Chapter 3

Nineteenth-century Adventist Understanding of the Flood

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Introduction

Undoubtedly the pioneer of nineteenth-century Adventist views on the nature of the Flood was Ellen G. White. However, other early Seventh-day Adventist thought-leaders also wrote on the Flood or on geological matters that affected their understanding of the Flood. In general they followed White's schema. Of these others, Uriah Smith and Alonzo T. Jones stand out as being particularly influential on Adventist geological thought of that time. In addition, the writings of non-Adventist authors were often endorsed and re-published in the church's literature.

Where appropriate, an attempt is made to identify the main modes and points of argument employed by these nineteenth-century church leaders. These authors did not write in an intellectual vacuum and an attempt is made in this chapter not only to outline their major contributions to the developing Adventist understanding of the biblical Flood but to identify likely sources of these viewpoints. Such references to outside sources provide a general context for early Adventist interaction with geological thought on the Flood.

Ellen White

Background

Ellen White was the initiator of Adventist thought on the Flood and her prophetic authority has resulted in the continued dominance

of many of her views. This understanding derived from her visionary experience of March 14, 1858, at Lovett's Grove, Ohio, sometimes called "The Great Controversy" vision. The resultant material on the Flood was presented in the context of a much larger exposition on the early chapters of Genesis. The narrative was first published in monograph form in 1864 as *Spiritual Gifts* vol. III. This material was later re-worked and enlarged in the *Spirit of Prophecy* vol. I (1870), and again in *Patriarchs and Prophets*, the first of the "The Conflict of the Ages" series, initially published in 1890. In fact, the Lovett's Grove experience appears to be the only one of its kind addressing matters relating to the Flood. This is of interest, given that White apparently received repeated visionary guidance on some other matters.

White's picture, which followed her literal reading of the KJV Bible, was of a world-wide event of many month's duration, about 4000 years ago, which submerged and destroyed all antediluvian features of the Earth's surface, as well as destroying all animal life that was not contained in Noah's Ark. Although many Christians had by then come to question these views they were by no means atypical of the bedrock religion of her time. However, she also included in her narrative many extra-biblical details. Many of these reflected geological concepts that were already superseded and which can be traced back as far as the seventeenth century.

Although it would seem that White was not well acquainted with the geological thought of her time she did not have a high regard for geologists, often referring to them as "infidels", a derogatory term commonly used by orthodox churchmen during the nineteenth century.[1] Particularly in connection with Creation, but also in a chapter following her description of the Flood, she wrote, for example, that "It is the worst kind of infidelity; for with many who profess to believe the record of creation, it is infidelity in disguise." [2]

Veltman has observed that Ellen White's writings contain time-conditioned as well as timeless statements and that there is a need to investigate and to differentiate them.[3] In this chapter the authors seek to further this end by presenting an analysis of sources that appear to have influenced Ellen White.

Early Seventh-day Adventist Context

Perhaps the major reason for Ellen White's stance against what she perceived as the geological wisdom of her time was the centrality of

the seventh-day Sabbath. Another was the Great Controversy theme. However, the reason most closely related to the Flood concerned the second coming. This influenced her attitudes to geology in a number of ways. It seems from her work that any diminution of the Noachian deluge was perceived as undermining the supply of the raw materials, mainly coal and oil thought to have resulted from it, which were to fuel not only the final conflagration but its heralding earthquakes and volcanic eruptions as well.[4]

There was another way in which the early Adventist understanding of the Second Coming affected church attitudes to science and the Flood. Because Adventists believed in the imminence of this event, education was initially valued lightly and the fledgling church of the 1850s and 1860s saw no need to establish schools. Furthermore, church members had been drawn almost exclusively from uneducated circles. It is no surprise, then, that during the early decades of its existence Adventism lacked academically trained persons capable of understanding the intricacies of the already complex epistemology of modern geology.

Possible Sources Informing Ellen White's References to the Flood

Although she always denied any literary borrowing, it is now widely recognised that White was in many respects a collaborative author who borrowed extensively from others.[5] It is not the aim of this research to defend or deprecate this practice but merely to explore possible sources of White's ideas concerning the Flood. Such source analysis is not an easy task as she had access to numerous sermons, devotional books, Bible Society tracts and Bible commentaries. She read a wide range of Christian literature.[6] She also had access to a broad selection of magazines that came into the Review and Herald office and had about 1,400 volumes in her personal and office libraries.[7]

Rather than simply presenting a list of authors of interest in chronological order, an attempt is made here to divide them into two opposing groups. The first three authors had major roles in the secularising of science over the period leading up to and during that in which Ellen White wrote. In effect, they represent the case to which she made such strenuous objection. The second group wrote works with which Ellen White could have resonated and which may have influenced both her thought development and word usage.

