The Crucial Importance of Epistemology and Correctly Defining Science for the Cause of Creation and Intelligent Design

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Abstract

In the creation/evolution debate much misunderstanding and error arise from differing definitions of science and conflicting epistemologies. Creationists rightly hold secularists guilty of distorting the definition of science by injecting it with their epistemology and their assumption of a closed materialistic universe. Conversely, some Christians would inject their belief in God and His miraculous works into scientific hypotheses, calling it "theistic science." Some in the Intelligent Design (ID) movement develop this further, classifying intelligent design as a scientific concept. The application of philosopher of science Karl Popper's "criterion of demarcation" and the process of "conjectures and refutations" is proposed to correct these errors.

Two Competing Epistemologies for Science Defined and Contrasted

A disturbing aspect of current discussion of Creation versus Evolution in general and Intelligent Design(ID) in particular is the apparent unwillingness of Christians to recognize and candidly profess their commitment to an epistemology that is radically contrary to that embraced by their secularist opponents. The epistemology of Christians is grounded in their faith in the Scriptures of the Old and New Testaments and in their divine Lord and Savior, Jesus Christ, who is the center of the biblical revelation. Thus, we Christians are not commanded to believe in divine special creation of all things in the beginning because we are persuaded by scientific evidence and logic. No, we are surrendered to Jesus Christ as "Lord of all"(Acts 10:36), under whose feet the Father put all things and made Him "head over all things to the church" (Ephesians. 1:22). Jesus, God the Son, is sovereign Creator, Ruler, and Sustainer of the universe and all its creatures (Hebrews 1:2-3). He commands us to believe the writings of His prophet, Moses (John 5:45-47). What did Moses write about first of all? He wrote about God's creating all things by the word of His power, in the space of six days, and all very good (Genesis 1). Consequently, we Christians are to walk by faith, not by sight (2 Corinthians. 5:7). Thus in this life we will never possess sufficient scientific knowledge to be able to say, I can prove my faith by science, apart from my faith in the Lord Jesus Christ. "By faith we understand that the worlds were framed by the word of God, so that the things which are seen were not made of things which are visible" (Hebrews 1:3). Furthermore, is not intelligent design advocated by the Apostle Paul in Romans 1:19-20? And if we Christians are to have an impact for the glory of God upon the lost souls who dominate the scholarly and scientific Establishment, as well as upon those ordinary citizens whom they influence so powerfully, should we not strive to be candid as well as wise and gracious concerning what we really are? (Matthew 5:13-16)

The Christian and secular epistemologies for science are defined and contrasted as follows:

- Secularist epistemology: There is but one channel to valid knowledge of the natural order that science examines, the human enterprise called empirical science. This epistemology is a logical application of the positivist philosophy of Auguste Comte.
- Christian epistemology: There are at least two channels to valid knowledge of the natural order, empirical science and divine special revelation in the Scriptures of the Old and New Testaments.

Charles Darwin, in 1838, less than two years after his five-year voyage around the world on the H.M.S. Beagle, while he was immersed in his secret brainstorming to devise a scientific explanation for evolution, read a review of Auguste Comte's *Cours de philosophie positive*. He immediately embraced Comte's positivism as the base for his own philosophy of science (Darwin, 1987). A major tenet of positivism is that the only source of valid knowledge is observation through the natural senses. The modern secularist epistemology of science, defined above, follows logically from Comte's positivism. This is because both are

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grounded in the assumption of a purely naturalistic view of the world and man's relation to it, and the instruments of science are extensions of our natural senses.

Attempts to Inject Faith into the Definition of Empirical Science

What I have called "the original sin in the garden of science," was perpetrated by secularist scientists who, over a century ago, began injecting into the definition of science their philosophical/religious/irreligious assumption of a closed, uncreated materialistic universe(Kofahl, 1989). However, science with its tools and method cannot prove this assumption to be fact. Consequently, it has no place in either the definition of science or the rules of its method. Nevertheless, in 1984 the National Academy of Sciences published an official document that advocates this philosophically biased definition of science:

> However, the goal of science is to seek naturalistic explanations for phenomena—and the origins of life, the earth, and the universe are, to scientists, such phenomena—within the framework of natural laws and principles and the operational rule of testability (National Academy of Sciences, 1984).

Roughly since the time of Charles Darwin this has become the reigning view of science, effectively shutting the mouths of Christians in science and virtually all other fields of scholarly endeavor. It seriously restricts their freedom to practice science or scholarship in a manner commensurate with their biblical Christian faith. The secularist enthusiasts who dominate science attempt to punish and banish anybody who refuses to embrace their "original sin," which was their injecting their materialistic philosophy into the definition of science.

