

A Biblical Critique of Creationism

Dennis O'Leary

2579 Medinah Drive, Evergreen, CO 80439, dwoleary@usgs.gov

ABSTRACT

Creationism, supported even by some scientifically informed people, remains an enduring challenge to education in geoscience. Intelligent design is only the most recent attempt to give creationism scientific credence. Scientists typically argue that creationism is religion masquerading as science, but this tactic has not been effective. The failure of creationism lies in the Bible itself. Although creationism has ancient antecedents, American creationism stems from 16th century Protestant dogma which has its basis in John Calvin's "sola scriptura" and the claim that every word of scripture is literally true. Calvin's Commentary on Genesis is a useful resource for scientists interested in exposing creationism as theologically as well as scientifically invalid. The Protestant Reformation separated empirical science from Biblical studies and established the so-called conflict between science and religion. Pre-Reformation biblical scholarship credits secondary causes and operation of chance in nature, and interprets Genesis in non-literal terms. This scholarship shows that modern science actually has roots in pre-Reformation biblical exegesis. Scientists can use the Bible along with the geological record to demonstrate that creationist claims with regard to earth history are false.

Keywords: pseudoscience, creationism

INTRODUCTION

The promotion of creationism is one of the most vexing challenges to science education at the beginning of the 21st century. Creationism in America is the interpretation of earth history and the origin of species as the direct result of the immediate, purposive Acts of God explicitly described in Genesis 1 of the Bible. No secondary causes nor random processes are allowed. It is essentially an article of faith among fundamentalist and evangelical Protestants. Science teachers may well be confounded by a large educated population which subscribes to the premise and conclusions of science, yet vigorously rejects one of its most well-founded concepts: evolution, and not just biological evolution, but geological evolution as well. Although creationism recently suffered a political setback in Kansas, where it nearly took a place in the public school curriculum, proponents of creationism continue to work to establish it as part of science education programs. Therefore, it would be useful to consider how the conflict between evolution and creationism might freshly be engaged by geoscience educators.

Why should this be such an undying conflict and why should so many people care? The rational powers of man would seem to have been amply proved over the last two centuries: we no longer need to be guided in our understanding of the world by bronze-age documents. It is not that fundamentalist Christians have anything against science; what they object to is the notion that geology and biology entail mechanisms entirely devoid

of divine guidance. They object to the conclusion that the world and its biota originated without God, and evolved with no purpose or design. They object to the randomness and atheism of it all: that is not the way God did it, and they don't want their children taught this stuff. Thus, the whole notion of evolution - including all of geologic history - must be rejected because it conflicts with the divine purpose and teaching revealed in Genesis, and replaces it with a blind, totally wrong, probabilism. Furthermore, for the creationist Salvation itself is on the line; the conflict between creation and evolution is a deeply personal crisis because Salvation is tied to "sola scriptura": if one word of Scripture is admitted to be false, the entire edifice of faith collapses. Thus, no other "creation myths" are relevant to the fundamentalist Christian; inclusion of such myths with "creation science" will be resisted as firmly as evolution is resisted: they are all wrong!

Creationists know exactly what their battle is about; having gone through the American school system, they've all had some education in science (some creationists are professional scientists), and they are all personally committed to the Truth. Their position is that scientific data inevitably supports the seven-day creation of Genesis 1, and that the search for scientific understanding leads inevitably to the Bible. Because Scripture is the source of truth, then all observations of science must jibe with it - there are no alternative theories, there is only one Truth! On the other hand, most scientists are at a disadvantage: few are biblical scholars or are trained in theology or hermeneutics, and for many religion is taboo or a personal secret. Because of this inequality, the controversy is argued as a science issue rather than a religion issue. We feel obliged to defend our science rather than challenge their beliefs (Shea, 1983; Strahler, 1983). The response of scientists is rarely more sophisticated than asserting that evolution is based on fact and creationism isn't (Strahler, 1983; Wise, 2001), or calling for more effective education (Moore, 1983; Wells, 1989), as if reason and observation are sufficient to prevail over 16th century dogma.

In order to be effective in this controversy, scientists should carry the battle where creationists are most confident and presently untouched - Biblical exegesis. In challenging creationists to defend their use of Scripture rather than their misuse of geology, it is instructive to consider two frequently visited questions: Is the Bible a sufficient source for an investigation of origins? What is the basis for a literal interpretation of Genesis? Much of the Old Testament was created to record the influence of God in the events of the Chosen People and their ancestors. Whatever happened to these people was the will of God - a realisation that may have come with long hindsight as well as inspiration. This profound insight could only mean that God had exercised an imminent power in the cosmos since the point of creation. Therefore, Genesis is not myth but is a kind of history that reaches back to the beginning, and the key point of this history is that everything had a beginning.