However, before examining specific works of individual authors it is important to note that in all likelihood Ellen White's writings on geology reflected some common understandings held in her day that resulted from much-publicised discoveries. An example is provided by her mention of "much larger men and beasts' which "once lived upon the earth" and "large, powerful animals", that "existed before the flood that do not now exist."[8] These claims must be seen in the context of discoveries made in the United States in the eighteenth and nineteenth centuries. In 1705, a fist-size giant tooth and later also gigantic jawbones and other bones had been found along the Hudson River.[9] American Protestants immediately associated these with Genesis 6:4, "There were giants in the earth those days." The giant tooth was initially thought to belong to a pre-Flood human giant. The fossil bones were seen as archaeological evidence that supported the veracity of Mosaic history including the Flood and, with that, the inevitability of the millenarian Conflagration. By the early nineteenth century it had become obvious to scientists that the bones were those of extinct species, such as the mastodon, a relative of the mammoth (also extinct). However, the belief that they were the remains of giant humans lingered much longer among the general public.

Authors Promoting Secular Theories

George Combe and Robert Chambers: An Emphasis on 'Laws of Nature'

Two works that may well have influenced Ellen White prior to 1864 would likely have been Combe's *The Constitution of Man* (1828) and Chambers' *Vestiges of the Natural History of Creation* (1844).[10] George Combe (1788–1858) and Robert Chambers (1802–1871) were both phrenologists, and they believed in the importance of natural laws in the operation of the world.[11] *Constitution* promoted the view that natural laws, rather than God, controlled the world and in a sense helped mark the transition to a new naturalistic era. This book did not really represent informed scientific thought and the scientists of the day largely ignored it. Understandably, it was actively opposed by conservative Christians who saw in it an attempt to replace God's action with natural laws.[12]

Appearing shortly after the Great Disappointment the anonymous *Vestiges*, which created a print sensation in Britain, went further. In

essence it was a controversial synthesis of the natural sciences with some theology, moulded into a general theory of creation.[13] This book also promoted the philosophy of secularism that would continue to grow during the second half of the nineteenth century.[14] *Vestiges* also created a similar sensation in America and, in the absence of international copyright, it was reprinted freely there by at least four different publishers. It went through about twenty editions, more copies being sold in the United States than in Britain. This book was also widely opposed by evangelicals.[15]

Meanwhile, by the 1860s *Constitution*'s sales in America had already reached 200,000, more than double the combined sales figures of *Vestiges* and Darwin's *Origin of Species* (1859) during that period. The book remained continuously in print until 1899 and was clearly very influential.[16]

Ellen White's brief references to men who "are upon a boundless ocean of uncertainty" and who "seek to account for God's creative works upon natural principles," clearly reveal her opposition to the secularist ideas of her days.[17] These references strongly suggest that works such as *Constitution* and *Vestiges* at least indirectly influenced her work.

Charles Darwin: Natural law (Natural Selection)

While Darwin's work clearly related more to speciation than to the Flood it can also be seen as the next step in the secularisation of science, which had clear implications for ideas on the Flood. The *Review and Herald* had on January 29, 1861, reprinted an article from *American Baptist* where Darwin's term 'natural selection' was given as an example of 'laws of nature.'[18] Ellen White would most likely have read this front page article.

Authors in Accord with Ellen White's Views

Athanasius Kircher (1602–1680): Inundations of Waters from the Abyss and a Deluge of Fires

In his *Mundus Subterraneus,* Kircher provides perhaps the best-publicised proposal of the existence of subterranean cavities.[19] He also states that "earthquakes are the proper effects of sub-terrestrial combustions" and makes a comparison between the effect of the Flood and the final conflagration. He states,

> Even as in the universal Flood, the windows of heaven, and gulfs of the abysses being opened, he destroyed the world by an inundation of waters, even so also, in the last times, he might destroy the same by a Deluge of fires.[20]

Kircher also sees in "the manifest provision and preparation of so much combustible matter," without specifying where it came from, an "evident token of preparation to the total and final conflagration prescribed by the Divine wisdom."[21]



Figure 1. Kircher's imagined subterranean cavities filled with fire and water illustrated in *Mundus Subterraneus*[22]

Some of White's statements have a similar ring: "The bowels of the earth where the Lord's arsenal … waters in the bowels of the earth gushed forth, and united with the waters from Heaven, to accomplish the work of destruction." Concerning the end-time events she states,

"in the day of the Lord, just before the coming of Christ, God will send lightnings (sic) from Heaven in his wrath, which will unite with fire in the earth."[23]

It is important to note that this speculative, seventeenth-century conception of massive underground cavities where large quantities of water are stored and from which fountains of water could break forth, as described by such as Kircher, was no longer entertained by the geologists of Ellen White's time.[24] It has certainly experienced no revival since then.

John Milton (1608-1674): An Eyewitness Account of the Flood

John Milton's famous epic poem, *Paradise Lost*[25], has enjoyed immense popularity for several centuries since its publication in 1667. As pointed out by Bernard Sharratt, it was frequently memorised by boys in public schools and was commonly selected as suitable Sunday reading by Christian households.[26] Its attraction lay largely in the vivid, eyewitness-like narration of the biblical story of the Fall of Man. Matthew Stallard states that, "at times, Milton makes *Paradise Lost* sound so much like the Bible that one is convinced he/she is hearing the words of the Bible."[27] Most people in the nineteenth century would, indeed, have had difficulty in differentiating between their recollections from Moses and those from Milton, his principal paraphrast.[28] Thomas H. Huxley once lamented in this context that the false conception of cosmogony which was so predominant and so resistant to the conclusions of scientific research was "derived from the seventh book of *Paradise Lost*, rather than from Genesis".[29]

However, while *Paradise Lost* does contain many allusions to the Bible account, it is also rich with mentions of conditions and events which are not scriptural. The similarity between text elements in *Paradise Lost* and Ellen White's writing has been discussed by several researchers. Patrick, for example, lists many observed textual similarities.[30]

Some of the most obvious phrase similarities between *Paradise Lost* and *Spiritual Gifts* in relation to the Flood are shown in Table 1.