Several well-meant but flawed attempts have been made by Christians to counter the secularist distortion of the definition of science. One creationist tactic aimed at science teaching in public schools made use of the concept of "abrupt appearance" of new kinds of animals and plants in the fossil record. The idea was that, by using this term and teaching students about the gaps in the fossil record, the students would then be free to draw their own conclusions as to whether or not "abrupt appearance" of new types in the fossil record points to evolution or to special divine creation. In two notorious trials, one of which went from Louisiana all the way to the U.S. Supreme Court, the creationist case went down to judicial defeat.

A more recent tactic used by creationists to regain some influence for Christians in the scientific enterprise involves justifying the injection of God and divine miraculous activity into scientific hypotheses and theories. This approach was initiated by J. P. Moreland in his book, *Christianity and the Nature of Science* (1989). More recently he gave the name "theistic science" to this approach to scientific research (Moreland, 1994).

A required preparation for the promotion of the concept of "theistic science" is necessarily the overthrow of Karl Popper's "criterion of demarcation." This is the requirement that all hypotheses of empirical science must be so constructed that they are subject to falsification on the basis of suitable empirical data (Popper, 1965, pp. 31–37). The need to dispose of Popper arises from the fact that, if Popper is right, any reference to God or divine activity inside of a hypothesis renders it non-falsifiable, and therefore non-scientific. This follows from the fact that God and His divine miraculous operations in nature cannot be observed, measured, manipulated or tested by the tools and procedures of science. Thus there is no way empirically to falsify an assertion about God or His operations. Consequently, any hypothesis that references God or His miraculous works of creation is to that degree rendered non-scientific.

The Problem of Induction Solved through Deductive Logic

British philosopher Francis Bacon in 1620 "characterized well-conducted empirical science as the advance by induction from 'senses and particulars' to 'the highest generalities' about 'the inner and further recesses of nature'" (Miller, 1994, p. 97). Bacon felt that careful observations of nature would lead to intuitive perception of the essence or true nature of the thing observed (Popper, 1965, p. 12). In 1739 English philosopher David Hume effectively demolished induction (Miller, 1994, p. 52). However, he unfortunately extended his skepticism to reject reason itself. In the 20th century Austrian philosopher Karl Popper solved the problem of induction by showing how deductive logic lies at the heart of the method of empirical science (Popper, 1959, pp. 40–48; 1965, 33–59). His criterion of demarcation between empirical science and other forms of knowledge is the requirement that a hypothesis or theory of science must be so constructed that it is subject to possible rejection on the basis of suitable new empirical data. Therefore, progress in scientific knowledge occurs through a process of clearing away errors and putting forward new testable hypotheses. Popper called this the method of "conjectures and refutations."

Objections by a number philosophers of science to Popper's criterion of demarcation have been around for quite a few years, but they have been successfully rebutted (Miller, 1994, pp. 1–49). Although gainsayers still exist, it appears that today the large majority of practicing scientists support Popper's criterion of demarcation between empirical science and other forms of knowledge. I issue a challenge to anybody to find a practicing research scientist who

agrees that a hypothesis constructed so that it cannot be subjected to empirical falsification can properly be classified as a hypothesis of empirical science. In this regard it is significant that, following the death of Karl Popper in 1994, the journal *Nature* published two memorial notes honoring the great man. The view was expressed that Popper's contributions to science are permanent. Let us add the observation that the valuable contributions of Polanyi and Kuhn to understanding the human, philosophical, and social aspects of the scientific enterprise in no way invalidate Karl Popper's emphasis on the criterion of demarcation. Furthermore, I maintain that Popper's criterion of demarcation between empirical science and other forms of knowledge does not contradict our Christian commitment to the verbal plenary inspiration and subsequent inerrancy of the Scriptures. And as we suggested above, it is because of this commitment that we believe in divine special creation.

David Miller, Professor of Philosophy at the University of Warwick in the United Kingdom, is a specialist with international reputation in the field of the philosophy of science. Long a friend and associate of Popper, Miller powerfully supports, on occasion criticizes, and extends Popper's work (Miller, 1999a; 1999b). Thus Popper continues to be a fundamental influence in the practice of science. A five-day international Congress is being organized by the Karl Popper Institut in Vienna. It will be devoted to Popper's work in over a dozen different fields of knowledge (Karl Popper Institut, 2001).

