

Naturalism, Evidence and Creationism: The Case of Phillip Johnson

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Abstract

Phillip Johnson claims that Creationism is a better explanation of the existence and characteristics of biological species than is evolutionary theory. He argues that the only reason biologists do not recognize that Creationist's negative arguments against Darwinism have proven this is that they are wedded to a biased ideological philosophy – Naturalism – which dogmatically denies the possibility of an intervening creative god. However, Johnson fails to distinguish Ontological Naturalism from Methodological Naturalism. Science makes use of the latter and I show how it is not dogmatic but follows from sound requirements for empirical evidential testing. Furthermore, Johnson has no serious alternative type of positive evidence to offer for Creationism, and purely negative argumentation, despite his attempt to legitimate it, will not suffice.

Key words: Creationism, evidence, evolution, naturalism, Phillip Johnson, scientific methodology

I. Introduction

Creationism has a new champion. He is Phillip E. Johnson, professor of law at the University of California, Berkeley. In his book *Darwin on Trial* (1991, hereafter abbreviated JDT), Johnson renewed the Creationist attack against evolution, and has since become a popular speaker on the lecture circuit, regularly drawing capacity crowds. He has debated scientists, such as physicist and Nobel Prize winner Steven Weinberg, and philosophers of science, such as Michael Ruse, who stated at a recent conference of the American Association for the Advancement of Science that Johnson's challenge deserves to be taken seriously (Ruse 1993). Christian Creationist groups have been quick to recognize Johnson as an important asset and they sponsor forums for him to present his arguments against evolution. The Ad Hoc Origins Committee, a group of professors and academic scientists from universities including Princeton and the University of Texas who describe themselves as Christian Theists, claims that Johnson has given a "penetrating and fundamental critique of modern

Darwinism” (Bocarsly *et al.* 1993) and distributes free videotapes of one of his speeches. Creationists have become increasingly well funded and well organized in the last two decades, but they have lacked an articulate spokesman with a high-profile institutional affiliation. Johnson fills this role and provides the movement with a measure of credibility it has longed for. Of course, Johnson is a lawyer and not a biologist, so his credibility is not on the scientific side – indeed, William Provine and other biologists have called his descriptions of evolutionary theory a “crude caricature” (Provine 1990, p. 20) – but he knows how to draw upon his strengths and makes a classic courtroom move of shifting the locus of argument in a way that seeks to undermine the expert testimony of his scientist adversaries. His key argument is broadly philosophical, but Johnson also uses his considerable rhetorical skills to try to turn the tables on scientists by portraying them as naively doctrinaire and intolerant, and Creationists as rational and fair-minded skeptics. To meet Johnson’s challenge we must not only show how his argument fails on logical grounds, but also deconstruct his rhetoric.

One of Johnson’s titles – “Evolution as Dogma: The Establishment of Naturalism” (Johnson 1990, hereafter abbreviated JED) – neatly captures both his argumentative and rhetorical strategies. Unlike the Creation-Scientists, who try to put Creationism on a par with evolution by claiming that Creationism is scientific, Johnson tries to put them on a par by alleging that evolution is ideological. Darwinian evolution, he claims, “is based not upon any incontrovertible empirical evidence, but upon a highly controversial philosophical presupposition” (JED p. 1). That presupposition is Naturalism. Johnson argues that naturalistic evolution is not scientific but is rather a dogmatic belief system held in place by the authority of a scientific priesthood, and that without the naturalist assumption evolutionary theory would be rejected in favor of Creationism. The charge that science is a “secular religion” is not new, but Johnson is the first to locate a basis for the charge in specific philosophical assumptions made by science, and to try to exploit this as a point of weakness in evolutionary theory to the advantage of Creationism. Johnson’s attack contains a kernel of truth – it is true that science makes use of a naturalistic philosophy – but Johnson has misunderstood Naturalism’s role in science in general and its implications in this instance. To see this, we begin with a review of Johnson’s main argument and discussion of its key concepts. The next section contains a discussion of Naturalism. I will argue that Johnson has conflated two varieties of Naturalism – Ontological Naturalism and Methodological Naturalism. If science assumed the former then Johnson’s charge of scientific dogmatism might have some merit, but we shall see that science relies on the latter, which is innocent of the charge. We examine the import of Methodological Naturalism and show why science assumes it as part of its commitment to empirical evidence. Next, we will ask what positive evidence Creationism has to offer that Johnson claims has been suppressed, and shall see that Creationism does not have a case even if the requirements of Methodological Naturalism are relaxed. Finally, we show why purely negative argument against evolution, a Creationist tactic Johnson wants to justify, will

not establish Creationists' preferred conclusion. In the course of discussion I will also highlight Johnson's prejudicial and misleading rhetoric, which serves to polarize the debate and undermine the possibility of peaceful co-existence between science and religion.