Table 1

Paradise Lost	*Spiritual Gifts* III
'Cataracts of Heaven set open'	'water seemed to come from heaven like mighty cataracts'
'verdure'	'verdure'
'driven by a keen north wind, that, blowing dry. . .'	'a powerful wind to pass over the earth for the purpose of drying up the waters'
'rapid currents'	'waters moved with great force'
'boundless lake of water'	'wide watery glass … standing lake'

Besides the obvious similarity in phrases, the vivid nature of Milton's near-eyewitness account aligns somewhat with Ellen White's use of 'I saw' and 'I was shown' statements. Some specific terms in Ellen White's writing, such as 'cataracts of heaven' and 'verdure,' are also Miltonesque, although they were also commonly used in other secondary sources and, therefore, cannot be used as indicators of direct borrowing.

John Wesley (1703 – 1791): Burning Mountains and Cities Swallowed Up

Warren Johns discusses the possibility that Ellen White borrowed some of her concepts and terminology from John Wesley (1703 – 1791).[31] Johns notes that Ellen White's early experience was in Methodism and that she was familiar with, for example, John Wesley's *Works*.[32] Johns notes that passages in both her books and her articles in Adventist periodicals also suggest Ellen White's familiarity with Wesley's writing on earthquakes.[33]

There are several parallel elements and concepts which Wesley's 'earthquake' sermon[34] shares with Ellen White's panoramic description of the cause of earthquakes and the occurrence of burning mountains after the Flood in *Spiritual Gifts* III. Some of these are shown in Table 2.

Table 2

John Wesley's 'Earthquake' Sermon	*Spiritual Gifts* III
'hollow rumbling sound'	'muffled thunder'
'the ground heaved and swelled like a rolling sea'	'the ground heaves and swells like the waves of the sea'
'whole cities, yea, mountains are swallowed up'	'sometimes cities, villages and burning mountains are swallowed up'

Similarly, Wesley's reference in another of his works to 'sulphur, or some other flammable matter taking fire in the cavities of the Earth' expresses a similar meaning to Ellen White's 'large quantities of coal and oil' which 'ignite and burn'. Wesley's 'cavities of the earth' and the meeting of 'water and fire under the surface of the earth' described by Ellen White are both reminiscent of the common seventeenth-century concepts of separate underground spaces filled by water and fire that sometimes combined.[35]

Thomas Dick (1774–1857): A Violent Flood, a Foreshadowing of the Final Conflagration

On October 17, 1865, the *Review and Herald* editor who signed his article with a simple "G.", informed readers that the writings of a Mr. Thomas Dick, who had earned himself the sobriquet of the 'Christian Philosopher,' corroborated Ellen White's panoramic vision of the Flood in *Spiritual Gifts*.[36] The editor saw it as a "source of gratification" that divine truth (from Ellen White) was confirmed by the "philosopher." Thomas Dick's description of the violent deluge as a consequence of the wickedness of man indeed shows strong similarities with Ellen White's narrated vision. It also predates it by at least three decades.[37] Was it possible that Ellen White's vision was influenced by Dick's writing?

Dick's popular works on science and natural theology enjoyed a wide circulation in the United States during the nineteenth century.[38]

Hundreds of thousands of copies were sold from their first publication in 1826 to well into the 1880s. His works suited America's predominant sentiment of strong moralism and religiosity and also provided a valued source of useful knowledge.[39] The popularity of these Christian works apparently resulted in their inclusion in nearly every New England clergyman's library.[40] Most public libraries carried several copies of his books and they were reviewed in many American periodicals.[41] Methodists were especially attracted to Dick's combination of robust Christian values with apparently solid data about the natural world.[42] Ellen White's deep Methodist roots may have contributed to her becoming aware of Dick's writings. The editors of the *Review and Herald* were certainly familiar with him since between 1853 and the early 1870s they used brief quotations from his writings as fillers of small open spaces more than a dozen times.[43]

Of special interest here are Dick's descriptions of the violent nature of the Flood and its suggested connection with the wickedness of man, as clearly outlined in his *Philosophy of Religion* and *The Christian Philosopher*. Parallels exist between Dick's writings and Ellen White's panoramic vision on the implications for the Flood. Some of these appear in Table 3.

