# Modern Geohistory: An Assault on Christianity, Not an Innovative Compromise

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## Abstract

**Martin Rudwick, noted historian of earth sciences, proposes that geohistory originated as an innovative compromise between two "unmodern" traditions: Biblical chronology and Aristotelian eternalism. According to his theory, Enlightenment intellectuals—particularly Georges Cuvier—found a third path that avoided the theological problems of Aristotle's cosmology and the "empirical" problems of a short Biblical past. Although this analysis is interesting, it minimizes the fundamental anti-Christian spirit of the Enlightenment and fails to make a compelling case for any relevance of Aristotle's temporal cosmology. Proposals for the eternality of matter arose not from Aristotle but because it is a logical metaphysical alternative to theistic creation. Rudwick fails to differentiate between Aristotle and the post-Christian materialism of the Enlightenment, which was quite dissimilar from Aristotle's *Metaphysics*. More importantly, crucial relevant aspects of church history and orthodox theology compromise his theory. Thus, it should be rejected in favor of a historical interpretation of geohistory as part of an integrated secular attack on traditional Christianity—an explanation that better explains developments in Western culture, both then and now.**

## Introduction

A seminal moment for modern creation science was the 1961 publication of *The Genesis Flood* (Whitcomb and Morris, 1961). Its focus on geology, rather than evolution, emphasized the underlying conflict between secular geohistory and the history of the Bible over that of biological evolution. Scripture presents time as a tapestry: the warp is man's struggle in a fallen world and the woof is God's providential provision for both present and future salvation. Secular geohistory did more than inflate the quantity of time; following the lead of Hume and Kant, it shredded the fabric of Christianity by eliminating the threads of divine immanence. That is why Biblical history remains foundational to Christianity, and the theological issue forces our focus quite properly on the problem of the extended geological timescale (e.g., Reed, 2008a,b,c, d), even though there remains significant confusion over this issue (Reed and Oard, 2006).

Part of that confusion flows from an inaccurate historical understanding of the development of geohistory in the eighteenth and nineteenth centuries. Most people today believe the myth

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began by Charles Lyell, which only recently has been exposed as self-serving propaganda (e.g., Gould, 1987). Lyell created a legend of geology focusing on his British predecessors, James Hutton and John Playfair. Given the nineteenth-century belief that physical science developed by the sequential efforts of the giants: Copernicus, Galileo, and Newton; Lyell's attempt to create a similar chain for geology with himself as the final link strongly suggests that he saw himself as the "Newton" of earth science. His ploy worked, as evidenced by the ongoing adulation of geologists.

But historians (and a few geologists) have worked to correct the record. Gould (1987) identified some of the most glaring distortions. Mortenson (2004; 2006; 2008) resurrected the work of the scriptural geologists—orthodox Christian scholars who fought Lyellianism apart from the continental secular catastrophists whom Lyell sought to tar with the brush of "diluvialism." Mortenson (2006) also documented Lyell's animus toward Christianity and his scheme to attack the credibility of its historical foundations. But one scholar has dominated the discussion about deep time in recent decades—Dr. Martin J.S. Rudwick, arguably the foremost historian of the earth sciences in our day.

Dr. Rudwick built a stellar career at Cambridge and the University of California, San Diego. His books and articles demonstrate keen insights into the key figures of what he calls the "Republic of Letters"—the late Enlightenment intellectuals—which he gained by extensive research into their original writings. His work has done much to correct the simplistic myth of the "struggles" of Hutton, Playfair, and Lyell against a repressive church to bring the light of geology to the world. He replaces that tale with an interesting and realistic discussion of the complex web of people and ideas that gave rise to geology, extending back well before Hutton and Lyell.

Rudwick has always been particularly interested in the development of deep time and geohistory. His book, *The Great Devonian Controversy* (Rudwick, 1985), explores the social and scientific interplay among the leading geologists of the early nineteenth century—providing insight into how ideas about time and rocks evolved, uncovering a large cast of characters in that enterprise, and exposing the scientific and social factors that drove their work. Recently, he has published a two-volume history of geology (Rudwick, 2005; 2008) that is destined to become a classic in the field.

However, Rudwick, like all human historians, is influenced by his own philosophical bias. Though more conscientious than most, his analysis has shortcomings that can be traced to crucial misconceptions about church history and Christian theology. These are especially evident in his proposed theory of the origin of deep time. Although it quite properly rejects the simplistic (but still popular) view of a repressive church struggling to keep a lid on empirical discoveries, it fails to account for: (1) the anti-Christian fervor among Enlightenment intellectuals (Stark, 2003), (2) the Christian consensus for a recent Creation and Flood prior to the eighteenth century, and (3) cultural developments in subsequent years contradicting his thesis.

The historical interpretation of a secular elite attacking orthodox Christianity provides a better explanation for the events described so ably by Rudwick. Though the waters are muddied by the social religiosity of many savants, inherent contradictions in human nature and the social dominance of Christianity at that time explains the dichotomy of their apparent "faith" and their antitheistic work. However, like today, Enlightenment thought was driven by the minority of atheistic materialists, not by some liberal version of Christianity. Geohistory was simply one facet—a crucial one—of an aggressively secular new worldview. The response of the church was not innovative; it was largely compromise after the fact.

## Rudwick's Hypothesis

Rudwick (2005) argues that modern geohistory, which is characterized by a lengthy but finite prehuman past, originated as an innovative compromise between two unacceptable "unmodern" traditions—a short Biblical chronology and Aristotelian eternalism (Figure 1). He describes his concept as follows:

> Above all, it should be noted that in stretching the timescale to even a million years they were transcending the stark alternatives available

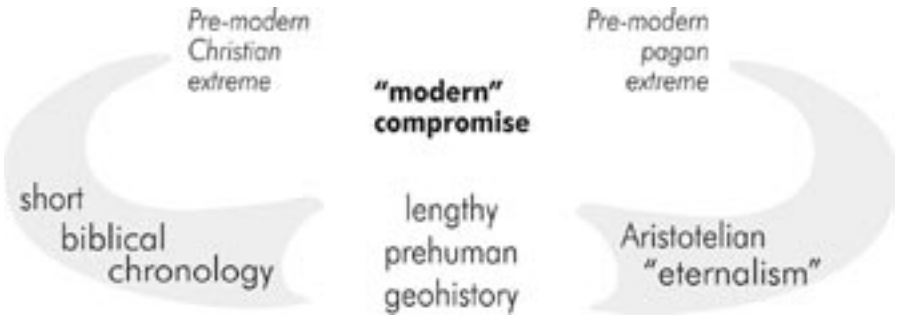


**Figure 1. Rudwick proposed an Enlightenment dilemma that set the stage for modern geohistory, with one horn as the traditional chronology of the Bible, and the other as Aristotle's eternal universe. This dilemma was supposedly resolved by a lengthy but finite geohistory.**

> in earlier centuries, both of them profoundly unmodern in character. In contrast *both* to the short and finite timescale of traditional chronology *and* to the infinitely long perspective of traditional eternalism, they were beginning to open up the conceptual space for a third (and modern) option: the timescale might be unimaginably lengthy, *yet not infinite*. This novel option was a crucial precondition for the reconstruction of geohistory, as the rest of this book will suggest. (Rudwick, 2005, p. 131, emphasis in original)
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> That there might have been a lengthy prehuman world was not anticipated in either of the rival conceptions of time and history inherited from earlier generations. The picture of cosmic history derived from the Creation narratives in Genesis … implied that the universe had had a human presence from the start, apart from a brief prelude to set the stage for its primarily human story. But the Aristotelian picture of an uncreated eternity … likewise assumed that humans had always been part of the cosmic science: literally always, from all eternity … Neither facilitated thinking about what was in effect a third alternative. This was that cosmic history—or at least the more accessible history of the earth and life—might have been very lengthy but not eternal and that human life might have appeared only at a late stage in the relatively recent past … Yet the third alternative became increasingly plausible in the course of the eighteenth century, at least to savants who had seen or knew about the relevant empirical observations. (Rudwick, 2005, p. 176)

In Rudwick's theory, Georges Cuvier (1769–1832) emerges as the hero, navigating between the two "unmodern" extremes and charting a path for geology. In a series of public lectures presented in 1804, Cuvier (Figure 2) expanded far beyond the paleontological studies that had won his reputation as one of the leading savants in Europe and attempted to define geology as a new science. According to Rudwick, the challenge was great—Cuvier had to pick his way through the political, social, and intellectual minefield of an atheistic eternalism on one hand and a revived Catholicism (Napoleon signed a concordat with Pope Pius VII in 1801) on the other.