II. Johnson's argument

Johnson offers variations of the usual Creationist arguments that try to poke holes in the broad fabric of scientific evidence for evolution, but we will focus upon his novel and strongest challenge, which is the whole-cloth charge that evolution is metaphysical dogma. We may summarize Johnson's main argument in the following three-step form: Evolution is a naturalistic theory that denies by fiat any supernatural intervention. The scientific evidence for evolution is weak, but the philosophical assumption of Naturalism dogmatically disallows consideration of the Creationist's alternative explanation of the biological world. Therefore, if divine interventions were not ruled out of court, Creationism would win over evolution.

This is not laid out formally as a deductive argument, but one recognizes at once a version of the familiar Creationist "Dual Model" tactic; the argument is presented as though evolution and Creationism are the only alternatives, so if evolution gets knocked out, Creationism wins by default. Creation-Scientists, requesting "balanced treatment" of the issue in the public schools, used a very crude form of this type of argument structure, with Darwinian evolution on the one side and a thinly disguised Biblical literalism on the other; let the children judge the evidence and decide for themselves which one is right, they asked in the name of fairness. Of course, they did not plan to mention Mayan or Hindu or Asanti creation stories as alternatives. Johnson is more sophisticated. He, too, wants to get his conclusion by means of a negative argument against evolution¹ but he tries harder to set up the dichotomy to logically exclude other alternatives by attempting to define the key terms of the debate – "Darwinism" and "Creationism" – so they are mutually exclusive and jointly exhaustive.

Johnson takes pains to distinguish his brand of Creationism from the specific scripture-based commitments of Creation-Science² and to define Creationism broadly. Here is the way he puts the definition in *Darwin on Trial*:

'Creationism' means belief in creation in a... general sense. Persons who believe that the earth is billions of years old, and that simple forms of life evolved gradually to become more complex forms including humans, are 'creationists' if they believe that a supernatural Creator not only initiated this process but in some meaningful sense *controls* it in furtherance of a purpose (JDT p. 4).

Elsewhere he reiterates this with a slightly different emphasis.

The essential point of creation has nothing to do with the timing or the mechanisms the Creator chose to employ, but with the element of design or purpose. In the broadest

sense, a 'creationist' is simply a person who believes that the world (and especially mankind) was *designed*, and exists for a *purpose* (JDT p. 113).

A significant feature of Johnson's definitions is that they put no explicit restrictions on the manner of creation as long as God is involved in a significant way; guided evolution, special creation or any other mode of divine creation seems allowed. The definitions make no reference to the Bible, making it appear that Johnson countenances as Creationist the cosmogonies of any other religious or cultural tradition. In *Evolution as Dogma* Johnson is even more general:

[A] 'creationist' is... any person who believes that God creates (JED p. 13).

Such apparent open-mindedness makes the defender of evolution look narrow-minded in contrast to the tolerant Creationist. It also serves to enlarge Johnson's constituency, for most people will identify themselves as Creationist in the minimal sense of commitment to the idea that God creates.³ Additionally, the broad definition helps bolster Johnson's claim that evolution is necessarily at odds with religion, for he contrasts this mild-mannered Creationism with a view of evolutionary theory that makes the latter essentially atheistic.

Johnson defines "evolution" very narrowly. He does not deny that evolution by natural selection occurs if all one means by that is that "limited changes occur in populations due to differences in survival rates" (JED p. 2). Even Creation-Science allows micro-evolution, he claims – God created "kinds" but thereafter individuals may diversify within the limits of the kind.⁴ On the other hand, the important thesis of evolutionary theory, he says, is the further one about macro-evolution: that evolutionary processes also explain "how moths, trees, and scientific observers came to exist in the first place" (JED p. 2). Most of *Darwin on Trial* attacks this claim, but Johnson narrows his sights still further to set up his general argument. Since it is possible that God did not create creatures suddenly, but instead used a gradual evolutionary process, even macro-evolution does not contradict Creationism unless it is "explicitly or tacitly defined as *fully naturalistic evolution* – meaning evolution that is not directed by any purposeful intelligence" (JDT p. 4). This is the form of evolution that Johnson sets up as his target. Here is his positive definition:

By 'Darwinism' I mean fully naturalistic evolution, involving chance mechanisms guided by natural selection (JDT p. 4).

Johnson's main argument will hang on his conception of the role of Naturalism in this scheme, which we will examine shortly, but his central point is that in naturalistic evolution God's intervention is excluded.

Taking these two definitions together, we see how the argument is supposed to work. Creationism holds that God plays a role in Creation (however it occurs) and Darwinism denies the same. Though closer inspection makes it clear that Johnson's definitions do not establish the logical dichotomy he needs (as we will discuss in the last section), on the surface it looks as though he has set up

the major premise of a valid disjunctive syllogism that will then allow Creationists to rely solely upon negative argumentation. This is Johnson's first innovation. His second is that his characterization of the terms of the debate allows evolution to be attacked not only on scientific grounds, but also on philosophical grounds. He spends seven chapters in *Darwin on Trial* on the first task, trying to cast doubt upon the wide range of empirical evidence for evolutionary theory so that he can claim that Creationism is a better theory that would be accepted if not for the "powerful" and "doctrinaire" naturalistic assumption (JED p. 6) that rules it out by definition. As we shall see, however, the philosophical charge does the real work.