Table 3

Philosophy of Religion	***Spiritual Gifts* III**
the "fountains of the great deep were broken up, the cataracts of heaven were opened, and the whole solid crust of our globe received such a shock as rent the mountains asunder, and hurled them into the plains."	"water seemed to come from heaven like mighty cataracts", that the "foundations of the great deep also were broken up"[44]
"mighty waters hurled their billows … in every direction, rolling immense rocks."[45]	"hurled in every direction". "hurled, with stones and earth, into the swelling, boiling billows".[46]

A detailed account of the consequences of "the wrath of Heaven against the ungodliness and unrighteousness of men" can be found in *The Christian Philosopher*, in which Dick outlines several supporting facts.[47] He describes the twisted and convulsed rock strata on Earth as a visual memorial of judgement brought down in the form of the Flood because man had rebelled against his Maker. These points also resonate strongly with Ellen White's theme in *Spiritual Gifts* III.

It is also interesting to note that on January 5, 1864, James White, in a *Review* article entitled, "The Renovation of the Earth," inserted a section copied from Thomas Dick. The latter described the destruction of the earth, this time not by water but by fire through the unleashing of geological forces: "imprisoned fires will be let loose … earthquakes shall rend it … volcanic eruptions shall change it."[48] Clearly James White was aware of Thomas Dick's earlier writings shortly before the publication of volume three of *Spiritual Gifts*, which contained analogous sentiments.

Martyn Paine (1794–1877): Mountain Tops Removed and the Significance of Coal

Martyn Paine was an Episcopalian professor of medicine at the University of the City of New York and a noted scriptural geologist. In 1856 he published a lengthy article in *The Protestant Episcopal Quarterly Review* which contained a number of elements which would later appear in Ellen White's panoramic Flood description.[49] These include the removal of mountain tops as a result of the action of the Flood, the burial of the forests by the eroded materials, and the causation of volcanoes by chemical reactions such as the burning of coal. In many ways, Paine's pejorative use of the term 'theoretical' geology equated with Ellen White's 'infidel' geology. Since no human observer had witnessed the actual deposition of geological strata, geology was only theoretical.[50]

Paine strongly proclaimed a literal understanding of the narratives of creation and the deluge.[51] To him the coal formations of the Carboniferous were evidence of the ability of the Flood to dislodge the luxuriant antediluvian vegetation and deposit the layers of vegetation debris with strata of reworked sediment.[52] This concept of the geological action of the Flood was not novel; for example, the well-

known medical practitioner and amateur geologist, James Parkinson, had in 1804 published a very similar account of the deposition of organic matter during the Flood. Parkinson had further hypothesised the "transmutation" of the vegetable matter through chemical changes into coal.[53] During his time, Parkinson's popular books apparently bridged a gap between the works of the more academically orientated scholars and the activities of those who simply collected fossils. His early-century audience was quite familiar and comfortable with the religious context of his writings.[54]

Ellen White's account of what she had seen in vision showed significant parallels with aspects of Parkinson's writings and Paine's use of it. Ellen White wrote concerning the formation of coal,

> In some places large quantities of these immense trees were thrown together and covered with stones and earth by the commotions of the flood. They have since petrified and become coal, which accounts for the large coal beds which are now found.[55]

Paine had also alluded to the disappearance of the hills from above the surface of the ground as another solid proof of the catastrophic deluge. Ellen White equally described the removal of mountain tops and the formation of other huge hills and high mountains, although she attributed this more to the strong winds that dried up the flood waters.[56]

For Paine, the coal formations established the occurrence of the general deluge, and "do more for the triumph of the Bible than any other event."[57] Similarly, Ellen White states that men, beasts, and trees buried in the earth at the time of the Flood were preserved as evidence of its occurrence, and their discovery would establish faith in biblical history.[58]

Paine argues that the recession of the waters of the deluge resulted in greater forces on the landscape than did the rise of the waters.[59] Ellen White likewise saw greater geological activity taking place during the final stages of the deluge when a tempest aided the recession of the waters. She spoke of the uprooting of antediluvian "immense forests" which were torn up at the time of the flood and buried in the earth."[60] Ellen White and Martyn Paine did, however, differ on other interpretations. While Paine saw the coal formations specifically as evidence of the Flood, White suggested that *all* sedimentary rock strata were laid down during the Flood.[61]

It is important to note that by the time they were written the catastrophic geological deluge accounts of both Dick and Paine were totally out of step with the contemporary interpretations of field evidence provided by professional geologists.

Subsequent Writings of Ellen G. White

While her earlier works such as *Spiritual Gifts* were written for the guidance of the 'little flock' of fellow-Adventists, later publications were written for a wider Christian audience.[62] Accordingly, there are notable differences in style between *Spiritual Gifts* III*, The Spirit of Prophecy* I*,* and *Patriarchs and Prophets*.[63]

The former is characterised by a simple narrative style, with vivid and compelling short sentences and predominant use of the past tense, conveying the sense that the author is reporting what she saw. In the *Spirit of Prophecy* version there is more use of a vivid present tense. There is also a greater use of adjectives, adverbs, and additional clauses. In *Patriarchs and Prophets,* the style has transformed again. Narrative detail largely gives way to moral exhortations. The style becomes less vivid and contains more use of the future tenses with dependent clauses of time and purpose. An increase in abstract nouns, more use of the passive voice, and impersonal constructions have also been noted.[64] The vividness of the original version that linked it so much to John Milton's compelling style in *Paradise Lost* has diminished. This change in style was explained by Bull and Lockhart as being due to White's improved literacy skills and also possibly to the increasing involvement of her editorial assistants.[65]