**Figure 2. Cuvier was the most prominent French naturalist of the early nineteenth century. The father of comparative anatomy and paleontology, he advocated a catastrophic geohistory linked to Noah's Flood by its final catastrophe. Modified from http://commons.wikimedia.org/wiki/File:Georges_Cuvier_large.jpg.**

> In this climate, although "geology" was among the natural sciences, what it was doing was open to question, because it claimed to have authority to pronounce on the relation of the human—and therefore social—world to the world of nature. Specifically, of course, it appeared to challenge more traditional origin stories, particularly those embodied in the Bible, and thereby raise questions about the authority of the church in civil society. (Rudwick, 2005, pp. 448–449)

Note Rudwick's bias. As always, his choice of words is significant. He diverts attention from the conflict between orthodox and heterodox by implying that the Bible was merely one of several "traditional origin stories" rather than the *only* pertinent "origin story" at the time. Every educated person at the time understood that Christianity was built on history; thus, any attempt to rewrite that history (lengthy or eternal) would have profound effects on Christianity—as the centuries since Cuvier have so amply demonstrated.

But Rudwick applauds Cuvier for his brilliant solution—an innovative geohistory preceding Genesis, yet finite and linked loosely enough to the Bible to allow the church to save face. In Cuvier's proposal, geology did not directly deny Christian history; "prehistory" simply ignored the first three words of the text and left the subsequent account intact, with an indeterminate earlier period of time to account for the strata and fossils.

Cuvier affirmed a catastrophic flood but chained it to a vast prehuman past, punctuated by catastrophes. This enabled him to avoid the overt atheism of the "Terror" during the French Revolution, while reserving earth history as a scientific, not theological, discipline. Rudwick offers Lamarck and Chateaubriand as the Scylla and Charybdis of Cuvier's voyage into modern geology.

> In Cuvier's view his own conception of geology was threatened on two fronts. The Biblical literalism represented by Chateaubriand's resurgent Catholicism—like that of modern Protestant fundamentalism—would make the practice of geology impossible, by denying it the lengthy timescale that the observable features clearly demanded. But the eternalism represented by Lamarck's steady-state geotheory… would deprive geology of its claim to reconstruct the history of the earth. (Rudwick, 2005, p. 456)

Rudwick's theological weakness is seen in his emphasis on the quantity of time as the primary factor in displacing Christian history.

> The vast timescale invoked by naturalists such as Montlosier and Desmarest was suspect, however, not only or even principally because it contradicted a traditionally-literal exegesis of Genesis. Much more significantly, as in the case of Hutton in Britain some years earlier … it was widely suspected of being a scientific cover for an *eternalism* that would subversively deny the divine origin and grounding of the world altogether. (Rudwick, 2005, p. 451)

He fails to grasp that the "traditionally-literal exegesis" of Genesis *was* orthodoxy (Mortenson and Ury, 2008). Denying it impugned the integrity of special revelation and its Author. This has been demonstrated repeatedly since by the triumph of Enlightenment atheism in Western culture, something that was not supposed to happen given the "compromise" version of geohistory. Naturalism dominates our culture to this day, especially by perpetuating the Enlightenment tradition of the most anti-Christian thinkers controlling the intellectual levers of power (Bergman, 2008).

## Critique of Rudwick's Theory

Any disagreement with Rudwick's theory of deep time should not distract from the overall quality of his work. Historians and earth scientists both owe him a debt of gratitude for clarifying the events surrounding the origin of geology. For example, he debunks the myth of James Ussher as an ignorant fanatic, showing that, to the contrary, Biblical chronologers paved the way for geohistory by emphasizing a theology of linear progressive time.

> Ussher and his colleagues practised the seventeenth-century science of chronology; modern geologists practice the twentieth-century science of geochronology. The similarity of terms points to shared concepts and even methods. Both groups have been at the forefront of intellectual life in their respective centuries. In fact, far from being diametrically opposed, what Ussher and other chronologers were trying to do was the direct lineal ancestor of what earth scientists do in the modern world. (Rudwick, 1999, p. 250)

Rudwick also deserves credit, along with others (e.g., Glover, 1984; Hooykaas, 1972; 1999; Stark, 2003), for recognizing the role of Christianity in building the framework of history and so discounting the mythological "geology versus Genesis" story.

> It is often claimed that on this issue [geologic time] "the Progress of Science" was retarded by the "repressive" influence of "the Church." In fact, the historical situation was more complex than that stereotype allows, and far more interesting. (Rudwick, 2005, pp. 115–116, brackets added)

However, his superlative scholarship can easily blind readers to interpretive errors. As Gordon Clark (1994) noted, history and philosophy are integral. No historian can ignore his own philosophical bent, especially when it is time to analyze the disparate facts he has uncovered. Rudwick's proposal for geohistory as an innovative compromise ignores larger but intrinsically related theological issues and is unable to explain important facts. These failures can be seen by first assessing the dilemma that he creates to sets the stage for Cuvier's compromise.

An alternative explanation to Rudwick's is the inherent conflict between naturalism and Christianity in the arena of history. Given the origin of modern naturalism in the Enlightenment, geohistory likely reflected the period's hostility to Genesis. In the following discussion, that view will be compared to Rudwick's, which narrows in on the intellectual discourse about geological phenomena, seeing the issue as one of scholarly give-and-take and evaluating evidence in the light of reason and an evolving knowledge of the world and its past. Rudwick's portrayal of a gentlemanly exchange of ideas between relatively neutral parties minimizes the debate by:

- asserting a nonexistent hermeneutical flexibility that allowed long ages
- crediting Christianity with the historical framework used in geohistory
- downplaying inherent theological conflicts outside the span of time
- arguing that the rejection of Genesis rested on empirical evidence

## The Real Threat of Genesis

Rudwick is correct in identifying the short Biblical timescale as a barrier to unrestrained geohistorical theorizing. But his failure to grasp the nature of orthodox Christian doctrine creates a crucial error in his theory, as it downplays real conflicts between Genesis and secular earth history, such as the integrity and authority of Scripture, the origin and nature of man, sin, and the foundations of marriage and family. Doctrinal conflicts extend far deeper than the mere span of time, and Rudwick should have more closely considered orthodox theological literature. There is a vast difference between the church's traditional understanding of Genesis and various aberrant textual devices used to make it palatable to modern naturalism. As a historian, Rudwick might have found firmer footing had he examined the timing of now-prevalent compromise positions—they originated in response to deep time, not in advance of it.

However, Rudwick is fixed on the issue being merely one of duration by claiming that "it was on this middle ground, expanded through the cau-

tious but progressive extension of the traditional short timescale, that the origins of modern geochronology can be found, rather than on the unlimited spaces of eternalism" (Rudwick, 2005, p. 119, footnote 77). But there is more to history than time. Compared to modern scientists, Enlightenment savants were experts in philosophy. Given the intellectual milieu of continental rationalism, British empiricism, Hume's skepticism, and the resulting grandiose system of Kant, it is no surprise that natural history would follow the developing antitheistic path defined by these thinkers. Also, it is difficult to accept Rudwick's "cautious, but progressive extension" of the Biblical history when it was the early savants like Buffon, Hutton, and Lamarck who advocated a full-blown materialistic eternalism and a steady-state earth.

Another way in which Rudwick wrongly minimizes the worldview clash is an emphasis on "new empirical evidence" in the 1700s that purportedly demanded vast time. He fails to note that similar evidence was known (though not to the same level of detail) to previous savants, such as Steno (1638–1686), who maintained the Biblical chronology. This "compelling" new evidence included multiple episodes of volcanism, the erosion of river valleys, and sedimentary strata. Ironically, modern observation has shown that all of these are easily explained by catastrophic or post-Flood processes. Thus, science has since shown that this evidence—so crucial to geohistory—was wrongly interpreted by the savants.

The time line also shows that Biblical history was abandoned by savants *before* the empirical evidence could be adequately assessed.

> In the opening sentence of his *Alpine Travels* (1779), Saussure claimed that it was universally accepted—he meant, of course, among savants and other educated readers—that the earth's past revolutions or major changes had occupied "a long succession of ages"… Likewise, Werner commented in print—casually and just in passing—that the Geognostic pile of rock masses must have accumulated "in the immense time span…of our earth's existence"; and in manuscript notes for his lectures on geognosy he estimated that the whole sequence might represent perhaps a million years. Lavoisier suggested that the "period" (in the sense of frequency) of his hypothetical oscillation of the sea level was perhaps "several hundreds of thousands of years" and since he believed there had already been several such cycles, his conception of the earth's total timescale must certainly have run into millions … And Kant's well-known earlier conjecture that "a series of millions of years and centuries have probably elapsed" in bringing the universe to its present state was almost a commonplace among cosmological theorists. (Rudwick, 2005, p. 125)

This pre-evidentiary disposition to reject the Bible is also revealed in a passing comment about the common attitude towards Genesis at the time. It was "ancient Jewish history, often scorned and dismissed by savants hostile to religion" (Rudwick, 2005, p. 276).

