explanation and prediction)

“Testability is a two-way process. The researcher looks for some positive evidence, for *confirmation*. No one will take seriously a scientific theory that has no empirical support (although obviously a younger theory is liable to be less well-supported than an older theory). Conversely (recall Popper) a theory must be open to possible refutation...[a] body of science must be *falsifiable*.” (40)

Creation science exhibits none of this!

- a.) (An untestable *stipulation*, not a confirmable explanation). Evolution can occur within a certain biological ‘kind’, but never across kinds. “[K]ind is a term to be found only in Genesis, this is no explanation.” (43) Moreover, whereas “[e]volutionists explain homologies naturally and easily, as a result of common descent. Creationists...can [only] offer the disingenuous comment that homology signifies nothing, because classification is all man-made and arbitrary anyway.”³ (ibid.)
- b.) (Recall Lakatos’ notion of a progressive RP) “A scientific theory must provide more than just after-the-fact explanations of things one already knows. One must push out into the frontiers of new knowledge...One cannot simply work at a secondary level, constantly protecting one’s views against threat: forever inventing *ad hoc* hypotheses to save one’s core assumptions.” (43)

4. A tentative process

Though *in practice* (recall Lakatos here) scientists may find it difficult to give up core assumptions concerning a particular theoretical stance, *in principle* their

³ Not only disingenuous, but this “nominalist” notion (i.e. the metaphysical and philosophy of language position that general terms don’t refer to real things, i.e., the world consists of *particular* objects only) overlooks the fact that most kinds-terms in science are fixed or hedged by *operational* criteria. That is to say, the nomenclature of general kinds is not armchair semantics for the scientist, but the scientist carves up the world at joints delimited naturally by patterns of results *based on non-linguistic laboratory protocols and procedures*.

profession demands it. Creation ‘scientists’ on the other hand, through acts of signing a statement as a condition of membership in the Creation Research Society dogmatically proclaiming a particular rendition of Biblical Literalism, are signaling the exact contrary norm, i.e. that their ‘science’ is mere *apologetics* (ex post facto) ultimately propping up some metaphysical position, which (see 2 above) they freely admit is beyond empirical verification, i.e. is based on ‘revealed knowledge.’

5. Intellectual standards of integrity

Because creation ‘science’ sets itself up as, and defines itself as a position in *opposition to* the RP of evolutionary biology, its ‘debunkings’ of evolutionary biology seem to essentially rely by and large on sophistry, and ‘elementary logical fallacies’ (such as quoting out of context...e.g. tactically omitting the phrase ‘before Darwin’ in evolutionist’s G. Parker’s statement(s) concerning belief in design.)

Laudan’s Reply

While not attacking Overton’s *decision*, Laudan attacks Ruse’s criteria (1.-5.) as “remote from well-founded opinion in the philosophy of science as Creationism is from respectable geology.”⁴ (51) “[L]eaves many loopholes for the creationist to exploit.” (51)

A.) (**Contra 1.**) Creation ‘science’ *makes* some empirically testable claims (and those claim have failed those tests.) “[I]f any doctrine in the history has ever been falsified, it is the set of claims associated with creation-science...**The correct way to combat creation-science is to confute the empirical claims it does make, not to pretend that it makes no such claims at all.**” (49)

B.) (**Contra 4.**) Historical evidence indicates that Creationists have altered their position. (**Recall Lakatos**) Core assumptions concerning Noah’s Flood analogous to “historical and sociological research strongly suggest[ing] that scientists of any epoch regard certain notions as so fundamental as not to be open to refutation or negotiation.” (50) Moreover (**recall Thagard**) “The Arkansas statue proposed that Creationism be taught, not that creationists should teach

⁴ Which seems to leave him open to committing the fallacy of the few/many: a type of *ad hominem* maneuver...Just because few (or many) advocate or avow X is irrelevant in the face of X’s intrinsic epistemic worth.

it. What counts is the epistemic status (Thagard's **logic** aspect) not the cognitive idiosyncrasies of the creationists." (50)

C.) (Contra 2.) "Even if we did not know how to reduce a universal flood to the familiar laws of physics, this is altogether inappropriate for ascertaining whether a claim is scientific. **For centuries scientists have recognized a difference between establishing the existence of a phenomenon and explaining it in a lawlike way.**" (51)

Ruse's Response

- Whatever one makes of Laudan's quibbling regarding the 'loose' and problematic notions of testability, lawhood, confirmation...**the fact remains that creation 'science' differs from (whatever we mean by the term) 'science' not as a matter of degree (as Laudan seems to inadvertently imply, should one adopt the rough and ready demarcation criteria 1. – 5.), but in kind.**
- **Moreover (re: Laudan) science has evolved in the 20th century...** "Science **does not break with law...saying that science appeals to law is not asserting that we know all the laws.**" (56) "[A]lthough science may not be as open-minded as Popper thinks it is, it is not as close-minded as, say, Kuh thinks it is." (57) (Re: Plate tectonics/geology prior 1960/ post 1960)

Conversely, (to re-state just a few egregious instances)

-(recall page 2 above) Creation scientists *stipulate* in the unknowability of 'laws' at the time of creation.

-Use (as an 'explanatory' device) a notion of "kind" which "is flabby to the point of inconsistency." (60)