Furthermore, in her later books she largely eliminated phrases such as, 'I saw' and 'I was shown', which might have invited misunderstanding or distrust on the part of non-Adventists and some Adventists who were known to be sceptical of her prophetic status. There is also a decreased use of the terms 'infidel' and 'infidelity'. This fits well with a general trend that Marty suggests took place towards the early twentieth century in religious literature in America, when Christianity and its antagonists allowed each other increasing space for a more profitable, honest and intelligent interaction.[66]

However, a number of things did not change. A comparison of her treatment of geological facts and processes in *Spiritual Gifts* and *Patriarchs and Prophets* shows virtually no development in her

understanding of flood geology. Furthermore, it is difficult to identify any unique or novel insights in White's writings on the Flood.

Uriah Smith

Peter Edgar Hare ridiculed the conclusions of geologists.[67] Smith appears to have been the first to do so and geology would be regularly criticised in the Review under Smith's editorial guidance up to the turn of the century. For Smith, any form of geology that went beyond factual data concerning rock formations was suspicious.

Uriah Smith edited the *Review and Herald*, the most prominent mouthpiece of Adventism, for most of the last five decades of the nineteenth century. Although he wrote very little original material on the Flood his influence on the consolidation of Adventist views on this subject was substantial. His main contribution lay in the selection of relevant materials from a variety of other "trustworthy" Protestant sources, most frequently orthodox Presbyterian. He also printed a number of articles by other Adventist thought-leaders of the period. While most of this material concerned the general threat of geology, obviously "a science falsely so called", it is clear that the Flood provided the context for much of this criticism, both from within Adventism and from the other sources used.

While details of Uriah Smith's contribution to Adventism may be found in several biographical books, articles and theses[68], only Ronald Numbers has reported on Smith's negative attitude towards geologists and their fallacious science.[69] Although Smith was fairly well educated for his day, Hammond expresses the opinion that, with respect to theological matters, he "was not equipped to make the deepest excursions into some of the languages essential to Bible scholarship" and that his Bible studies were largely limited to examining secondary sources such as commentaries and works of other trusted conservative authors.[70] The same might be said of his excursions into geology.

Early Experiences

In 1853, at the young age of twenty-one, and before he had formally joined its editorial team, Smith had published lengthy poems in the *Review* articulating his literalist interpretation of Genesis, his support for the Baconian perspective on scientific methodology and his disagreement with the emerging scientific focus on natural causes and laws.[71] These poems appeared a decade before Ellen White

published *Spiritual Gifts* III. Ellen White must have read these and it is even possible that they may have influenced her later views on geology and the Flood.

That the converse occurred is beyond doubt. A few years later, as the Review's young editor, Smith provided what was possibly the first reaction by any other Adventist author to the views later published in Spiritual Gifts III in the form of his December 16, 1858, front-page editorial in the Review and Herald entitled "Geology".[72] The term 'geology' had been first used in the Review and Herald in 1854 when Smith, without additional commentary, reprinted an article from The London Quarterly Journal of Prophecy under the title, "The Present Age: Its Boasted Progress Delusive". The author had warned that progress in the sciences, including geology, can be deceiving, stating, "The amount of knowledge gained may be nothing to the amount lost, or that which is gained may be so perverted or ill-regulated as to injure instead of profiting."[73] This article was Smith's first warning to Review readers of the potentially negative nature of geology.

In this chapter Uriah Smith's influence will be assessed by reference to both his own editorials on geology, which often incorporated material borrowed from non-Adventist sources, and to articles he accepted from other Adventist authors.

Smith's Editorials

In 1858, only six months after Ellen White's Great Controversy vision in Ohio, Smith wrote his first major *Review* editorial on geology, effectively endorsing her views. He began, "Geology, the reader is well aware, is the great instrument which unbelievers are endeavouring to wield against the legitimacy of the Scriptures." This would become Smith's enduring refrain.[74] While maintaining that he was not against geology *per se* he effectively maintained that only biblical-fact-based geology was appropriate.

Characteristically, in this editorial Smith incorporated two carefully selected quotations from non-Adventist authors to support his argument.[75] The first of these was a very brief section of a lengthy report on a debate about the authority and the inspiration of the Bible. The fact that Smith found and utilised this small discussion on geology indicates, first, his wide reading and, second, his commitment to providing the *Review* readers with resource material to which most of them would not have had access.

This first editorial on the topic of geology clearly showcased the tension between Adventism and the new science of geology. Smith stated that men who make use of geology "make fools both of themselves and their subjects." According to Smith, geology was still in its "infancy", and its assumptions were actually "utter fallacy."[76] The general lack of geological background knowledge amongst writers and editors made it easy for misconceptions to be passed on as facts to their generally less-educated and unsuspecting readers.