So first we should give the Bible some credit. Given the times in which it was recorded and the level of scientific observation, Genesis 1 is not a bad piece of work: It has a clear beginning, there is a measured

succession of events that more or less reflect a sense of hierarchy and increasing complexity that culminates with the creation of man. The creative power of God is expressed simply and allows no opportunity for the reader to wing into the fantastic: No grotesque and violent gods embroiled in their own handiwork, no mention of man battling dinosaurs. But there are plenty of ambiguities in the story, and a rich speculation on the alternative meanings of Genesis was entertained by students of Scripture from antiquity throughout the Middle Ages. The Medieval steps toward Science were urged by rational inquiry into alternative explanations for Genesis and the realization that parts of it just don't make any sense with respect to the observed world. This willingness to deconstruct Scripture came to an abrupt halt with the Reformation.

ANALYSIS

American creationism is a consequence of the Protestant dictum that Scripture is inerrant, infallible, and literally true with regard to history and science. The two chief authors of the proposition were the architects of the Reformation, Martin Luther and John Calvin. Of the two, Calvin prepared a detailed commentary on Genesis, Chapters 1 and 2, published in 1554. Calvin was unable to extract a rational meaning from Genesis 1, so it is intriguing that contemporary creationists take a position on Genesis 1 of considerably greater certitude than that of Calvin, the spiritual patron of American creationism. Calvin's Commentary, excerpted below, is a revealing document that should be analyzed by scientists who wish to challenge creationists on Scriptural as well as scientific grounds.

The very first "day" of Genesis is defined by the presence of light. God created light (God called the light "Day": Gen 1:4) and then removed it. Clearly, without the sun this "day" might not be a 24-hour period; it is simply "day" for however long the light exists, and Genesis gives no information on its duration. Calvin (Chpt. 1, 5) is uncertain as to whether any length of time is intended at all. According to Calvin (Chpt. 1, 3) this was done to prove to us that God does not need the sun and the moon to provide light. But since this display of divine power was effected before the creation of man, the demonstration seems nugatory. Further, the nature of the light and darkness and their relationships are ambiguous; even Calvin was unwilling to explain it and allowed it to be a topic "I would rather leave undecided" (Chpt. 1, 3). On the fourth "day" God said "Let there be lights" (Gen 1:14), a command that changed the nature of light from "dispersed" to proceeding "from lucid bodies" which are intended to "divide the day from the night" (Calvin, Chpt. 1, 15). It would seem that in creating the sun after four "days" of work, God had effected a serious revision to the order of creation, since we already have light and darkness and we already have a definition of day that does not involve the sun. Calvin's brief for Creation states (Chpt. 1, 14) that here God means "artificial day" instead of the earlier "natural day". Calvin, unable to find literal sense in this, assures us that Moses' intention is not a scientifically accurate account of natural phenomena: "For as it became a theologian, he (Moses) had respect to us rather than to the stars" (Chpt. 1, 15). Calvin, aware that astronomers had recently found that Saturn is larger than the moon, astutely comments (Chpt. 1, 16) that "Moses wrote in a popular style things which without instruction, all ordinary persons, endued

with common sense (i.e. creationists), are able to understand; but astronomers (i.e. scientists) investigate with great labour whatever the sagacity of the human mind can comprehend. Nevertheless, this study is not to be reprobated, nor is this science to be condemned, because some frantic persons (i.e. creationists) are wont boldly to reject whatever is unknown to them".

The creation of the "firmament", which separated two masses of water, is also perplexing. Calvin understood that the text does not bear analysis; he states "...nothing is here treated of but the visible form of the world. He who would learn astronomy and other recondite arts, let him go elsewhere...the history of the creation...is the book of the unlearned" (Chpt. 1, 16). Calvin admits that the creation and maintenance of the firmament requires a miracle. The removal of water to reveal dry land is also, according to Calvin (Chpt. 1, 9), a miracle. The statement that the Earth brought forth grass, taken as a metonymy, seems straightforward. But Calvin stated that the earth was not naturally fit to produce anything (Chpt. 1, 11), therefore generation of plants on the third day is a miracle, the more so as it occurred before creation of the sun. Calvin attempts to gloss this awkward timing: "...nor was God ignorant of this law of nature (that natural plant growth requires sunlight), which he has since ordained; but in order that we might learn to refer all things to him he did not then make use of the sun or moon" (Chpt. 1, 11). During this first week God handled all things personally, avoiding secondary causes: "No other cause will be found but that God has once spoken" (Chpt. 1, 13) because, according to Calvin, he felt it necessary to impress people he had not yet created.