The arguments of the advocates of theistic science against Popper are neither persuasive nor final. So the criterion of demarcation remains as a barrier to the intention to bring God and His divine miracles inside of scientific hypotheses. Indeed, if the secularists are wrong to inject their philosophy into the definition of science¾and they are¾how can we Christians defend the injection of our philosophy into the definition of science? No, the correct definition of science is philosophically neutral and therefore excludes both philosophical naturalism and biblical theism from scientific hypotheses. As Nobel Laureate Sir Peter Medawar once said in an interview, "There is nothing more to science than its method. And Popper has explained the method." The case for "theistic science," which has yet to be defined precisely, has failed to achieve acceptance outside of some Christian creationist circles.

The Intelligent Design (ID) Movement

The most recent effort by Christians to influence the course of science is the campaign to promote the concept of Intelligent Design (ID) in nature, which is good, but also to classify Intelligent Design as a scientific principle, which is very questionable. The primary goal of this campaign is laudable and is certainly supported by the Scriptures (Romans 1:19–20). On the other hand, we see some regrettable aspects of this campaign or program. First, there is the tendency to avoid acknowledging the Christian commitment to a peculiar epistemology that runs counter to the secularist epistemology. This shortcoming was mentioned in our opening paragraph above. Then there is the effort to make ID into a principle of empirical science. A number of very capable people are involved in this enterprise, and they have done some excellent work in elucidating and analyzing striking examples of complex biological systems that defy explanation in terms of evolutionary theory. Careful analysis of these systems strongly suggests that they are irreducibly complex. Therefore, their origin could not be by incremental evolution by mutation and natural selection, starting with a hypothetical "simpler proto system" that must possess minimal complexity in order to be functional and thereby subject to natural selection (Behe, 1996, pp. 39–48).

What Is Valid Scientific Reasoning with Respect to ID?

As Helen Fryman reports in the publication *Creation Matters*, William Dembski explained his "Dembski's filter" reasoning for ID with the following words: ". . .roughly speaking the filter asks three questions and in the following order: (1) Does a law explain it [i.e., the origin of some natural information-rich complex system]? (2) Does chance explain it? (3) Does design explain it?" (Fryman, 2000). Dembski reasons that if points (1) and (2) do not provide an explanation, ID can then be seriously considered. But is this scientific reasoning and does it make ID a scientific concept?

Dembski's point (1) should be rephrased, "Is there a testable scientific hypothesis, erected within the framework of established natural laws, that purportedly explains the origin of the complex system under consideration?" At this point the core policy of the scientific method comes into play, namely, rigorous skepticism. In his book, *Critical Rationalism*, David Miller explains why rough treatment should be applied to all hypotheses (1994). Every hypothesis must be subjected to rigorous empirical testing, and this is where evolutionary science fails. For example, it is apparent that no testable theory has ever been published for the evolutionary "creation" of a single new complex biochemical system (Behe, 1996, pp. 165–186). In view of these facts, Dembski's first question is vague and incomplete. Furthermore, the proper way to answer it relies on the validity of Karl Popper's criterion of demarcation, the requirement that scientific hypotheses must be empirically falsifiable.

Dembski's point (2) is, it would seem, properly subsumed under his point (1). In the absence of a bona fide

scientific hypothesis, one can look at the proposed initial conditions for some evolutionary process assumed to have "created" the new complex system, structure or organ under consideration. Even though no testable hypothesis has been proposed, starting with a proposed reaction system with prescribed initial conditions, it is possible to estimate the probability that random natural events could "create" the complex biological product being considered. The information content of the new complex system compared with the information content corresponding to the conditions in the initial system determines the probability of "creation" by chance. All such calculations lead to extremely small probabilities.

Fryman (2000), apparently expressing Dembski's opinion, asserts that "the ID movement is devoid of theological presuppositions." Is this really the case? To answer this question, let us first ask if the secularist explanations for origins are "devoid of theological presuppositions." As we pointed out in the first section of this essay, the "original sin in the garden of science" is the imposition upon science of the theology of either no God or, perhaps, of a cosmic Wimp that could create nothing. Such a God is forced to adopt as His own whatever the mindless atoms in the primeval soup toss out to Him. Thus the secularist approach to origins is not devoid of theological/philosophical presuppositions.

Let it be noted carefully that our treatment of any proposed scientific hypothesis for the evolution of a complex biological system is to be characterized by rigorous skepticism. Also, the spirit behind probability calculations should incorporate that same skepticism. But what about the advocates of ID? They are for the most part evangelical Christians. Can they properly be skeptical about ID? Not according to the scripture portions that were cited in our opening paragraph above. Further, is there really any way to falsify empirically the assertion that a particular complex, information-rich biological system gives evidence for ID? There is not, even though the facts speak strongly to our conscience in favor of ID. In fact their evangelical Christian faith denies to the advocates of ID the right to be skeptical about ID. These facts prove that ID likewise is not devoid of theological presuppositions, nor is it a scientific principle, as J. P. Moreland, William Dembski and others have claimed.