Examples of Smith's editorials which discuss geology and the Flood include: "Geology" (December 16, 1858), "Geology" (July 3, 1860), "Infidel Objections" (March 12, 1861), (February 26, 1867), "Notes on Genesis" (March 12, 1867), "Geology at Fault Again" (June 14, 1870), "Science of the Bible" (October 11, 1870), "That Old Skull" (October 25, 1870), "Science and Scripture" (June 15, 1876), "Scientific Folly" (July 12, 1877), "The Structure of the Earth" (February 12, 1880), "Geology and the Bible" (March 31, 1885), "Earth! Earth! Earth!" (April 28, 1885), "Geological Mysteries vs. Biblical Revelation" (June 9, 1885), and "An Important Question Again" (April 26), 1898.

Although not acknowledged by name, William Swan Plumer (1802–1880) was the author of the (1860) "Geology" article in the *Review and Herald*.[77] Plumer was a Southern, Old School Presbyterian minister, commentator, and educator whose writings were considered practical, didactic, and of the extreme Calvinistic School.[78] The article was derived from his 1848 booklet, *The Bible True, and Infidelity Wicked.* Plumer was convinced that there were no discrepancies between the statements of the Bible and the teachings of geology concerning the creation and the flood. He characterised geology as a science that is not "demonstrative," suggesting that it was not a real science like mathematics or physics. The contradictory assertions of some geologists still testified, according to him, of the "low state of the science," which made some "sober men doubt whether geology has any claims to the rank and dignity of a science." He further stated, incorrectly, that geologists still believed that the Earth had been subjected to a deluge not further back than five or six thousand years.[79]

Articles with Geological Content from Other Adventist Authors

Uriah Smith frequently gave space to other Seventh-day Adventists to voice their opinions on geology. Some leading Adventist elders who contributed their perspectives on the influence of geological thought and Scripture were J. N. Andrews, J. O. Corliss, E. P. Daniels, M. F. Cornell, Alonzo T. Jones (see below), M. E. Kellogg, and D. E. Lindsey. Some articles were printed sermons delivered by Adventist elders. Some of these articles are discussed briefly below.

In an article concerning the attempts of geologists to determine geological time, J. N. Andrews chose excerpts from the Reverend R. Patterson, originally published in *Family Treasury*, to highlight the "extravagant pretensions" and "absurdity" of geology to the common reader. The clearly biased Reverend Patterson had no good word for the preposterous results of geologists.[80] On another occasion, Elder Andrews highlighted the absence of biblical facts in naturalistic geological speculations. The present crust of the Earth should, according to him, be explained by incorporating "two facts that the Bible insists upon as of the highest importance." These were, "the fall of man and the consequent curse of God which came upon our earth," and "the complete breaking up and destruction of the crust of the earth by the deluge, and its subsequent elevation when God restored the dry land."[81]

In a sermon preached at Battle Creek and reprinted in the *Review and Herald*, Adventist Elder J. O. Corliss repeated familiar statements concerning geology. He had no problems with the facts concerning the formations existing in the earth's crust but contended that "the *theories* of geologists, contemplated in the light of science, are not altogether founded in truth." Because geology has no laws peculiar to itself by which exact results can be reached, Corliss reminded the congregation that it is not a demonstrative science and should be avoided as a "science falsely so called."[82]

Alonzo T. Jones

Alonzo Trévier Jones has been characterised as "one of the most controversial Seventh-day Adventists who ever lived."[83] His writing style was certainly characterised by a measure of ascerbic bluntness.

Ronald Numbers simply characterised Alonzo Jones as "a self-taught ['geologist'] ex-soldier," converted while stationed at Fort Walla Walla, Washington.[84]

Although his interest in geology has been noted by some,[85] Jones' contribution to Adventist thought on geology during the final quartile of the nineteenth century has been largely unappreciated. It is curious, for example, that none of his principal biographers refers to Jones' geological interests.[86] Clearly this was not considered significant when compared to his other areas of involvement and influence within Adventism. Yet he was the first Adventist author to question and criticise the scientific validity of geology on the basis of his reading of a *bona fide* academic textbook. His perception of flaws in the science of geology grew out of an at least superficial engagement with the actual science involved. In this sense he resembled the mid-century scriptural geologist David Lord. He also arrived at conclusions similar to those reached by Lord, who argued that geology was not a real, demonstrative science but a "sham science," full of uncertainty.[87] The 'uncertainty' of geological science became a central tenet of Jones' writing.

His conclusions were based on his reading of one of the most respected and up-to-date textbooks available at the time, Archibald Geikie's *1882 Text-Book of Geology*. As far as can be established Jones read no further in the technical literature. His objectives were to study the merits of geological science and to determine whether geology posed a serious threat to the Bible's account of origins and the Flood.

Two Series of Articles

It was while he was stationed as a missionary at the hamlet of Farmington, Washington Territory, soon after his conversion to Adventism, that Jones penned his first articles on the uncertainty of the science of geology. These were published on August 7, 14, and 21, 1883, in the *Review and Herald*. Jones states that he had read through Geikie's textbook three times before he wrote these articles. Given the sheer size of the book (nearly a thousand pages) and its rather technical nature, this was no small achievement.