On the fifth day God said: "Let the waters bring forth...the living creature" (Gen 1:20). That birds, along with aquatic animals, originated from water gives Calvin pause: "Why should it not be lawful for him, who created the world out of nothing, to bring forth the birds out of water?...there should be no other reason but that it so pleased God" (Chpt. 1, 20). Again, Calvin's experience of the world does not jibe with the divine whim of the the fifth day. Calvin goes on: "And what greater absurdity, I pray, has the origin of birds from the water, than that of the light from darkness?" (Chpt. 1, 20). what greater absurdity indeed? In an attempt to save divine face, Calvin states: "Nevertheless, if we must use physical reasoning...we know that the water has greater affinity with the air than the earth has" (Chpt. 1, 20). Calvin was well aware that the Creation account is irrational; he concluded that the generation of fish and birds is another miracle: "And truly, the Lord, although he is the Author of nature, yet by no means has followed nature as his guide in the creation of the world, but has rather chosen to put forth such demonstrations of his power as should constrain us to wonder" (Chpt. 1, 20). Calvin, again derogating secondary causes, states "that fishes innumerable are daily produced from the waters, because that word of God, by which he once commanded it, is continually in force" (Chpt. 1, 21). So, as far as generation of fishes is concerned we have an ongoing miracle - they are daily generated from water - but God's eternal and perfect command with respect to creation of light was rescinded on the fourth day because He wanted to impress people who did not yet exist and whom He would later regret creating. Calvin considers the creation of animals on the sixth day to be miraculous also (Chapt. 1, 24), the fifth miracle in six days.

The sixth day is not the end of Creation. Calvin hints that a dark side of Creation continued after the seventh day: "...it is to be observed, that in the works of the six days, those things alone are comprehended which tend to the lawful and genuine adorning the world. It is subsequently that we shall find God saying, 'Let the earth bring forth thorns and briars'" (Chpt. 2, 2). In fact, Calvin conceives a kind of perverse Evolution following the seventh day: "...many things which are now seen in the world are rather corruptions of it than any part of its proper furniture. ...it became necessary that the world should gradually degenerate from its nature. We must come to this conclusion respecting the existence of fleas, caterpillars, and other noxious insects. In all these, I say, there is some deformity of the world, which ought by no means to be regarded as in the order of nature, since it proceeds rather from the sin of man than from the hand of God. Truly these things were created by God, but by God as an avenger" (Chpt. 2, 2). So much for the perfect, unchanging Will of God; the fall of Man and the resulting divine spite more or less blight everything, and all the critters and plants Calvin found annoying were created, as a consequence of Original Sin, after the seventh day. One might say the Devil made Him do it.

Genesis 1 appears to be a succinct and stylized history of origins written by tribespeople of limited world view; its chief intent, as Calvin noted, is not to describe nature accurately, but to explain the perceived power and direction of God from the conceivable beginning of time. On this basis Genesis 1 is admirably written, and for centuries it has settled the minds of those for whom no scientific observation was possible. But as a literal history of the Earth, Genesis 1 is severely deficient. First, there is the anthropomorphism: God issues commands only He can execute, He surveys his work, He names and expresses satisfaction with the results. Is this a literal description of God at work? or is it a rhetorical device to make a remote story vivid and personal? The anthropomorphism of God implies that the rest of the story is stylized and ritualized in the context of a seven-fold epiphany. Genesis 1 also has a strong regional flavor. The image of the earth gradually showing through a limitless expanse of water under the horizon of a firmament would ring true for people brought up in the floodplains of Sumeria, the birthplace of Abram. This rather Neptunian world view was expressed even by Peter who reminded his readers that the heavens and earth were created out of water and with water (II Peter 3:5). The notion of an aqueous origin of the world is mirrored in the Enuma Elish, an account of origin that likely was known to Abram. The fact is, Genesis 1 is ineluctably tied to a Sumerian world view. Genesis neglects to mention that God might have separated the ice from the waters and gathered the ice into the polar regions. Why is this significant part of the world ignored? Was it an oversight? Was it unimportant to God or to the writer? Or was polar ice completely unknown to the authors of Genesis? The same questions could be asked concerning volcanism, as there are parts of the world where it would be reasonable to assume that the earth is underlain by fire rather than water.