Since historical interpretation is driven by assumptions as well as observations, Rudwick should have searched more deeply for those factors. He would not have needed to look far. The philosophical influences on the early naturalists from the philosophers (especially) Kant were significant.

> The pivotal figure contributing to the breakdown of classical apologetics was…Immanuel Kant. Though Kant has been dead for a century and a half, he still dominates the intellectual scene. He claimed that in the realm of the mind, he effected a Copernican revolution. In retrospect the claim was a modest one. Kant banished God from the world of pure reason… Kant went beyond all previous refutations by laying his ax at the root of the tree of the knowledge of God. He tried to demonstrate … that it is impossible to know God intellectually or to prove His being … Kant attempted to establish his agnostic or metaphysical skepticism in three ways. First, he argued that *human knowledge only extends to the world's phenomena and not to the noumenal realm of God*. (Sproul et al., 1984, pp. 29–30, emphasis added)

We usually do not associate Kant with the earth sciences, but, though indirect, his impact is greater than generally appreciated. Enlightenment science followed the paradigm of Newtonian physics. Early geologists thus searched for hard deductive "laws" that would explain earth's past. Newton was famous for his method of allowing only observed causes as explanations—sometimes called the *vera causa* (true cause) method. However, Newton was a Christian. He understood that God can and does work in nature and that the invariance of causes or "natural laws" was contingent in the sense that God could work contrary to those principles at His pleasure. This almost-but-not-quite-absolute tension was unavoidable because God was the ultimate justification for Newton's "invariant laws."

Kant, in proclaiming the separation of the phenomenal realm from the noumenal realm, supplied the crucial idea that transformed contingent actualism to an absolute actualism, and this transformation emerged in the earth sciences. On the surface, it may have seemed a small step to the scientists, but in treating actualism as absolute, it became an a priori argument against Creation and providence. This was described by Glover (1984) as the step from the methodological materialism of Newtonian physics to the metaphysical materialism of Enlightenment intellectuals. Ironically, when Kant removed God from the equation (Figure 3), the

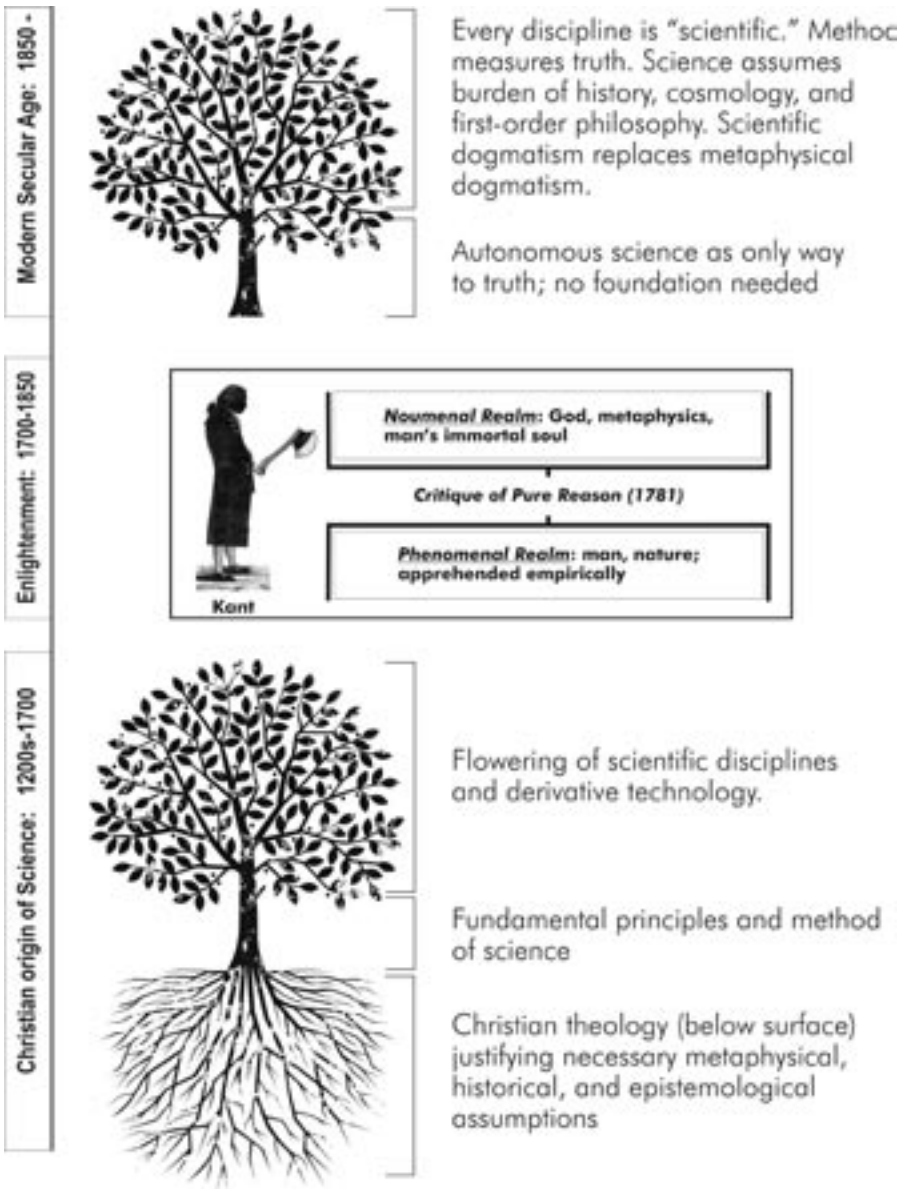


**Figure 3. The worldview of the West changed radically during the Enlightenment; many attribute that change to Kant's separation of what he called the "noumenal" and "phenomenal" realms. In asserting the impossibility of intellectual knowledge of the former, he gave the scholarly of his day the excuse they needed to divorce themselves from Christianity. However, the root of science had always been Christian theology; the two were separated in terms of day-to-day practice but joined like a tree and its roots. The roots remained out of sight, but supported the "trunk" of science by justifying necessary assumptions. Kant summed up the Enlightenment mind-set by widening that practical distinction into a divorce. Now "free" from theology, science became the vehicle through which Naturalism defeated Christianity. This was further facilitated by the development of a "scientific" history that would displace Genesis.**

scientists were too busy rejoicing in the expulsion of theology from their world to realize that *any* kind of actualism had just become logically impossible (since Newton and his predecessors had justified it theologically). Thus, with one small adjustment to "scientific method," divine activity was denied *a priori*.

This transformation included an intermediate step that subtly shifted attention away from the Reformed doctrines of providence (God upholds the universe moment to moment) and immanence (God is closely involved in creation), beliefs that saw the most mundane workings of nature as "wonders" (Hooykaas, 1999). The first step in that shift was toward the idea of the "miraculous" (God intervenes in the natural order occasionally). That step, being more palatable to Christians, allowed the second, which was the total denial of God by arguments against "miracles." Once a continuous providence was eliminated, "scientific" logic could next rid mankind of discontinuous "miracles." This misdirection is still a favorite dodge of atheists today—natural history is defined as "science," which in turn is defined as "actualistic"; thus any appeal to theism is "nonactualistic" and thus "nonscientific."

By this two-step process, atheism wormed its way into the foundations of modern science. Enlightenment naturalists thus had a built-in (supposedly) methodological bias against Creation, the Flood, and the Incarnation. The influence of Kant on Europe's intellectuals has been well documented but is underexplored by Rudwick in its influence on early geologists.

The belief that science could explain the past caused this "scientific actualism" to become a part of natural history, ignoring traditional and logical distinctions between the two (Adler, 1965). Most scientists today still believe that "actualism" demands metaphysical materialism. By presenting natural history as a "scientific" discipline, the savants

convinced many that their approach was superior to the Bible, ignoring the obvious—that the study of unique past events was distinct from the study of general principles of nature. The drive for a "scientific history" has remained inherent in the earth sciences, and the tangled mess created by actualism and its British equivalent, "uniformitarianism," is just one manifestation of that fundamental error (Reed, in press).

So, although Rudwick is correct that antipathy between orthodox Christianity and secular savants was a part of the Enlightenment landscape, the threat of the emerging naturalism was much more comprehensive than the span of time in Earth's past. But an even weaker aspect of Rudwick's theory is found in the other horn of his dilemma.

## The Questionable Threat of Aristotle

Rudwick's dilemma (Figure 1) evaporates if it only has one horn, and two facts suggest that is the case: (1) Aristotle's outdated cosmology was no longer relevant, and (2) eternalist geotheories by naturalists grew out of a post-Christian materialism, the logical outcome of a nontheistic yet rational approach.