Johnson is well aware that scientists have not and will not now find Creationist criticisms of the evidence for evolution to be persuasive⁵, but this matters little for he is playing to the jury. When the scientific expert witness rebuts his negative appraisals of the evidence for evolution, Johnson will argue that biologists are "[unable] to make any sense out of creationist criticisms of their presuppositions" because of their "philosophical naiveté" (JED p. 13) and their "blind commitment to naturalism" (JED p. 17). The evidence cited for evolution, Johnson claims,

... looks quite different to people who accept the possibility of a creator outside the natural order. To such people, the peppered-moth observations and similar evidence seem absurdly inadequate to prove that natural selection can make a wing, an eye, or a brain. From their more skeptical perspective, the consistent pattern in the fossil record of sudden appearance followed by stasis tends to prove that there is something wrong with Darwinism, not that there is something wrong with the fossil record. The absence of proof 'when measured on an absolute scale' is unimportant to a thoroughgoing naturalist, who feels that science is doing well enough if it has a plausible explanation that maintains the naturalistic worldview. The same absence of proof is highly significant to any person who thinks it possible that there are more things in heaven and earth than are dreamt of in naturalistic philosophy (JED p. 8).

Again we see how Johnson's rhetoric tries to make the Creationist appear to be the rational "skeptic" who merely accepts the "possibility" of a Creator, and the biologist the "blind" and "naive" ideologue who dogmatically rejects that possibility and thereby misjudges the evidence. Thus, he concludes, it is not the evidence, but the ideology that supports evolution. Here is the conclusion the reader is supposed to draw:

Victory in the creation-evolution dispute therefore belongs to the party with the cultural authority to establish the ground rules that govern the discourse. If creation is admitted as a serious possibility, Darwinism cannot win, and if it is excluded *a priori* Darwinism cannot lose (JED p. 8).

The claim that evolution is held up solely by "metaphysical assumptions" (JED p. 13) and "speculative philosophy" (JED p. 15) allows Johnson to ignore the weakness of his negative scientific arguments. In his public lectures, Johnson follows the same pattern, usually taking a few token swipes at the empirical

evidence for evolution and then quickly moving to his philosophical indictment of its naturalistic metaphysics.

Although this philosophical criticism of Naturalism has to carry the weight of his conclusion, Johnson fails to provide any philosophical analysis of the concept that he charges scientists have uncritically accepted. Neither does he support his thesis that the concept is inherently dogmatic, or provide evidence that scientists do subscribe to it in the way he claims. Let us now briefly review the history of Naturalism, and then evaluate Johnson's characterization and his application of the concept to the biological case.

III. Varieties of naturalism

The generic meaning of "Naturalism" is a philosophical view based upon study of the natural world, with an implicit contrast to the supernatural world, but this leaves room for a wide range of specific variations. Since the time of the ancient Greeks, Naturalism has often been associated with various forms of secularism, especially epicureanism and materialism, but it has also been used as a label for religious views such as pantheism, as well as the theological doctrine that we learn religious truth not by revelation but by study of natural processes. In the centuries leading up to the 20th century, concomitant with the rise of the natural sciences, the term became associated more directly with the methods and fruits of the scientific study of nature. One spin-off at the turn of the century was the Naturalist movement in literature, epitomized by Zola but continuing in a form through Steinbeck, which featured "scientific" portrayals of human characters playing out predetermined roles as amoral creatures governed by natural law. Another extreme expression was Auguste Comte's philosophy of Positivism, the scientific stage of philosophical development which society purportedly reached after progressing beyond theological and metaphysical conceptions of the world. Positivism concerned itself only with regularities of observable phenomena, so Naturalism at that time became associated with Phenomenalism. This version of Naturalism was carried forward into the philosophy of science in the early 20th-century by the influential Logical Positivists who restricted knowledge to propositions with a determinable truth-value – if a proposition was not verifiable then it was taken to be meaningless. The so-called "verifiability criterion of meaning" turned out to be unworkable and its collapse was one of several reasons for the demise of the Logical Positivist view in mid-century. Since then, in philosophy at least, the Naturalist view of the world has become coincident with the scientific view of the world, whatever that may turn out to be. Many people continue to think of the scientific world view as being exclusively materialist and deterministic, but if science discovers forces and fields and indeterministic causal processes, then these too are to be accepted as part of the Naturalistic worldview.⁶ The key point is that Naturalism is not necessarily tied to specific ontological claims (about what sorts of being do or don't exist); its base commitment is to a method of inquiry.