Creationists do not believe in secondary causes, but they do believe in intelligent design. But the fact that Genesis 1 largely ignores the causality of nature, a causality readily observed by the author(s) of Genesis (e.g. Gen 30:37-42), and instead records at least five miracles implies that nature was not founded on intelligent design but rather on the inscrutable whims of

God. In creating and adorning the world, it seems that God repeatedly overrode some fixed laws of Nature, but Calvin is silent about those laws. No teleology is expressed in Genesis 1; the objective of Creation, according to Calvin, is largely a desire of God to impress mankind. The lack of design in creation is even more pronounced in Genesis 2. Here, Man is created (Gen 2:7) before vegetation (Gen 2:8) and before the animals and birds (Gen 2:19). In the Genesis 2 account, birds are formed out of the ground (Gen 2:19) rather than from water (Gen 1:20). If biblical creation is literally true, the contradictions in Genesis 1 and 2 deserve a literal, scientific explanation. When did God create the laws of nature and when did He decide to honor them?

In propounding a literalist understanding of Holy Writ, the Reformers rejected a more ancient exegetical outlook that was open to a larger interpretation of Scripture in light of observation and experience. We should be aware of the historical context and point out the perhaps unintended consequences of the Reformation on the progress of science.

A survey of pre-Reformation scholarship on Genesis 1 reveals an attitude that was open to far more speculation and uncertainty than creationists allow. Augustine, for example, understood that there could be many layers of meaning within Genesis 1: "So when one man says, 'He meant what I say', and another, 'No, what I say', I deem that I speak more reverently when I say, 'Why not rather as both, if both be true?' If there is a third, and a fourth and any other truth that any man sees in these words (i.e. Genesis 1), why may we not believe that Moses saw all these truths?" (Augustine, Confessions, Ch.31 (42)). Even as early as the late 5th Century primitive creationists raised objections. Here is Augustine on those who have a "Sure and Correct" interpretation of Genesis 1: "Let no man attack me by saying to me: 'Moses did not think as you say, but as I say.' If he should say to me, 'How do you know that Moses thought what you infer from his words?' I ought to take this calmly and perhaps respond to him in the way I have already answered him, or somewhat more fully, if he were stubborn. But when he says 'Moses did not mean what you say, but what I say', and still does not deny that what each of us says is true, then O my God, O life of the poor, in whose bosom there is no contradiction, rain down into my heart soothing drops, so that I may patiently put up with such men." (Augustine, Confessions, Ch. 25 (34)). Augustine concluded his discussions of Genesis by admitting his uncertainty, and he stated that he was prepared to accept any good explanation for what he could not understand.

Medieval scholastics set the stage for a valid scientific assessment of nature in keeping with Scripture by recognition of secondary causes and of chance in nature. The existence of these phenomena in nature was a matter of arduous debate in the 13th century because of the influence of Islamic creationism in stifling naturalism and empiricism. Thomas Aquinas was the chief defender of what we would call realism. In Summa Contra Gentiles, Chpt 69: "On the opinion of those who take away proper actions from natural things" Thomas stated (18): "Besides, if effects are not produced by the action of created things, but only by the action of God, it is impossible for the power of any created cause to be manifested through its effects. So, if created things have no actions productive of effects, it follows that no nature of anything would ever be known through the effect. And thus, all the knowledge of natural science is taken

away from us, for the demonstrations in it are chiefly derived from the effect." That this point had to be forcefully argued in the thirteenth century shows that the battle against creationism has been a long one. Thomas also argued another important point, (*Summa Contra Gentiles*, Chpt 74: "That divine providence does not exclude fortune and chance.") "...due to the fact that an agent fails in regard to an end that is intended, it follows that some things occur by chance. So it would be contrary to the meaning of providence, and to the perfection of things, if there were no chance events." But for the creationist nothing occurs through chance but only through the necessary direct providence of God.

Thomas, following other holy writers (he says) stated that "the works of distinction and adornment imply certain changes in the creature which are measurable by time; whereas the work of creation lies only in the Divine act producing the substance of things instantaneously" (*Summa*, Pt. 1, Q.74, repl. 1). He also states: "Species, also, that are new, if any such appear, existed beforehand in various active powers (*Summa*, Pt. 1, Q.73, 1, repl. 3). "Moreover, in generation also the more perfect is reached through the less perfect" (Reply Obj. 5, in reference to terrestrial animals being "more perfect" than birds and fishes, and by perfect he means that terrestrial animals have more distinct limbs and a "higher order of generation.") And opening the door still wider to a concept of natural process, Thomas states (*Summa*, Pt. 1, Q.73, art. 1, Reply obj. 5): "...it was not incompatible with the first formation of things, that from the corrupton of the less perfect the more perfect should be generated. (Animals) generated from corruption of animals could not have been produced then otherwise than potentially."