Despite Rudwick's assertions, there can be little argument that the short Biblical timescale was the consensus of post-Reformation Europe, as it had been throughout the history of the church (Mortenson and Ury, 2008). Thus, Rudwick's "threat" of Aristotelian eternalism rests on shaky ground, as even he must admit.

> The traditional short timescale was not challenged by "the Rise of Science", because it had been challenged far earlier by a much more radical alternative, that of the eternalism associated with Aristotelian philosophy. The spatial aspect of Aristotle's conception of the cosmos, with the earth fixed at the center of a vast but finite universe, had been thoroughly absorbed into European culture in earlier centuries. But its temporal aspect, with the universe existing in uncreated eternity, had been emphatically rejected, on the grounds that it was radically inconsistent with the Christian (and Jewish) conception of the created status of the world and everything in it, from atoms to humans, in relation to a transcendent Creator. The perceived threat to orthodox beliefs lay not so much in abandoning a literal interpretation of Genesis, but rather in undermining the foundations of human society by questioning the ultimate moral responsibility of human beings to their divine Creator. (Rudwick, 2005, pp. 117–118)

Rudwick undercuts his own case. While the church had always fought Greek cosmology, its victory had been won long before the Enlightenment. It is extremely difficult to see Aristotle's eternalism as presenting a significant threat to European thought at that time. Note how Rudwick attempts to bolster his case by contending that jettisoning the "literal" interpretation of Genesis was much less important than opposing the dire consequences of a human morality based on Aristotle's cosmos (despite the sophisticated approach of the *Nicomachean Ethics*). Ironically, it appears that Rudwick is attempting to use Aristotle's "golden mean" to dismiss Aristotle! Despite the continued approval of aspects of Aristotle's philosophy (cf., Glover, 1984), his temporal cosmology had never been popular in Europe. Even Rudwick (2005, p. 118) must admit that "given this profoundly religious objection, it is not surprising that eternalist ideas persisted in European culture largely as an 'underground' alternative, visible more often when repudiated by the orthodox than in any direct advocacy."

Also, Rudwick fails to distinguish between the eternalism of Greek cosmology and that of modern secular materialism. Modern atheists (which included a significant proportion of the naturalist "savants" of Enlightenment Europe) posit a metaphysical materialism; ultimate reality is matter. That position is not only far removed from Aristotle's but also was roundly condemned by the philosopher.

> Those, then, who say the universe is one and posit one kind of thing as matter, and as corporeal matter which has spatial magnitude, evidently go astray in many ways. For they posit the elements of bodies only, not of incorporeal things, though there are also incorporeal things. (*Metaphysics* I–8, 988b, 23–26 in McKeon, 1941, p. 703)

This essential difference between these varieties of eternalism can be seen in the geotheories of Buffon and Hutton. Both are better explained by the paradigm of Christianity versus naturalism than by Rudwick's theory. For example, both men were driven by a desire to extend Newtonian physics to earth history, discovering deductive scientific rules that governed the planet's past. Their mechanistic scientific approach was emphatically not Aristotelian. If there was any return to Greek cosmology on their part, it was to that of Democritus. But neither of these situations was really the case; Buffon and Hutton were operating in a Christian culture, and even though they were attempting to undermine orthodox Christianity with matter and "natural laws," their fundamental mindset was Christian, not Greek.

Both men failed because in both we see the singular drawback of purely scientific history—the suicide of history. A rigid steady-state view of time eliminates history as a series of events on a time line. Since naturalism could not conquer Christianity without a credible secular history, secularists quickly retreated to a framework of linear time away from "Newtonian" history. They quickly discovered that long indeterminate time provided a bonus; it pushed the issue of origins conveniently into the background, avoiding a pitched *theological*

battle that the savants would probably have lost, even considering the inherent theological weakness of the church of their day. It is hard to imagine Buffon surviving the caustic genius of Luther or Hutton standing firm against the methodical brilliance of Calvin. Thus, though Rudwick portrays Buffon and Hutton as exemplars of an eternalistic cosmology, both better illustrate a growing animosity toward orthodox Christianity.

### Buffon: Smart Enough to Retreat

Rudwick's philosophical template blinds him to several interesting historical questions about both Buffon and Hutton. Georges-Louis Leclerc, Comte de Buffon (1707–1788) enjoyed a long and productive career, paving the way for other secular naturalists (Figure 4). He was politically connected and thus protected, and he was prolific. Despite a few pro forma nods to the Catholic Church, his heretical work was published with impunity. During his career, he set out two geotheories. The first, proposed in 1749, advocated a steady-state earth in a heavy-handed attempt to impose science on the past.

> As expected from an Enlightenment philosopher of his generation, Buffon based his Geotheory firmly on a repertoire of physical causes that could be seen to have the relevant effects: as Newton had put it, imputed causes had to be "true causes" [*verae causae*]. Specifically, this meant that Buffon's method for explaining the earth was to be rigorously *actualistic*, based on "actual causes" or processes observably in action in the present world. (Rudwick, 2005, p. 140, emphasis in original)

As Buffon discovered, applying Newton's methods without Newton's God destroyed history. His insight is evident in his second geotheory (cira,1778), which featured linear progressive time. But he maintained a materialistic system; his shift from contingent to absolute actualism logically suggests atheism, which is reinforced in another aspect of his work that Rudwick and most modern scholars regularly overlook. It is a point of logic that few grasp—thanks to Enlightenment apologists who insisted on a false dichotomy between "science" and "religion." But if the affirmation of Genesis is a religious position, then the rejection of Genesis must also be religious. Whatever his personal views, his overt materialism opened the door for other secular savants; as "expressed in Buffon's famously eloquent prose, its persuasive naturalism had a profound impact on the way that savants thought about the earth in the middle decades of the century" (Rudwick, 2005, p. 140).

**Figure 4. Georges-Louis Leclerc, Comte de Buffon. Modified from http://upload.wikimedia.org/wikipedia/commons/7/7f/Georges-Louis_Leclerc,_Comte_de_Buffon.jpg**

Despite its implicit eternalism, Buffon's first geotheory does not fit Rudwick's template. First, any comparison of it to Aristotle's cosmology will find more differences than similarities. Second, it presented no "threat" to Enlightenment savants. Many, being atheists, could have cared less about theology. Time was simply a weapon to attack the church. It is true that eternal matter is a logical alternative to an eternal God, but if needed, they could accept an indeterminate, lengthy, yet finite history as a fallback position. The anti-Christian unity of the elites is demonstrated in the muted criticism of the profound contradiction in Buffon's theory.

> Buffon's earth was in a steady state of dynamic equilibrium, which might have been taken to be eternal; yet in fact he did not treat it as such. In a separate essay, the first in his "Proofs," he set out an even more ambitious theory, which de Luc and others would have regarded as "cosmological" in the proper sense of that word. It offered an explanation of the *origin* of the earth and all the other planets, and indeed—at least by implication—of all other planetary systems anywhere in the universe ... At first sight, Buffon's suggestion breached the principles he had set himself in his explanation of the earth: this putative event was sudden and violent, and of course unparalleled in human experience. Yet it was impeccably natural in character, and fully conceivable as a physical possibility: in short, a respectable "hypothesis." Still, there was a decidedly awkward disjunction between Buffon's general explanation of the earth, as a system that could well have been eternal, and his hypothesis to account for its origin, as an "accident" of cosmological chance at a specific moment in the remote past. (Rudwick, 2005, p. 141)

It is interesting that Rudwick labels a blatant contradiction an "awkward disjunction." But the important thing to see is that despite this contradiction between method and system, Buffon's geotheory was deemed "respectable." Why? Because it was "impeccably natural." Or put more plainly, by playing to the religious prejudices of his peers, Buffon could get away with severe logical defects in his work.

This contradiction illustrates one of the problems that haunt anyone attempt-

ing "scientific" history. Science demands knowledge of initial conditions. Without them, subsequent changes cannot provide scientific knowledge of the whole. If one therefore wants a "scientific" earth history, one must account for the initial conditions—or Earth's origin. Perhaps it was this understanding that drove the clumsy attempts by Buffon and Hutton. Despite Kant's argument to the contrary, the traditional cosmological argument made materialistic eternalism the only rational alternative to theistic creation (Figure 5). But as Lyell and Darwin were later to learn, antitheistic bias can deal with that problem if origins is simply set aside rather than explicitly addressed.

Buffon deserves credit for recognizing the flaws of his first cosmology and attempting to resolve them in his second.