Of course one may choose to take some set of basic ontological categories from science at a particular time and then claim that only these things exist. The seventeenth century Mechanistic Materialists, who held that the world consists of nothing but material particles in motion, did just this, and there are any number of other ways that one could decide to fix base ontological commitments. Let us call this type of view *Ontological Naturalism*. The Ontological Naturalist makes a commitment to substantive claims about what exists in nature, and then adds a closure clause stating “and that is all there is”. A thorough historical review of positive formulations of Ontological Naturalism could fill an article in itself, but amidst this variety many do agree on a common negative claim: because God standardly is assumed to be supernatural, the Ontological Naturalist usually denies God’s existence. It is possible, however, for an Ontological Naturalist to allow God in the picture, provided God’s attributes are appropriately constrained to conform to the regimen of the given natural ontology. Hobbes and Spinoza were Ontological Naturalists who thought they found room for God (indeed, for a Judeo-Christian God) in this way. Some traditional theists, however, were not willing to countenance their naturalized conceptions of the deity; Hobbes was branded an atheist and Spinoza a pantheist. The problem of trying to naturalize theology is that traditionalists want God to be able to control nature from outside nature; they take God to be supernatural by definition. Probably the main reason for the strong secularist strand among the varieties of Naturalism is that many Naturalists also have tended to take for granted this traditional conception of God and have found it difficult to square it with their other ontological commitments.

Ontological Naturalism should be distinguished from the more common contemporary view, which we can call *Methodological Naturalism*. The Methodological Naturalist does not make a commitment directly to a picture of what exists in the world, but rather to a set of methods as a reliable way to find out about the world – typically the methods of the natural sciences, and perhaps extensions that are continuous with them – and indirectly to what those methods discover. An important feature of science is that its conclusions are defeasible on the basis of new evidence, so whatever tentative substantive claims a Methodological Naturalist makes are always open to revision or abandonment on the basis of new, countervailing evidence. Because the base commitment of a Methodological Naturalist is to a mode of investigation that is good for finding out about the empirical world, even the specific methods themselves are open to change and improvement; science may adopt promising new methods and refine existing ones if doing so would provide better evidential warrant. Understanding the nature of scientific evidence will be critical for answering Johnson’s charge, but let us postpone examination of that concept and how it relates to the question of God’s existence and creativity until we have seen the details of Johnson’s philosophical claims that Naturalism is assumed dogmatically and that its ideology alone supports evolutionary theory.

Although it is the linchpin of his argument, Johnson provides only a cursory discussion of the concept of Naturalism. Taken individually, his few statements

do pick out versions of Naturalism, but taken together they suggest a biased and misleading picture. In *Darwin on Trial*, Johnson defines Naturalism as follows:

Naturalism assumes the entire realm of nature to be a closed system of material causes and effects, which cannot be influenced by anything from 'outside'. Naturalism does not explicitly deny the mere existence of God, but it does deny that a supernatural being could in any way influence natural events, such as evolution, or communicate with natural creatures like ourselves (JDT pp. 114–115).

This is a good definition of a common form of Ontological Naturalism; the “causal closure of the physical” is another way this idea is expressed. The acknowledgment that Naturalism does not “explicitly” deny the “mere existence” of God, however, is significant, for it is another indication that Johnson is not as tolerant and ecumenical as his definition of Creationism might initially lead one to believe. The clear implication here is that, because Naturalism rejects continuing divine intervention, it does *implicitly* deny God’s existence, but this conclusion follows only if one has a particular conception of divine power. We see this view expressed again as Johnson immediately follows the above definition by introducing a specific form of Naturalism that he calls “Scientific Naturalism”.

Scientific naturalism makes the same point by starting with the assumption that science, which studies only the natural, is our only reliable path to knowledge. A God who can never do anything that makes a difference, and of whom we can have no reliable knowledge, is of no importance to us (JDT p. 115).

In such statements Johnson is dismissing views such as Deism that do allow God to influence natural events, to make a difference and conceivably even to communicate with us, by setting up the world in the appropriate way at Creation but thereafter not intervening in the natural order. He is also rejecting views that hold that God is concerned with our spiritual rather than our material being and intervenes only at a spiritual level. He is also ignoring religious views that do not posit a personal God, but conceive of God as a universal life force or a mystical unity. Also unimportant, apparently, are views that say we can have “no reliable knowledge” of God; this restriction leaves out even many Judeo-Christian thinkers who hold that the nature of God is unknowable to the human mind. These spiritual views Johnson excludes are prevalent world-wide, so we should not be misled by his attempt to portray his form of Creationism as generically tolerant. Such views, however, *are* compatible with varieties of both Ontological and Methodological Naturalism and belie Johnson’s attempts to conflate Naturalism and atheism.

Returning to the definitions, one may think at first that “Scientific Naturalism” is Johnson’s term for Methodological Naturalism, but in light of his other comments we see that he mixes in elements of Ontological Naturalism. He says, for example, that in the present context he considers scientific naturalism to be equivalent to evolutionary naturalism, scientific materialism, and scientism.

All these terms imply that scientific investigation is either the exclusive path to knowledge or at least by far the most reliable path, and that only natural or material phenomena are real. In other words, what science can't study is effectively unreal (JDT p. 114).