Further explanation of our view of the scientific case for creation and/or intelligent design is probably necessary. Since neither the Agent in creation, God, nor the process is subject to observation, replication, experimental manipulation, and scientific explanation, our case is necessarily negative. We therefore must adduce scientific evidence that weighs against the possibility of a naturalistic origin of the universe and its creatures. We believe that the scientific enterprise, now conducted largely by scientists who are unbelievers, is bringing to light an ever-increasing body of scientific evidence supportive of our negative case. We should lay the burden for proof on the supporters of the grand Darwinian scenario of origins. One of their responses is to complain that we creationists have only a negative case. We should not argue about this, but rather press upon evolutionists three crucial deficiencies of their case for evolution. They lack (1) the necessary historical(i.e., fossil) evidence of the putative historical process, (2) a testable scientific theory for the spontaneous origin of complex new biological systems, structures and organs, and (3) at least a few examples in nature today of new complex biological systems or structures that are part-way along in their random evolutionary adventure that may or may not culminate in the production of some unknown, unforeseen evolutionary novelty. These three goals are yet to be achieved, although most biology textbooks leave students believing that they have been achieved.

What Is Required to Prove the Case for Creation or for Evolution?

It has been suggested that we make more definite what we consider to be sufficient scientific "proof" of our case for creation and against evolution. However, the goal of the scientific enterprise is not "proof," but testable naturalistic theoretical explanations of phenomena in the natural world. By this we mean testable scientific theories erected within the framework of established physical laws. It is quite acceptable for scientists who are believers in a closed materialistic universe to frame theories designed to explain the origin of complex biological systems and structures purely in terms of physical laws. But their theories, to be theories of empirical science, must be so framed as to be subject to potential falsification by empirical test. Remember that the central policy of the scientific method is persistent skepticism concerning all theories (Miller, 1994; 1999a; 1999b). We assert that a testable theory of neither abiogenesis nor macroevolution has yet been published. Nevertheless, students at all levels are taught as fact the assumption that microevolution can over time bring about macroevolution. Since microevolution has been observed, it follows that macroevolution also has occurred. And secularist scientists conduct all of their thinking and research to enlarging the body of data that can be adduced in support of their grand assumptions.

Conversely, scientists who believe in divine special creation will in general have other questions for which they are seeking scientific explanations, that is, testable scientific theories. Some scientists who are Christian believers in divine creation may, for example, wish to participate in advancing the knowledge of genetics and of the new field of genomics. They will generally not be interested in attempting to develop theories for the evolutionary origin of

life and of complex new biological systems. The overarching objective of scientific research is the extension and refinement of our knowledge of the natural world. And, of course, Christian scientists also have the supreme motivational goal of bringing glory to God the Creator of all things.

Some Christian believers in divine creation may work to enlarge the body of scientific evidence that can be adduced against the possibility of abiogenesis and the grand Darwinian microbe-to-man scenario. But let it be clear that the discovery of new scientific evidence against abiogenesis and against macroevolution will, from a scientific perspective, not "prove" that abiogenesis and macroevolution are impossible. From the purely human perspective of empirical science, nobody can with certainty know scientists will never be able to explain abiogenesis or macroevolution with testable scientific theories. Nor does scientific evidence adduced against evolution "prove" the case for divine special creation. However, such new information does serve to increase evidence both *against* evolution and *for* the only alternative, divine special creation. We believe that God is graciously making available an increasing body of scientific evidence to encourage us in the walk of faith. His grace is also providing evidence to awaken unbelievers to see their folly in denying the God of Creation and Redemption.

Let us reiterate our assertion that scientific evidence will neither "prove" nor "disprove" either Darwinian microbe-to-man evolution or divine special creation. But every human being is responsible to consider the evidence to which he or she has access, and come to a personal decision for the Creator God. This is what we Christians believe God has told us through the Apostle Paul:

> …because what may be known of God is manifest in them, for God has shown it to them. For since the creation of the world His invisible attributes are clearly seen, being understood by the things that are made, even his eternal power and Godhead, so that they are without excuse. (Romans 1:19–20)

Conclusions

We conclude, then, that ID is as obviously grounded in a theological presupposition as Darwinian evolution is grounded in an anti-theological presupposition. Therefore, ID, while we believe it to be the valid view of the real world that science studies, is not a scientific principle. What is ID, then? It is a divinely mandated way of looking at the world, according to the Scriptures that were referenced in our opening paragraph above. The connection of ID with science is the fact that the findings of scientific research provide a wealth of circumstantial evidence supportive of ID, that is, supportive of what we already believe because God tells us it is right and because correct logic plus millennia of consistent human observation of nature reinforce what He says. The pertinent historical fact is that in all of human history nobody has ever observed a new, information-rich complex system come into being that was not the product of an intelligent human mind. Modern science continually adds information to strengthen our historical case for ID.