> Thirty years later, Buffon integrated the two components of his geotheorizing—and thereby remedied its major shortcoming—when he presented a quite different model of how the earth works … It was constructed within the same genre of geotheory: as before, it was a system that reconstructed the past, interpreted the present, and predicted the future, with the whole sequence operating under the same ahistorical natural laws. Again as before, Buffon's work was divided between an exposition of the system itself and a long series of "*notes justificatives*"… Buffon distinguished three classes of evidence, which he called "facts," "monuments," and "traditions." His facts were major observable features of the present earth … Buffon's monuments were various *natural* vestiges or relics of the *past*, again including fossils as prominent examples … Third, Buffon's traditions were the *human* textual records of events that provided evidence of the past condition of the earth; but in practice those were relegated to a minor position in his system, for the simple reason that he believed that human records only witnessed to the most recent phase in a far longer and largely *prehuman* sequence of changes. (Rudwick, 2005, pp. 142–143, emphasis in original)

Buffon believed that he could use the characteristics of present features to explain their history, absent assumptions and inferences. Thus his "facts" were not; they were *interpretations* driven by his anti-Christian predilections. His conclusion that there was a lengthy prehuman history was nothing more than an assumption papered over with erudite discussions of present-day physical phenomena and speculations on how they formed. As Solomon opined, there is nothing new under the sun.

Buffon's bias was illuminated by his claim to have utilized human records, while clearly ignoring the most relevant record of the ancient world, the Bible, and its eyewitness testimony of the past back to the beginning. Even apart from its divine origin the Bible is the premier historical document of mankind even today, and during Buffon's time, that status was actually higher because other ancient documents remained undiscovered or unreadable. This dismissal of the Biblical record absent anything other than the belief that its testimony was preceded by a lengthy prehuman past was another tradition that Buffon passed along to his successors.

Rudwick tries to avoid this rather obvious anti-Christian sentiment. He first suggests a tenuous link between Buffon and the Bible.

> In the 1770s, Buffon defined seven successive 'epochs', or significant moments in the Earth's history. In doing this, he offered, in effect, an updated and secularized version of

| Four Options for Origins | Implications | True or False | Consequences |
|---|---|---|---|
| Possibility 1: Phenomena are illusions | Science and history are unreliable. | Ends in solipsism | Rejected by both Christian and Naturalist because solipsism is rejected. Field reduced to three options. |
| Possibility 2: Universe is self-created | Logic is unreliable. Thus, science is impossible. | Falsified by logic | Implied by Big Bang cosmology, but impossible if logic a method of testing truth. Field reduced to two options. |
| Possibility 3: Universe is eternally self-existent | Sensation cannot be trusted. Thermodynamics contradicts an absolute uniformity. | Falsified by both experience and logic | Implied by extreme systems of uniformity (e.g., Hutton), but falsified by science and common experience. |
| Possibility 4: Universe was created by an eternally self-existent entity | No violations of logic or science. | Does not violate logic or sense perception | Excludes metaphysical materialism. Affirms theism, logic, and science. History and science distinct, uniformity not absolute. |

**Figure 5. The cosmological argument, modified from Sproul et al. (1984), shows only three logical alternatives to theistic creation. The first two blatantly violate logic. This leaves a choice of theistic creation or eternal matter. The latter would be the initial default choice of scientific atheists, as illustrated by Buffon's first geotheory. But any discussion of ultimate origins is a minefield for atheism, and the savants soon found it preferable to ignore the topic and discredit the Bible with a lengthy geohistory.**

> the seven 'days' of the Creation story. By defining his last epoch as the first appearance of human beings—and no longer as God's Sabbath rest!—he made explicit what other naturalists already suspected: that most of geo-history had been pre-human history. (Rudwick, 1999, p. 252)

What Rudwick cannot admit is that making an old earth "explicit" is not the same thing as demonstrating the truth of the proposition. Clearly, this weighs on Rudwick; he attempts to justify Buffon's theological vacuity with an appeal to the day-age theory.

> Buffon's second geotheory, with its strongly directional picture of the earth's development, avoided the suspicion of eternalism that had hung about the first; but instead its explicitly vast spans of time invited comparison with the traditional short timescale of the world. Buffon simply adopted one of the standard solutions to this apparent problem: citing an earlier Benedictine scholar to support him, he claimed that the "Days" of the Creation story in Genesis were not to be taken literally, because that ancient text had been adapted to the understanding of the ordinary people to whom it was originally addressed, not to savants in the age of Enlightenment. He maintained that his sequence of epochs was broadly compatible with the events of the successive "days" of Creation, and indeed his delineation of seven epochs was bound to suggest a concordance with the Genesis story; if not a sly parody of it. (Rudwick, 2005, p. 148)

His two-pronged approach suggests that any link to Genesis—no matter how ridiculous—atoned for Buffon's clear rejection of orthodox truth and that Buffon maintained sufficient theological integrity by rejecting the bogeyman of Aristotle. But the problem was not Aristotle; it was Buffon. Furthermore, citing an unnamed monk in defense of Buffon is ludicrous. If his aberrant view of Genesis were a respected position among theologians, why can't Rudwick even cite the monk's name? More to the point, why could he not cite theologians recognized as orthodox, like Luther, Calvin, Aquinas, or Augustine?

And even Rudwick has to allow an anti-Christian attitude when he notes that Buffon's seven epochs might have been a "sly parody" of the Bible, rather than a serious attempt to accommodate its history. At root is Rudwick's failure to consider the Biblical mind-set of the church as a whole. He wants the rejection of Genesis to be a minor issue, not a major heresy. Attempting to minimize the Flood, he soldiers on:

> As for Noah's Flood—which of course had to be placed still later than the seventh epoch—Buffon claimed disingenuously that since it was acknowledged to have been a miracle it was futile to expect it to have left any physical trace, and he consistently declined to attribute any observable features to its action: diluvial theorizing, at least in its classic form, was eliminated altogether. (Rudwick, 2005, p. 149)

If Buffon's dismissal of the Flood was "disingenuous," then why praise him? At best, it was a cheap rhetorical trick. Buffon's theory is immediately falsified by historical accounts in the Bible: why else did the disciples retrieve baskets of tangible food after the miraculous meals in Galilee? Feeling the weight of Buffon's arrogance toward the church, Rudwick diverts quickly to the subject of Buffon's "personal" beliefs.

> Despite all this, Buffon's own religious position remained ambiguous. Although he had marginalized the role of divine action in nature, he was—like most other leading philosophes—probably a deist rather than an atheist; yet in terms of religious practice he apparently regarded himself, to the end, and with whatever reservations as a Catholic believer. (Rudwick, 2005, p. 149)

This is a fascinating historical question that Rudwick inexplicably avoids. When a prominent intellectual publishes a theory that contradicts orthodox Christian belief, and perhaps includes a "sly parody" of the Bible, why would such a man profess Christian faith? Did he fear the church? Did he fear the king? Was he schizophrenic? If Rudwick had spent as much effort investigating this question as he did trying to portray Buffon as a "religious" person, he might have found a truly interesting line of historical inquiry. Instead, by referring to other "leading philosophes," it comes out as the lame excuse that "everyone's doing it."

But that excuse triggers yet another important historical question that Rudwick passes by. If "most leading philosophes" were anti-Christian, might that not have influenced their approach to natural history? Atheists claim that Christians are biased when they bring their belief system to geology, but they deny any bias when they do the same. One would expect historians would try to understand the faith commitments driving men whose ideas changed the world—Christian or not. Finally, Rudwick raises (but does not address) one last question about Buffon worthy of investigation.

> Buffon's models for the earth's temporal development were highly conjectural and could easily be dismissed as no better than a form of science fiction. Yet although most of their details were later abandoned, both of Buffon's geotheories were to remain powerful and fruitful exemplars for the future. (Rudwick, 2005, p. 150)

If Buffon's models were so easily dismissed, then why were they "powerful" and "fruitful" exemplars for the future? Blazing a trail for deists and atheists to attack Christianity comes to mind. Little else does.

**Figure 6. James Hutton. Modified from www.uwmc.uwc.edu/geography/hutton/hutton.htm.**

### Hutton: Back to *no* Future

Rudwick interprets Buffon's materialistic flirtation with eternalism and his subsequent retreat to lengthy linear time as a compromise between Aristotle and the Bible, setting the stage for Cuvier's later geohistory. But Buffon's anti-Christian bias, exhibited in both of his theories, is a better explanation. Perhaps James Hutton better supports Rudwick's hypothesis.