By ignoring distinctions among such positions⁷, Johnson again is able to associate evolution with (godless) materialism and to portray Naturalism as monolithically dogmatic. “Scientism”, for example, is a term of derision coined by Hermeneutic critics of science to label those who wanted to apply the methods of the natural sciences “inappropriately” to the human sciences, for which they thought the literary model of Hermeneutic *interpretation* should reign as the proper method. Their target was specifically the followers of the Logical Positivists, but, as was noted, the exclusionary Positivist view that only the scientifically verifiable was meaningful has not held currency for several decades. Contemporary Methodological Naturalists would not recognize themselves in this description, yet it is just this sort of view that Johnson insistently portrays as the essence of Scientific Naturalism.⁸

When he applies Naturalism to evolution Johnson says that one gets:

... a theory of naturalistic evolution, which... absolutely rules out any miraculous or supernatural intervention at any point. Everything is conclusively presumed to have happened through purely material mechanisms that are in principle accessible to scientific investigation, whether they have yet been discovered or not (JED p. 3).

Here it is clear that Johnson is describing a form of Ontological Naturalism – besides the reference to Mechanistic Materialism, the terms “absolutely” and “conclusively” emphasize the supposed dogmatic commitment to the substantive ontological claims. Johnson claims that evolutionary biologists assume this sort of positivistic philosophy, but certainly evolutionary biology as a science does not have to do so, and it is hard to believe even that any scientist who has kept abreast of developments in philosophy of science would affirm this form of Ontological Naturalism.

Indeed, it seems clear that the two biologists that Johnson most often decries – George Gaylord Simpson and Stephen Jay Gould – do not endorse such a view, but are Methodological Naturalists. Simpson discussed Naturalism as part of his review of the principle of Uniformitarianism in geology and biology and he is explicit that the scientific postulate of Naturalism is “a necessity of method” and that the rejection of appeal to preternatural factors must be made on “heuristic grounds” (Simpson 1970, p. 61). When one looks for Gould's view on the matter one finds in his discussion of Uniformitarianism that he used precisely the distinction reviewed above to disambiguate “Substantive Uniformitarianism” (a descriptive hypothesis holding that the history of life was uniform) from “Methodological Uniformitarianism” (Gould 1965, p. 226). Gould uses the latter term to label the assumption in geology that natural laws are invariable – a position that implies absence of supernatural invention. The name Gould gives

to this presupposition tells us just how he views it. He recommends that the special term be dropped because it follows from the fact that geology is a science. Clearly, both Simpson and Gould understand that science does not affirm Naturalism as a substantive ontological claim but rather as a methodological assumption.

IV. Methodological naturalism & evidence

We have seen how Johnson misleadingly inserts terminology with connotations of dogmatism into the very definition of Naturalism. He regularly refers to Naturalism using such terms as “extravagant extrapolation, arbitrary assumptions, and metaphysical speculation” (JED p. 15), but such name-calling is no argument. Johnson provides no analysis to show that science assumes the Naturalistic principle dogmatically; he simply asserts this. We have now seen that Naturalism is not properly put forward as an ontological claim about what conclusively does or does not exist, but rather as a methodological rule that states a valid way for investigation to proceed, so clearly it is not dogmatic in the sense Johnson claimed. But is the methodological rule itself dogmatic? To say that a belief or principle is dogmatic is to say that it is opinion put forward as true or valid on the grounds of authority rather than reason. Does science put forward the methodological principle not to appeal to supernatural powers or divine agency simply on authority? Is it just an extravagant, arbitrary, speculative assumption? Certainly not. There is a simple and sound rationale for the principle based upon the requirements of scientific evidence.

Empirical testing relies fundamentally upon use of the lawful regularities of nature that science has been able to discover and sometimes codify in natural laws. For example, telescopic observations implicitly depend upon the laws governing optical phenomena. If we could not rely upon these laws – if, for example, even when under the same conditions, telescopes occasionally magnified properly and at other occasions produced various distortions dependent, say, upon the whims of some supernatural entity – we could not trust telescopic observations as evidence. The same problem would apply to any type of observational data. Lawful regularity is at the very heart of the naturalistic world view and to say that some power is supernatural is, by definition, to say that it can violate natural laws.⁹ So, when Johnson argues that science should allow in supernatural powers and intelligences he is in effect saying that it should allow beings that are above the law (a rather strange position for a lawyer to take). But without the constraint of lawful regularity, inductive evidential inference cannot get off the ground. Controlled, repeatable experimentation, for example, which Johnson explicitly endorses in his video “Darwinism on Trial” (Johnson 1992), would not be possible without the methodological assumption that supernatural entities do not intervene to negate lawful natural regularities.

Of course science is based upon a philosophical system, but not one that is extravagant speculation. Science operates by empirical principles of observational testing; hypotheses must be confirmed or disconfirmed by reference to empirical data. One supports a hypothesis by showing consequences obtained that would follow if what is hypothesized were to be so in fact. Darwin spent most of the *Origin of Species* applying this procedure, demonstrating how a wide variety of biological phenomena could have been produced by (and thus explained by) the simple causal processes of the theory. Supernatural theories, on the other hand, can give no guidance about what follows or does not follow from their supernatural components. For instance, nothing definite can be said about the processes that would connect a given effect with the will of the supernatural agent – God may simply say the word and zap anything into or out of existence. Furthermore, in any situation, any pattern (or lack of pattern) of data is compatible with the general hypothesis of a supernatural agent unconstrained by natural law. Because of this feature, supernatural hypotheses remain immune from disconfirmation.¹⁰ Johnson's form of Creationism is particularly guilty on this count. Creation-Science does include supernatural views at its core that are not testable and it was rightly dismissed as not being scientific because of these in the Arkansas court case, but it at least was candid about a few specific non-supernatural claims that are open to disconfirmation (and indeed that have been disconfirmed), such as that the earth is less than 10,000 years old and that many geological and paleontological features were caused by a universal flood (the Noahian Deluge). Johnson, however, does not provide any Creationist claim beyond his generic one that "God creates for some purpose", and as a purely supernatural hypothesis this is not open to empirical test. Science assumes Methodological Naturalism because to do otherwise would be to abandon its empirical evidential touchstone.