Shortly afterward, in early-May, 1885, Jones was invited to work at the Pacific Press in California. He soon became co-assistant editor of *The Signs of the Times* and not long after became a co-editor. It seems

that during this period his mind continued to confront geological issues. His earlier *Review* articles were re-worked and expanded into an eight-part series which was published during 1885 in the *Signs, s*oon after he became co-assistant editor. This series of articles represented the first attempt by an Adventist to produce a cohesive assessment of geological theory and methodology. While, as for Uriah Smith's work, the main emphasis was on geology in its wider sense, unquestionably the doubts about Noah's Flood which were being expressed with increasing stridence by the geological community provided a significant part of their context.

He states in these articles that his aim had been "to examine geological science on its own merits."[88] He wanted to see whether "it has any merit that would justify a comparison with the Bible."[89] However, the alacrity with which he notes what he sees as contradictions, flaws, and errors suggests that Jones approached Geikie's text with a very sceptical mindset rather than an objective one.[90]

Text-Book of Geology (1882)[91]

Scottish geologist, Sir Archibald Geikie (1835–1924) was already a well-established author of scientific works on geology by the time that his *Text-Book* was published. He was an active field geologist and had been the Director of the Scottish Geological Survey. In December, 1870, he had become Professor of Geology and Mineralogy at the University of Edinburgh, a position which entailed extensive travel throughout Europe and western America. In 1881 he had become Director-General of the Geological Survey of the entire United Kingdom.[92] His scholarly texts on geology and physical geography were widely respected. His writing was considered "representative of what the British geological community thought … in the second half of the nineteenth century."[93] His *Text-Book of Geology* proved exceptionally popular and went through three editions (1882, 1885, and 1893).[94] Geikie's view of geology "influenced professionals as well as amateurs" at a semi-popular level.[95] His philosophical approach to the science was that of a conservative inductivist and empiricist who shied away from unwarranted theories in geology. He was strongly influenced by the ideas and methods of fellow Scot, James Hutton, who had promoted the idea that the present surface landforms of the earth and processes that currently operated were a reliable key to understanding the geological past.

Geikie's *Text-Book* was positively reviewed by the professional global geological community. Grove Karl Gilbert (1843–1918), one of the best-known and most-experienced American field geologists and who was a strong proponent of the use of hypotheses as the driving force in knowledge accumulation in geological investigations, reviewed it in *Nature*. In his review, Gilbert evaluated the *Text-Book* in terms of its usefulness for students and its service to the future science of geology.[96] He noted that the bulk of the book was devoted to geognosy (the rocks of Earth's crust), dynamical geology (the processes whereby the rocks originate), and structural geology (the larger structures of the rock masses). He also noted that the large section on stratigraphy appeared to have been written more as a geologist's manual than to instruct students, who would, he felt, be bewildered by its complexity. With reference to the present condition and needs of geology Gilbert praised the general plan of the book. He thought that, with its selection of material and the balancing of its parts, it represented commendably well the views generally entertained by the community of geologists at large.

University of Birmingham Geology Professor, Charles Lapworth, who reviewed the *Text-Book* early in 1883 for the British *Geological Magazine*, equally thought that the work came close to being a geologist's handbook but still felt that it remained the "most readable and complete work upon the entire subject yet issued to the public."[97] Both Lapworth and Gilbert were recognised authorities in the global community of professional geologists and both of them, like Archibald Geikie himself, ultimately received the highly esteemed scientific Wollaston Medal of the Geological Society of London for their contributions to the science of geology.[98]

It is within this context of positive accolades from international peers that Jones' assessment of geology appeared. Using the language of a favourable book review in the New York *Independent,* Jones introduced Geikie's *Textbook* as "the latest, the ablest, and the best contribution in favour of geological science as it is at the present day."[99] It would appear that, so far, he had judged well. However, Jones had no experience of what it 'felt' like to be a (field) geologist. He had no sense of the highly specialised practical skills which enabled such a practitioner to contextualise the subtlety and complexity of rock strata. This framework includes the theoretical temporal scaffold

of geological history and the three-dimensional spatial aspects of strata, as displayed on geological maps. The lack of these skills would have made it very difficult for Jones to interpret much of what he read in Geikie's book. Clearly, though, Jones thought otherwise. There is no evidence that he felt that his lack of geological training or, indeed, any other form of tertiary education, prejudiced his ability to analyse the reasoning and methodology of geology using his plain common sense. He thus approached his task with what may have been unwonted confidence. Jones' task was made even more difficult by the fact that at the time he wrote his articles, the role of theoretical reasoning in geology was not widely understood or agreed upon, even by geologists themselves.

The Timing of the Publication of Jones' Series of Articles on Geology and Evolution

The timing of Jones' geology articles in *Signs* (and his later series on evolution) may not have been a random occurrence. They appear to be part of an unfolding strategy for meeting thorny problems emerging from geology. Beginning in March 1879, several articles by Ellen White on the topic of the Great Controversy were published in *Signs.* These appear to be revisions of material first published in *Spiritual Gifts* III and much of this material would appear in final form in *Patriarchs and Prophets* and *The Great Controversy*. On March 13, 1879, in an article entitled 'The Flood,' White predicted that ignition of the coal layers formed at the Flood would lead to mighty convulsions with earthquakes and volcanic activity shortly before the Second Advent of Christ. The next week saw the publication of 'Disguised Infidelity,' in which the infidel suppositions of geologists who assumed an old earth of much greater age than the first appearance of man were criticised.[100] These articles were followed up with several major sections copied from the work by scriptural geologist, David Lord, *Geognosy or the Facts and Principles of Geology against Theories,* published in 1855.