> When in the 1780s, the Scottish philosopher James Hutton claimed that the Earth had "no vestige of a beginning, no prospect of an end", it was his blatant eternalism that drew criticism. His implicitly vast sense of time was, by then, almost a commonplace among naturalists, even if it was still unfamiliar to the wider public. (Rudwick, 1999, p. 252)

At first glance, Rudwick's model seems to explain Hutton. After all, his deistic metaphysic was more similar to Aristotle's "first mover" than Buffon's materialism. His geotheory was rife with teleology, a topic near and dear to Aristotle. Hutton's god was perhaps more immanent than the unmoved mover, but not by much—Hutton clearly saw Earth as a cycling machine with no need for ongoing providence. However, in context Hutton's theory was no rebirth of Aristotle. First, any analysis must account for the cultural imprint of nearly two millennia of Christianity. Hutton's worldview was more Biblical than Pythagorean. Hutton is better seen as an early post-Christian thinker, not a reversion to Greek paganism, especially since "deism was not a genuine religious faith but a set of ideas congenial to the mind of the eighteenth century under the shelter of which the new humanistic faith developed" (Glover, 1984, p. 109).

Hutton was a renaissance man of geology, mathematics, medicine, agriculture, chemistry, and philosophy (Figure 6). His practical accomplishments, friendships with the elite, and connections within the "Republic of Letters" all testify to his Enlightenment status. A modern man who rejected the Bible, he was drawn to eternalistic geotheorizing. But his was no peripatetic cosmology. It was a post-Christian theory of the earth that leaned on a heavy-handed Newtonian approach to history—a methodology foreign to Aristotle. Hutton waxed eloquent about the various natural laws that governed the endless cycles of the world and destroyed history in the process (Gould, 1987).

This raises another question that Rudwick does not address. If modern deep time was a *rejection* of eternalism, then why has Hutton continued to be so revered?

> James Hutton's geotheory has not suffered from historical neglect. On the contrary, it has received so much uncritical adulation that its place in the sciences of the earth of the late eighteenth century has been seriously distorted. Anglophone geologists have treated Hutton as their iconic "founder" or "father", with such pious veneration that his relation to his contemporaries has been obscured and misunderstood, despite a large body of fine research by modern historians. (Rudwick, 2005, p. 158)

Which theory fits this veneration better: Rudwick's or the anti-Christian efforts of Enlightenment intellectuals? The ongoing adoration of Hutton as the foe of Christianity makes more sense. Even today in the face of the "large body of fine research," the myth of Hutton's "defeat of the church" is still touted (e.g., Repcheck, 2003).

Like Buffon's first theory, Hutton attempted a Newtonian explanation of Earth's past and likewise found that it led to the death of history. But where Buffon retrenched, Hutton embraced his ahistorical vision: "Hutton would be concerned not with quantifying a timescale but rather with the earth as a body existing indefinitely in stable equilibrium" (Rudwick, 2005, p. 159). However, unlike Buffon, Hutton had a mania for deistic theology. So while Buffon's theories were praised despite their errors, Hutton's was a problem for his more philosophically minded peers, who detested teleology for its service to Christianity. As a result, the real Hutton was divorced from the legendary Hutton almost immediately. His successors kept his anti-Christian ideas of uniformity and deep time, but expurgated his teleology and ahistorical past, adding various myths to keep people away from his own work.

> The hoary legend of Hutton's unreadable prose has served various ideological purposes during the past two centuries. Soon after Hutton's death, Playfair, *Illustrations* (1802), used it as a reason for bowdlerizing the work by detaching it from its teleological framework and suppressing its teleology. He has been followed by countless other scientific commentators ever since. (Rudwick, 2005, p. 161)

However, though modern geologists—like Playfair—remain "giddy" at Hutton's "abyss" of deep time, historians have accepted Hutton at face value.

> So in every part of Hutton's system—all the way from the dynamic

> equilibrium of continents and oceans to the enduring human presence that constituted its ultimate purpose—an assumption of eternalism was implicit, and indeed crystal clear to any informed reader…as he put it in his earliest summary, "with respect to human observations, this world has neither a beginning nor an end." (Rudwick, 2005, p. 170)

The development of naturalism, with Hutton as an early pioneer who could not abandon theism, explains his work, the subsequent redaction by Playfair and Lyell, and the otherwise inexplicable veneration he receives to this day. Later savants largely followed Buffon's second theory—not because they shied away from eternalism, but because they wanted to capture history, not destroy it. They wanted an atheistic history in its most literal sense, and Hutton—absent modification—could not provide it.

## Other Problems in Rudwick's Theory

Several other problems plague Rudwick's explanation, all related to an incomplete appreciation for Christian theology and church history. Unfortunately, they are all understandable since they all have been propagated by Christians seeking compromise with the so-called scientific facets of naturalism. But why would a historian of Rudwick's formidable skills not see that bias? Perhaps it is because he shares it. The sum of these errors is sufficient to show a deficient understanding of Christianity and to cast more doubt on his proposed origin of modern geohistory.

### Error 1: A False Dichotomy

Rudwick pushes eternalism as a great fear of the eighteenth century. But if we consider history from a *metaphysical* perspective, rather than a temporal one, eternalism is merely a sidebar. There is a clear conflict between Christianity and atheistic materialism. Were the Enlightenment savants really more concerned with the length of time or with toppling Christianity from its cultural dominance? It is hard to escape the latter answer in light of Hume, Kant, Spinoza, Leibniz; the experiment with atheism during the French Revolution; and the concerns of orthodox Christian apologists at the time.

The worldview conflict has become more apparent since, and this is where Rudwick's theory experiences perhaps one of its greatest failures. Rudwick touted modern geohistory as an alternative to atheistic eternalism and its implicit morality. But Lyellian geohistory was quickly followed by Darwinian evolution, which was even more quickly applied to humanity. This resulted in bizarre social or psychological theories by men like Freud, Marx, and Nietzsche, which in turn led to disastrous social experiments in the twentieth century. In retrospect, it is impossible to differentiate between reality and what Rudwick claims was avoided by the "geohistory compromise." As we look back over the past two hundred years, we can see exactly the same social and moral consequences springing from the "innovative compromise" of a merely lengthy, yet finite geohistory. That is because both are inherently anti-Christian. Rudwick's inability to correctly assess the consequences of modern geohistory is a serious historical error. The real choice faced by Europe in the late eighteenth century was between orthodox Christianity and militant naturalism. Whether the latter included the more logical (in light of the cosmological argument) eternally evolving matter or the geohistorical option, the effect on culture was the same. Jesus' wisdom in stating that men were either for or against Him has proven superior to Rudwick's theory.

### Error 2: "Unmodern" Christianity

Rudwick uses the age of Biblical revelation to portray it as an "unmodern" view similar to Greek paganism. But this conclusion is problematic. His focus on the time of the development of the two ideas causes him to lose sight of the timelessness of truth—he almost slips into an intellectual relativism, where truth is suspended. Biblical history can be an "unmodern" impediment to intellectual development only if it is not true; Rudwick's assessment boils down, at best, to chronological snobbery.

One also might nitpick the timing. Aristotle's cosmology was developed in the fourth century BC, more than a millennium after the revelation of the Pentateuch to Moses. If, as some believe, Moses' work was facilitated by even older written or oral records, then the age discrepancy would be even greater. Rudwick's grouping the two is like classing modern astrophysics and eleventh-century cosmology. Unlike Aristotle, Moses claimed the imprimatur of divine revelation and supported that claim with miraculous proofs. If God is infinite, eternal, and unchanging, then the truth content of His revelation to Moses is also timeless. Aristotle made no revelatory claim for his *Metaphysics*. Thus, his ideas are products of a historical era in a way the Pentateuch is not.

Furthermore, Christianity rests on history. An assault on Genesis is a thrust into the heart of the system, not a minor scrape. Since the term "modern" can connote more than age, it appears that Rudwick uses those connotations to imply more. Labeling Genesis as "unmodern" might suggest that its truth content is deficient, given the common evolutionary view of modern culture. If so, it is also a swipe at the orthodox theology of revelation. God is truth (John 14:6) and cannot lie (Hebrews 6:18). Therefore, Rudwick seems to suggest that either God did not reveal Himself to Moses or that such revelation can be "upgraded" by subsequent human knowledge. Both views are heterodox and undercut his recognition of the importance of Christianity to history and science.

Also, in the context of the day, during the eighteenth century, Christianity was as modern as it got. It was the backbone

of European culture. Cuvier was little more than a century removed from Owen, Bunyan, Newton, and Pascal and only two and a half centuries from Luther and Calvin. Applying Rudwick's measure, Cuvier, Lyell, and Darwin are equally "unmodern."

Finally, there is little argument that Enlightenment savants used science to attack Christianity, despite Christianity being the foundation of science (Stark, 2003). Thus the "modern" science worshipped by the savants was linked to Christianity. If it was "unmodern," then so was its derivative science. Rudwick cannot have it both ways.