Finally, allowing appeal to supernatural powers in science would make the scientist's task just too easy, because one would always be able to call upon the gods for quick theoretical assistance. Johnson wants us to accept "God creates for some purpose" as an explanation of the biological world, but there would be no reason to stop there. Once such supernatural explanations are permitted they could be used in chemistry and physics as easily as Creationists have used them in biology and geology. Indeed, all empirical investigation beyond the purely descriptive could cease, for scientists would have a ready-made answer for everything. Clearly science must reject this kind of one-size-fits-all explanation. By disqualifying such short-cuts, the Naturalist principle also has the virtue of spurring deeper investigation. If one were to find some phenomenon that appeared inexplicable according to some current theory one might be tempted to attribute it to the direct intervention of God, but Methodological Naturalism prods one to look further for a natural explanation. Clearly, it is not just because such persistence has proved successful in the past that science should want to encourage this attitude.

Johnson claims that, “If the possibility of an ‘outside’ intervention is allowed in nature at any point...the whole naturalistic worldview quickly unravels” (JED p. 7). He intends by this only that atheistic Darwinism will lose in a head-on comparison with theistic Creationism once the “ideological” restrictions are removed, but as we have seen the consequences would be far more serious. Johnson wants to make an exception to the law in this one area but it would infect the entire enterprise. Methodological Naturalism is not a dogmatic ideology that simply is tacked on to the principles of scientific method; it is essential for the basic standards of empirical evidence.

V. Creationism’s evidence

With his attack upon Naturalism, Johnson is arguing that science abandon a sound methodological principle and reintroduce miraculous “explanations”. We have seen that science has good reasons for retaining this principle – without it standard inductive evidential inferences would be undermined – but we have also admitted that rules of scientific inquiry are themselves open to change or modification if a better method of evidential warrant is found. Does Johnson have something better in mind? It seems that he does, for he regularly claims that the supernatural theory of Creationism is a better theory than Darwinism, and constantly complains that “Creationists are disqualified from making a positive case, because science by definition is based upon Naturalism” (JED p. 9). Such statements lead one to expect that Johnson will supply what he says the scientific priesthood has suppressed, but one will look in vain for this positive evidence. Amidst all the negative arguments one finds only two small hints of what type of positive evidence the Creationists would have to offer – revelation and the Design Argument.

The first occurs only as a passing remark following an (inadvertently self-undermining) acknowledgment that empiricism is a “sound methodological premise” (JED p. 14). Johnson writes:

Science is committed by definition to...find[ing] truth by observation, experiment, and calculation rather than by studying sacred books or achieving mystical states of mind. It may well be, however, that there are certain questions...that cannot be answered by the methods available to our science. These may include not only broad philosophical issues such as whether the universe has a purpose, but also questions what we have become accustomed to think of as empirical, such as how life first began or how complex biological systems were put together (JED p. 14).

The sly implication here is that the “sacred books” and “mystical states of mind” may indeed be appropriate ways to answer empirical as well as teleological questions. Is this Johnson’s new source of positive evidence for Creationism? I asked Johnson just this question following one of his public lectures and he replied that he was not defending this position. However, neither did he deny that such appeal to scriptural authority or mystical experience would count as

positive empirical evidence. Johnson seems to be pleading the Fifth on this important issue. He cannot reject these methods without alienating his constituency, for the Biblical account, perhaps supplemented by religious experiences, is the prime motivation for Christian Creationists. On the other hand, he cannot endorse the “method” of supernatural revelation without abdicating his claim of expertise as a lawyer, for anyone would be laughed out of court who argued that one could help establish an empirical fact (say, that the defendant set off the explosion) by reference to the authority of psychic or spiritual testimony.

The second hint of a source of positive evidence for Creationism is in the following statement:

[F]rom a creationist point of view, the very fact that the universe is on the whole orderly, in a manner comprehensible to our intellect, is evidence that we and it were fashioned by a common intelligence (JED p. 13).

This is the only instance where Johnson makes an explicit commitment to any type of positive evidence the Creationist can provide, but what we have here is nothing but a version of the old Argument from Design – the world appears to exhibit a designed arrangement so we may infer the existence of a designer – which provides, at best, only a weak analogy from the human case to the divine. This article is not the place to review the vast literature on the design argument, so I will confine myself to a few remarks on Johnson’s specific formulation of it.