Augustine and Thomas both understood that Genesis conveyed a profound truth about the world, but that the diversity and propagation of species could not be accounted for by a literal reading of Scripture (*Summa*, Pt. 1, Q.74 art. 1), and they both rejected such literalism. Both scholastics were open to non-scriptural speculations. Augustine thought that Creation referred properly to the production of formless matter (*Summa*, Pt. 1, Q.74 repl. 1), and that the work of the six days referred to the potentiality within matter to effect the generation of creatures. To Augustine, the seven days of Genesis signified a sevenfold order in the knowledge of Creation in the angelic mind rather than to a succession of things produced (*Gen. ad lit. IV*, 22). Thomas speculated that the six days following Creation could refer to a mystic symbol of perfection, as Pythagoreans held (*Summa*, Pt. 1, Q.74, art. 1).

Medieval scholasticism offered an intellectual framework in which to mediate experience or new data with Christian faith. Thomas emphasized the impossibility of maintaining faith in and knowledge of the same object; the latter must supplant the former. Concerning the question of the Firmament of the Second Day, Thomas advises (*Summa*, Pt. 1, Q.68 art. 1): "In discussing questions of this kind two rules are to be observed, as Augustine teaches (*Gen. ad lit. i*. 18). The first is to hold the truth of Scripture without wavering. The second is that since Holy Scripture can be explained in a multiplicity of senses, one should adhere to a particular explanation only in such measure as to be ready to abandon it, if it be proved with certainty to be false; lest Holy Scripture be exposed to the ridicule of unbelievers, and obstacles be placed to their believing." Such advice is far from the minds of creationists.

Examination of history shows that Christian scholarship prior to the Reformation is not inimical to the theory or the facts of Evolution. On the other hand, the Calvinist Reformation represents a deviation from a rational inquiry into nature compatible with religion that was initiated by Augustine. The Calvinist departure not only freed science as we know it from its larger philosophical context, it actually set the stage for the present conflict between science and religion by polarizing natural science against an inflexible literalist dogma. Scientists will not be able to counter creationists effectively until they understand that creationism is not only bad science, it is bad religion. It is not only that creationism has no scientific basis, it reflects a totally erroneous interpretation of Genesis 1 as well. Even John Calvin, the spiritual teacher of American creationists, could not save a literal interpretation of Genesis 1. Scientists concerned about creationism must rediscover a rich scholastic heritage of systematic theology and biblical hermeneutics in order to challenge creationists where they feel invulnerable - exegesis. If creationism is to be taught in public schools, science educators should insist that pre-Reformation analyses of Genesis 1 be presented as part of a balanced biblical overview. If this is insisted upon, I predict that creationism will cease to be promoted as science.

REFERENCES

- Augustine, 399, *Confessiones*, Ryan, J.K., 1960, *The Confessions of St. Augustine*, Garden City, NY, Image Books, Doubleday and Co., 423 p.
- Augustine, 415, *De Genesi ad Litteram*, Taylor, J. H. ed., 1982, *St. Augustine: The literal meaning of Genesis*, v. 1 (*Ancient Christian Writers*, no. 41), Mahwah, NJ, Paulist Press, 285 p.
- Augustine, 426, *De Civitate Dei*, Bourke, V.J., ed, 1958, *The City of God*, Garden City, NJ, Image Books, Doubleday and Co., 551 p.
- Aquinas, Thomas, 1264, *Summa Contra Gentiles*, Pegis, A.C., 1955, *On the Truth of the Catholic Faith*, *Summa Contra Gentiles*: Garden City, NY, Doubleday and Co.
- Aquinas, Thomas, 1272, *Summa Theologica*, Fathers of the English Dominican Province, 1948, *Summa Theologica*, New York, Benziger Bros., 3970 p.
- Calvin, John, 1554, *Commentary on Genesis 1*, v. 1, Chpts 1-23, <http://www.ccel.org/c/calvin/commentaries/genesis1-bod.html>.
- Moore, J. A., 1983, Why are there creationists?, *Journal of Geological Education*, v. 31, p. 95-104.
- Shea, J. H., 1983, Creationism, uniformitarianism, geology and science, *Journal of Geological Education*, v. 31, p. 105-110.
- Strahler, A. N., 1983, Toward a broader perspective in the evolutionism-creationism debate, *Journal of Geological Education*, v. 31, p. 87-94.
- Wells, N. A., 1989, Using the illogic of creationism to teach the logic of science, *Journal of Geological Education*, v. 37, p. 317-320.
- Wise, D. U., 2001, Creationism's propaganda assault on deep time and evolution, *Journal of Geoscience Education*, v. 49, p. 30-35.