### Error 3: Christianity and Genesis

At the root of Rudwick's misunderstanding of Christianity is a perception that the historical truth of Genesis was ancillary to the faith. Like many today, he takes a "cafeteria" approach to revelation. Also like many today, he has a litany of excuses to justify rejecting Biblical history. He starts with attempting to dismiss the Bible by context.

> Many historians now project the literalism of modern fundamentalist religion back into the intellectual world of the eighteenth century, with gross anachronism. In fact, attitudes to Biblical interpretation—among those to whom such questions were matters of any concern—varied widely according to time, place, religious tradition, and above all social location. (Rudwick, 2005, p. 56)

As Mortenson and Ury (2008) have shown, this simply is not true. The bias that leads to this incorrect assessment is evident too. Note how orthodoxy is recast as "modern fundamentalist religion." This displays a shocking ignorance of church history. Orthodoxy is not a matter of "time, place, religious tradition," or "social location." Instead, it is measured by adherence to the truth claims of the Bible, including those describing God's works of creation and providence. This has been affirmed by the church in all places and all ages. Furthermore, modern principles of Biblical interpretation were well developed as a result of the Reformation critique of the wayward fourfold view of earlier theologians. Rudwick's "variations" are typically traced to heterodox individuals who wished to use some innovation of "interpretation" to deny clear Biblical truth.

Despite these well-known facts, Rudwick joins modern compromising Christians in insisting on a theological smorgasbord.

> There were of course some writers and preachers, both Protestant and Catholic, who claimed that the meaning of specific Biblical texts was obvious and unambiguously literal; and their readers and hearers often agreed with them. But there were other scholars who, following much older traditions, argued that those texts might have many layers of meaning, poetic and symbolic, allegorical and typological, which in religious terms might be far more significant. For them, the new Biblical criticism could have a further liberating effect: it could clarify what the original writers might have intended and what their original readers might have understood. (Rudwick, 2005, p. 56)

It is a small, but perhaps significant insight into the mind of Rudwick that he calls orthodox Christians "writers and preachers" and heterodox churchmen "scholars." His implication that "literalism" was an innovation that distorted the Bible's meaning is an insult to Biblical scholars of all ages. In the context of the Enlightenment attacks on Scripture, one is hard pressed to explain the open hostility of men like Kant, Voltaire, Rousseau, and Hume as simply resulting from their desire to find "layers of meaning" in the Bible.

Rudwick tries to illustrate the uncertainty of Biblical history through Biblical chronology. Though he admits that chronology was a vibrant science with many participants besides Ussher, he implies that it was unable to reach consensus due to a "wide range" of dates, which he cites as from 3,616 BC to 6,984 BC. He fails to mention that this wide range is a function of method: dates older than 6,000 BC were either *secular* accounts or outliers. Those clustering between 5,000 and 5,500 BC were derived from the Septuagint translation. Chronologies derived from the original (and most reliable) Masoretic text have a very tight range. For example, Batten (2001) lists a range from 3,616 BC to 4,161 BC. And even that fails to show the greater general agreement among the majority of scholars. Jones (2005) lists 34 scholarly chronologers; the 29 relying on the Masoretic text provide a range for the date of Creation of only 356 years, from 3,836 BC to 4,192 BC. So while Rudwick (2005) asserts that chronology supplied uncertain results by presenting a range of 3,368 years, Jones (2005) shows that scholars working with the Masoretic Text produced results grouped a full order of magnitude closer together. Furthermore, of the 29 Masoretic dates provided by Jones (2005), *25 of them are within 75 years of Ussher's famous 4004 BC date*—an incredible testimony to the exactness of Biblical chronology as a discipline that belies Rudwick's dismissal of Biblical chronologers.

Then Rudwick (2005, p. 116) tries to impugn the intelligence of "literalists" by claiming that "the short timescale was still taken for granted, throughout the eighteenth century and into the nineteenth, among less educated groups in society and in conservative religious circles (and it was of course revived in the twentieth century among American fundamentalists)." Implying that Enlightenment deists and atheists were more intelligent and educated than orthodox Christians merely because they were deists and atheists is nothing more than intellectual snobbery. He carries the same bias into the present, characterizing modern orthodox Christians as

"American fundamentalists" (in spite of the international and transdenominational appeal of creation science) when he need not have mentioned them at all in the context of his discussion.

But Rudwick seems to sense the weakness of his own position because he continues to search for other reasons to dismiss orthodoxy. He recites other excuses refuted by creationists over and over again. First, comes the old "67th book" argument.

> Those who were religious believers assumed that Nature, "the book of God's works", could not ultimately contradict Scripture, "the book of God's word"; so if the natural evidence seemed sound and persuasive, they simply inferred that the short timescale, in its application *to the age of the world*, must be based on mistaken assumptions. (Rudwick, 2005, p. 116)

Yet the orthodox position of the church throughout its history has always been that special revelation is superior to and more reliable than general revelation. Those who piously affirm "nature" as the "67th" book of Scripture typically do so in order to ignore the truth of the other 66. Rudwick's logic seems to imply that either the Bible is wrong or that it does not speak to the age of the earth. "Science" is a better source of truth. But, of course, he supplies no theological justification or even discussion of this position. Instead, he moves on, demonstrating no more than his mastery of modern excuses: "The kind of analysis undertaken by chronologers was far less important than the imaginative impact of the Creation story and the religious perspective it sustained" (Rudwick, 2005, p. 116).

But was it the "imaginative impact" of Christianity that built Western culture and science? People do not sacrifice their lives for "imagination." Truth always trumps it. So he moves on to the "day-age" theory.

> Even if the text of Genesis were taken to be authoritative and divinely inspired, it had been widely recognized among scholars—ever since Patristic times—that the seven "days" of creation were not necessarily to be understood as ordinary days: for example the first three of them were said to have preceded the creation of the sun itself, without which ordinary days were literally impossible; and in prophetic language "the day of the Lord" clearly did not denote a period of twenty-four hours but a time of decisive significance. (Rudwick, 2005, p. 117)

As a lengthy list of scholars have demonstrated, the context of Genesis demands actual days.

Furthermore, Mook (2008) demonstrates that the patristic scholars were nothing if not united behind the short timescale of the Bible, the historical reality of the Flood, and the importance of the Creation narrative. Hall (1999) likewise demonstrates that the position of the Reformed church until the Enlightenment was monolithically the same. Thus, the Christian church for 1800 years held to the truth of six 24-hour creation days and a global flood. Once again, Rudwick's scholarship about the church proves deficient. So, he tries out the "gap" theory: "Alternatively, the initial act of creation out of 'chaos' was assumed to have been followed by an unrecorded period of vast, but indefinite duration, before the humanly more important events of the rest of the narrative" (Rudwick, 2005, p. 117).

But (again) as numerous orthodox theologians have shown, the only gap is that in Rudwick's theology, which causes him to miss the major point—that God's act of creation was not centered on the importance of human beings but on His own glory, a point that would have been familiar to European savants through Jonathan Edwards's (1754) dissertation. But Rudwick remains firm:

> If, at certain times and places, some guardians of orthodoxy grew alarmed at the new scientific claims about the vast timescale of the world, it was not always because those claims contradicted the literal sense of Genesis; religious authorities were, quite properly, more concerned with theology and its practical implications than with literalism of the crude kind adopted by modern fundamentalists. (Rudwick, 2005, p. 117)

However, scholars such as Hall (1999) have long noted that little attention was paid to the "literal" truth of Genesis because it was so monolithically accepted by the church throughout its history up until the Enlightenment. What Rudwick fails to grasp is that the truth and integrity of the Bible are important *theological* positions in the church and always have been. He also fails to note that the "practical implications" of abandoning Genesis would include abandoning other "minor" concerns, like the trustworthiness of God, Creation ex nihilo, the Fall, sin, and redemption, just to name a few. Ironically, many of these were essential to the development of science (Glover, 1984; Hooykaas, 1999; Stark, 2003).

## Conclusion

One of the reasons that Enlightenment atheism succeeded was that its proponents were masters of propaganda (Stark, 2003). They knew how to frame issues to their advantage and how to recast uncomfortable questions in a manner that minimized their impact. Their use of science—a Christian invention—to displace Christianity from both science and history, and their creating new rules in philosophy that would assure the absence of God, the Bible, and theology from their discussions were brilliant—in a "Screwtape" kind of way.

An increasing number of Christian scholars are beginning to see that the conflict of the Enlightenment was between Christianity and the emergent worldview of naturalism. Yet it is precisely this religious clash that Rudwick

must minimize to promote his theory of deep time as a compromise between the short timescale of the "literalist" interpreters of the Bible and the eternalism of Aristotle. The real dilemma that he faces is that if there really was an inherent spiritual conflict between orthodox Christianity and Enlightenment atheism beneath the proposition of modern secular geohistory, then his historical analysis has failed to grasp a crucial historical element of the era.