What sort of order do we find in the universe, and what can it tell us? Examples of design to which we infer to a human designer are such as a house, or a formal well-manicured garden, or Paley’s famous pocketwatch, but I would argue that we draw the inference in these cases precisely because the kind of order we see in them is so *unlike* what we typically found in nature; their simple geometrical forms and periodicities are strikingly different from the complexities and irregularities that the surface structure of the world presents. And when we do discover an underlying order in nature that is “comprehensible to our intellect” it is order to which we have been able to give natural, scientific explanations. Such order thus does not provide good reason to infer a supernatural creator. It is rather those features of the world that, for the time being at least, are *incomprehensible* to our intellect that are more likely to lead us to think of a higher power. At one time this may have been the awful power of a thunderstorm, leading us to suppose an angry god. Or we may have been struck by the wondrous beauty of a rainbow after the storm and interpreted it as a sign that god was appeased. We appeal to supernatural agency to explain that which we cannot explain otherwise. But when these phenomena are eventually accounted for in terms of natural electrical and optical properties they lose their persuasiveness as indications of the literal presence of god and at most retain only an emotional or symbolic force.

Similarly, the version of the Design Argument that appealed to the adaptedness of organisms was persuasive only when this adaptation was

mysterious and the idea of purposeful creation seemed the only possible explanation. But Darwin showed how simple natural processes could explain such adaptations. Johnson's "God creates for a purpose" view can say nothing about the supernatural processes by which the creation was accomplished or what divine ends it serves; such an "explanation" starts and stops with the will of God. To pick just one of any number of common examples, Darwin's theory also accounts for those organisms that are not properly adapted to their environment – random variation produces both fit and unfit individuals, and natural selection is more likely to eliminate those that cannot compete as well in the given environment – but why would God create the world in such a way that the vast majority of individual organisms die because they are maladapted? The Design Argument has always been criticized on this sort of point even before Darwin; if God designed the world, why did He do such a poor job of it? Isn't the evident waste and sloppiness actually an argument *against* the existence of God? Such questions show the flip side of the Design Argument and highlight its weakness, for if it is applicable at all it is applicable for both the theist and the atheist. The Creationist answer to such impious questions is that God must have had His reasons. Period.

And of course Creationists are right that we are not privy to God's reasons and purposes. The appeal to supernatural forces, whether divine or occult, is always available because we can cite no necessary constraints upon the powers of supernatural agents. This is just the picture of God that Johnson presents. He says that God could create out of nothing or use evolution if He wanted (JDT p. 14, 113); God is "omnipotent" (JDT p. 113). He says God creates in the "furtherance of a purpose" (JDT p. 4), but that God's purposes are "inscrutable" (JDT p. 71) and "mysterious" (JDT p. 67). A god that is all-powerful and whose will is inscrutable may be called upon to explain *any* event in any situation, and, as we saw, this is one reason for the methodological prohibition against such appeals in science.

There are just two ways a Creationist might become more specific about the will and methods of God. The first would be to appeal to revelation through mystical experience or scripture, but we have already seen that this does not in itself count at all as empirical evidence. The other is to revert to an earlier form of Naturalism we mentioned – natural theology – and try to judge the nature of God by looking at the book of nature. Johnson indulges this approach just once, concluding that the elaborate-tailed peacock and peahen are "just the kind of creatures a whimsical Creator might favor, but that an 'uncaring mechanical process' like natural selection would never permit to develop" (JDT p. 31). If we are to take Johnson seriously, such "Creationist explanations" in terms of divine "whimsy" postulated on the basis of peacock tails, are better accounts than those given by evolutionary theory and are thereby supposed to favor Creationism.

If this is the "positive case" that purportedly has been suppressed, it is no wonder that Creationists rely upon exclusively negative argumentation, and why Johnson labors to legitimize it. The Creationists' insistence upon viewing the issue as a simple either/or choice mistakenly leads them to think that their

negative arguments against Darwinian evolutionary mechanisms directly prove Creationism. However, negative argument will not suffice to establish the Creationists' desired conclusion even using Johnson's non-standard definitions of "Darwinism" and "Creationism" that were quoted earlier. Johnson's definition of Darwinism mentioned only the classical evolutionary mechanism of natural selection operating upon tiny chance variations, and omitted other possible processes. So even if negative argument were to rule out this sort of mechanism (something that Johnson certainly has not done), one could not thereby accept Creationism since there are other alternatives that do not rely upon divine intervention. His definitions of Creationism are similarly problematic. For example, one definition seems to rule out the sort of Deist who believes that God created the world and set it going in the way He wanted, but then no longer intervenes. Another definition rules out supernatural but non-theistic views that would stand in contrast to naturalistic evolution. Johnson would have us believe that the logical situation is the following,

Creationism (C_1) or Darwinism (D_1)

as though these were the only candidates. If this were the case then if negative argument disproved the latter then the former would follow as a deductive logical conclusion, but the logical situation is rather:

C_1 or C_2 or...or C_n or D_1 or D_2 or...or D_n or X_n

and in this case even if D_1 were rejected a variety of options remain beside Johnson's preferred C_1 , so purely negative argument is not sufficient to establish it. Furthermore, these positions are not necessarily mutually exclusive. Direct conflict occurs when evolutionary theory is confronted with *specific* Creationist stories (like the Creation-Scientists' literal 6-day instantaneous creation) but Johnson *claims* not to defend any such view.