In closing, we encourage the participants in the ID movement to continue their good work in driving the available scientific evidence to the hilt, with confidence. However, it is essential that we Christians involved in this witness for the truth of God should function correctly in the scientific enterprise. And let none of us be unwilling to admit before the world that we who name the Name of Christ are motivated by our commitment to the biblical theological view of the world. How Christians and every other kind of believer or unbeliever may properly practice science, in accord with the common sense rules of the correct philosophically neutral definition of science is the subject of a series of two articles published some years ago by this writer (Kofahl, 1986; 1989). Believers and unbelievers of all sorts can practice science correctly and honorably, provided simply that they abide by the rules of the method.

Our approach to the scientific creation/evolution debate rests on a biblical theological foundation. Knowledge gained from the scientific enterprise can be helpful in elucidating some theological issues. The core of the scientific method is, in accord with Popper's work, that of "conjectures (hypotheses) and refutations(empirical testing of hypotheses) (Popper, 1959; 1965). By the consistent application of this method, scientists should strive continually to correct and expand our understanding of the natural order. It is the will of God that this knowledge should speak to souls enlightened by the Holy Spirit concerning the eternity, sovereign power, and deity of the God of creation (Romans 1:19–20).

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Book Review

Beowulf by Seamus Heaney
Farrar, Straus and Giroux, New York, 2000, 3182 lines, $25

Why should a classic of English literature be of interest to creationists? This book is being reviewed here because of the fact that it is sometimes referenced by creationist authors who attempt to point out that dinosaurs have coexisted with man. The work, written by an eighth-century Anglian poet, does have several references to dragons and other monsters all of which might be dinosaurs, thereby making the poem of possible interest to creationists.

The poem is described on the flyleaf as "the elegiac narrative of the adventures of Beowulf, a Scandinavian hero who saves the Danes from the seemingly invincible monster Grendel and, later, from Grendel's mother." Line 712 refers to Grendel as "The bane of the race of men . . ." which seems to indicate he is non-human, yet he is sometimes described in other literature as half man and half fiend. Within the poem some evidence of his nature can be gleaned from the use of "talon," "claw-scale," and "spur" as the poet describes the monster's "hand." Grendel's mother is called a "troll-dam," a term that could indicate a supernatural female demon. Both are described as "fatherless creatures" who dwell among wolves. After Beowulf had fought with Grendel and torn off his arm, Grendel returned to his lair in a mere and there died. "The water was infested with all kinds of reptiles. There were writhing sea-dragons and monsters slouching on slopes by the cliff, serpents and wild things . . ." Thus, although Grendel and his mother may not have been "dragons" the poem does acknowledge their possible existence.

When Beowulf was king over his people and had reigned for fifty years, he faced another monster, one that lived in a cave and guarded a treasure of gold and precious stones. When an intruder stole a gem-studded goblet, "the dragon began to belch out flames and burn bright homesteads; there was a hot glow that scared everyone, for the vile sky-winger would leave nothing alive in his wake."

In his translation, Heaney also uses the term "sky-plague." Cryptozoologists have taken these references of "sky-winger" and "sky-plague" to mean a flying pteranodon. The movement of the dragon is described as "gliding and flexing" and Heaney says its skin was covered with "enamelled scales." When flames did not deter Beowulf, the dragon sank "sharp fangs" into the neck of his attacker, injecting "deadly poison." Another bit of description is given in "From head to tail, his entire length was fifty feet." But Beowulf alone could not kill this one; it took help from his thane, Wiglif, who plunged a sword "into its belly."

Was this "dragon" possibly a dinosaur? There is not enough information given to identify it as such and the references to the dragon guarding a horde of gold and precious stones give the story a ring of fantasy. Also, the fire breathing part is suspect. A hot breath is one thing, but a breath that causes houses and forts to be burned to the ground clearly tells the reader that the poem is not meant to be taken literally.

After searching this translation of the poem for some clue that would identify any kind of dinosaur, it must be concluded that there is none. The Englishman who authored the original poem may have seen dinosaurs and pterosaurs, but he did not exhibit any knowledge of it in this writing.

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