Furthermore, the presence of such a conflict would, of course, mar the "scientific" perspective and force a closer look at the faith commitments of figures like Buffon, Hutton, Cuvier, and Lyell. Closer investigation might find that Buffon was a closet atheist; Lyell, a Unitarian; Hutton, a deist; and Cuvier, a man with no religious convictions (near his death, his daughter, Clémentine, prayed for his salvation; Outram, 1984). It might even demonstrate that all of these men had a predisposition against orthodox Christianity and that bias affected their work. Religious commitments are among the strongest—as has been demonstrated repeatedly in history—but for a modern secular academic, writing about such commitments as if they really matter would be professional suicide. Such an analysis certainly would diminish much of what Rudwick finds interesting about the progression of secular prehuman geohistory from the initial cosmology of Buffon to the cementing of Lyell's version of the past in the geological timescale in the mid-nineteenth century (Mortenson, 2006), hovering over the social and professional webs of events like some dark cloud.

Yet, for those interested in real historical truth, this battle of worldviews is the single most important aspect of the period because it provides the most accurate framework for explaining the motivations behind the complex web of personalities and events. In Europe, the growing animosity among the intellectual "Republic of Letters" toward orthodox Christianity has been traced through philosophers—Hobbs, Leibniz, Spinoza, and Hume, finally culminating in Kant's "Copernican revolution of the mind." It would be a disservice to the savants interested in what we call today "geology" to assume philosophical ignorance or disinterest on their part. The naturalists understood contemporary philosophy and followed its lead, launching their own attack on Christianity at the point of their expertise—science and Earth's ancient history.

Thus, Rudwick's attempt to recast the development of modern geohistory as an innovative compromise between Christianity and atheistic eternalism misses the point. Aristotle was not the issue. There was no "two-horned" dilemma; there was only the conflict between orthodox Christianity and the new worldview of naturalism. Well-educated in Christian theology, the Enlightenment savants could not have misunderstood the importance of Genesis. The question of time was a direct attack on the integrity of Scripture. Once that wall was breached, only a hollow shell of pseudo-Christianity would remain. Their purpose was made clear in the writings of many, like Voltaire, and the consequences are crystal clear in retrospect—the decline from a Christian Europe to its present sorry state is a ringing testimony of the effects of the Enlightenment assault.

Thus, eternalism and an old Earth were not opposing positions; they were merely two prongs of the same overall strategy—to discredit the historical foundation of orthodox Christianity. That seems sufficiently clear in retrospect. That is why Rudwick's theory—given Rudwick's formidable historical skills—is so surprising.

## References

*CRSQ: Creation Research Society Quarterly*

Adler, M.J. 1965. *The Conditions of Philosophy*. Atheneum Books, New York, NY.

Batten, D. 2001. Old-earth or young-earth belief: which belief is the recent aberration? *Creation* 24(1):254–27, at http://creation.com/old-earth-or-young-earth-belief (as of August 7, 2009).

Bergman, J. 2008. *Slaughter of the Dissidents*. Leafcutter Press, Southworth, WA.

Clark, G. 1994. *Historiography Secular and Religious*. The Trinity Foundation, Jefferson, MD.

Edwards, J. 1754. A *Dissertation Concerning the End for Which God Created the World*. http://www.jonathanedwards.com/theology.htm

Glover, W. 1984. *Biblical Origins of Modern Secular Culture*. Mercer University Press, Macon, GA.

Gould, S.J. 1987. *Time's Arrow Time's Cycle: Myth and Metaphor is the Discovery of Geological Time*, Harvard University Press, Cambridge, MA.

Hall, D.W. 1999. What was the view of the Westminster Assembly Divines on Creation days? In

Hall, D.W., and J.A. Pipa, Jr. (editors), *Did God Create in Six Days?* pp. 41–52. Tolle Lege Press, Greenville, SC.

Hooykaas, R. 1972. *Religion and the Rise of Modern Science*. Regent College Publishing, Vancouver, Canada.

Hooykaas, R. 1999. *Fact, Faith and Fiction in the Development of Science: The Gifford Lectures Given in the University of St Andrews 1976*. Kluwer Academic Pub., Norwell, MA.

Jones, F.N. 2005. *Chronology of the Old Testament*. Master Books, Green Forest, AR.

McKeon, R. (editor). 1941. *The Basic Works of Aristotle*. Random House Publishers, New York, NY.

Mook, J.R. 2008. The church fathers on Genesis, the Flood, and the age of the earth. In Mortenson, T., and T.H. Ury (editors), *Coming to Grips with Genesis*, pp. 23–51. Master Books, Green Forest, AR.

Mortenson, T. 2004. *The Great Turning Point: The Church's Catastrophic Mistake on Geology before Darwin*. Master Books, Green Forest, AR.

Mortenson, T. 2006. The historical development of the old-earth geological time-scale. In Reed, J.K., and M.J. Oard (editors), *The Geologic Column: Perspectives within Diluvial Geology*, pp. 7–30. Creation Research Society Books, Chino Valley, AZ.

Mortenson, T. 2008. "Deep time" and the church's historical compromise: historical background. In Mortenson, T., and T.H. Ury (editors), *Coming to Grips with Genesis*, pp. 79–104. Master Books, Green Forest, AR.

Mortenson, T., and T.H. Ury (editors). 2008. *Coming to Grips with Genesis*. Master Books, Green Forest, AR.

Outram, D. 1984. *Georges Cuvier: Vocation, Science, and Authority in Post-Revolutionary France*. Manchester University Press, Dover, NH.

Reed, J.K. 2008a. Toppling the timescale, part I: Evaluating the terrain. *CRSQ* 44:174–178.

Reed, J.K. 2008b. Toppling the timescale, part II: Unearthing the cornerstone. *CRSQ* 44:256–263.

Reed, J.K. 2008c. Toppling the timescale, part III: Madness in the methods. *CRSQ* 45(1):5–17.

Reed, J.K. 2008d. Toppling the timescale, part IV: Assaying the golden ($FeS_2$) spikes. *CRSQ* 45:81–89.

Reed, J.K. (In Press). Untangling uniformitarianism, level I: a quest for clarity. *Answers Research Journal*.

Reed, J.K., and M.J. Oard (editors). 2006. *The Geological Time Scale: Perspectives within Diluvial Geology*. CRS Books, Chino Valley, AZ.

Repcheck, J. 2003. *The Man Who Found Time: James Hutton and the Discovery of the Earth's Antiquity*. Perseus Publishing, New York, NY.

Rudwick, M.J.S. 1985. *The Great Devonian Controversy: The Shaping of Scientific Knowledge among Gentlemanly Specialists*. University of Chicago Press, Chicago, IL.

Rudwick, M.J.S. 1999. Geologists' time: a brief history. In Lippincott, K. (editor), *The Story of Time*, pp. 250–253. Merrell Holbertin, London, UK.

Rudwick, M.J.S. 2005. *Bursting the Limits of Time: The Reconstruction of Geohistory in the Age of Revolution*, University of Chicago Press, Chicago, IL.

Rudwick, M.J.S. 2008. *Worlds Before Adam: The Reconstruction of Geohistory in the Age of Reform*. University of Chicago Press, Chicago, IL.

Sproul, R.C., J. Gertsner, and A. Lindley. 1984.*Classical Apologetics: A Rational Defense of the Christian Faith and a Critique of Presuppositional Apologetics*. Academie Books, Grand Rapids, MI.

Stark, R. 2003. *For the Glory of God*, Princeton University Press, Princeton, NJ.

Whitcomb, J.C., and H.M. Morris. 1961. *The Genesis Flood*. Presbyterian and Reformed Publishing Company, Philadelphia, PA.

# Book Review


## *The Grand Canyon, Evolution and Intelligent Design*

**by Richard S. Beal, Jr.**

Lighthouse eBooks, Savage, MN, 2007, 218 pages, $15.00.

The author of this book was trained in zoology and entomology and retired from Northern Arizona University, where he was dean of the graduate college. He claims to be "an evangelical Christian committed to the doctrine of Biblical inerrancy" (p. 2). While he was in graduate school, a Christian professor convinced Beal to find a personal synthesis that released him from the chains that entangled his vision (p. 3). Further reading of this treatise reveals that these chains were a literal interpretation of the early chapters of Genesis. Unfortunately, the subsequent text evolves into a rant against the young-earth Flood model of origins. The author states, "I am fully convinced there is a beautiful harmony between Biblical faith and valid science, including science that measures the age of the Grand Canyon rocks in hundreds