"Darwinism" as Johnson defines it is not a single thesis but rather the conjunction of at least two different theses: (D_m) the specific evolutionary mechanism of the New Synthesis, and (D_a) the atheistic denial of divine intervention. But all of Johnson's and other Creationists' negative arguments are directed at undermining (D_m), so even if they were successful they would leave the possibility of (D_a) untouched. The existence or non-existence of some particular evolutionary process is independent of the question of whether or not there is a creative deity. Johnson himself must grant this for he claims to allow the possibility that "He might have created things instantaneously in a single week or through gradual evolution over billions of years" (JDT p. 113). Thus, negative arguments against evolutionary processes are irrelevant to the key question of divine creative power when stated in this general way. Indeed, if Johnson cared just about his broad, ecumenical sort of Creationism as he claims, then he should have no reason at all to argue against (D_m) and could confine himself to arguing against (D_a). Only someone who has a specific conflicting

Creationist scenario in mind such as the one-week instantaneous creation story need worry about the evolutionary mechanism. In any case, negative argumentation is not going to establish the general or the specific Creationist thesis. As prosecuting attorney for the new Creationists, Johnson needs to provide positive evidence for his and his clients' preferred conclusion, but, as we have seen, he has none to offer.

Notes

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¹ One of Johnson's main complaints against science, which he illustrates by reference to the National Academy of Science's friend of the court brief in the trial on the 1981 Arkansas 'Balanced Treatment' Act, is that it does not allow Creationism to use merely negative arguments (JDT p. 8).

² Politically organized creationists are mostly Christian literalists who believe, for example, in Biblical inerrancy, in Special Creation by God of all biological kinds, and in a historical global flood. The Bible-Science Association, the Creation Science Fellowship, Inc., and the Creation Research Society, a few of the main Creationist organizations, all require that one sign a statement of belief in such fundamentalist Christian principles to become a member.

³ (Culliton 1989) reports that only *half* of Americans accepted the statement that "Human beings as we know them today developed from earlier species of animals." Of these many will agree that this evolutionary development was guided by God.

⁴ Johnson notes the idea that the different races of human beings are all descendants of the original ancestral pair – Adam and Eve. (JDT p. 68) He calls this an example of allowable micro-evolution, but clearly the Creationist notion of diversification "within the limits" of created "kinds" is not the same as micro-evolution on the biological model. Furthermore, it is doubtful that Creation-Scientists, given their theological beliefs, could consistently accept that races differentiated on the basis of natural selection of random genetic variation.

⁵ The focus of this paper is upon Johnson's philosophical criticism, so I will not review these scientific criticisms. Johnson rehearses the standard Creationist arguments against the power of mutation and natural selection, carpings on gaps in the fossil record, and doubts about the possibility of a molecular origin of life. These and other such arguments have previously been addressed by scientists and philosophers of science such as Philip Kitcher (1982), Michael Ruse (1982), Arthur N. Strahler (1987), and Tim Berra (1990).

⁶ To recognize the enrichment of the scientific ontology beyond the classical form of Materialism, it is now more common to speak of "Physicalism", where the reference is to the ontology of current physics, or sometimes "Physicalistic Materialism". Admittedly, some scientists and philosophers continue to use simply "Materialism", but it is understood in the broader sense of the *fabric* of the universe, which includes space-time and electro-magnetic fields and so on, rather than in the old sense of mere *matter*. Johnson, however, explicitly links Naturalism and the old Mechanistic Materialism throughout his works, with the rhetorical effect of conflating naturalistic evolution with atheistic materialism.

⁷ Johnson provides no bibliographic references for any of these terms so we cannot evaluate the specifics of the definitions he may have in mind.

⁸ Another example is this passage: "The Soviet Cosmonaut who announced upon landing that he had been to the heavens and had not seen God was expressing crudely the basic philosophical premise that underlies Darwinism. Because we cannot examine God in our telescopes or under our microscopes, God is unreal. It is meaningless to say that some entity exists if in principle we can

never have knowledge of that entity" (JED p. 14). Not only does Johnson once again link Naturalism to atheism, by way of Communism, but he explicitly characterizes it in Positivist terms, with the reference to the verifiability criterion of meaning.

⁹ This is not to say, however, that things we now think of as supernatural necessarily are so. It could turn out, for example, that ghosts exist but that, unlike our fictional view of them, they are subject to natural law. In such a case we would have learned something new about the natural world (which may require revising current theories), and would not have truly found anything supernatural.

¹⁰ We should note a possible red herring on this point. Creationists often erroneously claim that evolutionary theory itself is not disconfirmable, and so charge that it is in the same boat as their view. To his credit, Johnson does not make this error. He understands that the theory is disconfirmable, and all of his negative argumentation purports to show that in fact it has already been disconfirmed. Johnson's positive claim is that biologists' philosophical prejudices prevent them from recognizing the disconfirming evidence.

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