Jones' Analysis

Jones's first objection to geology was on the basis of what he perceived as its tentative and uncertain nature. In fact, his second series of articles finished with a synopsis of evidences for the uncertainty of geology! Lord's *Geognosy* had also strongly urged this objection. It is of interest that there is no concrete evidence that Jones actually read

Lord's work. It is however most likely that he was at least familiar with its fragments copied in *The Signs of the Times*. In order to expose geology's apparently hollow foundation of mere assumptions and hypotheses, Jones selected small passages from Geikie's textbook, which he frequently highlighted with italics and/or exclamation marks. Examples include:

> we may *assume* the uniformity of action, and use the *assumption* as a *working hypothesis*…,

> 'the foundation of the geologist's training' is an 'assumption;' and this assumption must not be allowed a 'firm footing' because it may blind us to an *obvious truth*, and because it also may be '*entirely erroneous.*[101]

The possibility that Geikie had used these terms appropriately to convey a sense of the tentative nature of investigation of rock strata investigation was apparently lost on Jones.

His second objection was on the basis of weaknesses he found in the methodology used to determine the age of the earth. He criticised arguments based on present observed rates of erosion, because they were, as he thought, completely founded on 'assumptions.' Jones therefore concluded the following about the geological arguments for an extended age of the earth:

> Yes, no doubt, "if we assume" that such and such is the case, "probably" the balance will follow. But why are we called upon to "assume" an "erroneous assumption" only for the purpose of reaching an indefinite conclusion? …Why may we not just as rightfully assume that these changes and revolutions have been wrought in short periods, or even *suddenly?* Many of them have certainly been made violently.[102]

> His third objection followed from what he saw as geology's uncertain stratigraphy. Jones assessed geology's stratigraphic principles to be "nothing less than worthless."[103] Jones criticised seriously the use of the principle of superposition of geological strata as the foundation of geological chronology. Normally, lower-lying geological strata are deemed older than overlying strata. Jones searched the *Text-Book* to find exceptions to this rule. He found them in the form of the occasional occurrence of overturned mountain masses. Geikie had made it very clear that these were exceptional occurrences and that the true order of superposition can usually quickly be identified from other sources of evidence, such as tracing rock strata from a normal

> to an inverted position, studying surface-markings (ripple-marks, sun-cracks, rain-prints and footprints) and observing assemblages of organic remains.[104] The latter provide evidence of the conditions under which sedimentary strata were formed. Geikie had written,
>
> The rocks comprising huge mountain masses have been so *completely overturned* that the *highest beds* appear as *regularly covered* by others which ought properly to underlie them." In such instances "the *apparent superposition* may be deceptive.[105]

However, Jones wondered how one really can tell that "huge mountain masses are lying in a directly inverted position to that of the valleys or the plains."[106] Jones also made much of apparent "exceptions to the rule" in other areas as well. He gave considerable attention to the phenomena then known as Barrande's colonies. Jones created the impression for his lay readers that this, and other exceptions, represented major challenges to the generalisation regarding the use of fossils in typifying rock formations. However, these colonies or 'precursor bands' were clearly minor exceptions to the established normal order of the occurrence of fossils in their age-related rocks and were later explained to the satisfaction of most geologists. This exaggerated use of exceptions to 'prove' that 'generalisations' were useless became a useful tool in Jones' hand to convince his lay audience.

His fourth objection concerned geology's apparent dependence on circular reasoning. He considered the use of fossils in determing the stratigraphic position of rock formations a prime example of unacceptable circular reasoning. Despite Geikie's extensive explanations, Jones did not grasp the pragmatic aspect of first cataloguing a rock stratum on the basis of its characteristics, including its organic content, and *then* using this as a framework for determining the position of local rock strata within the theoretical geological column. "All this may be ***geo***logical, but it assuredly is not logical, nor is it according to established rules of evidence."[107]

Fifth, Jones objected to geology's total lack of potential scientific demonstration. Following the example of Lord, Jones considered the lack of 'demonstration' a serious problem in the science of geology. Without 'demonstration' geology can, according to Jones, not be 'a matter of knowledge' but remains a 'matter of speculation.' Professional geologists were well aware of the absence of mathematical demonstration but did not see it as a problem. They accepted geology

as a different type of science, one that used the refining of working hypotheses to lead to the truth in a pragmatic way. Geikie, in outlining the nature of geology, frankly admitted that, just like other branches of natural science, geology is generally not susceptible to mathematical treatment. Instead, he explained, "the conclusions in regard to [the science of geology], being often necessarily incapable of rigid demonstration, must necessarily rest on a balance of probabilities."[108] Geology, more so than any other science, therefore uses hypotheses and theories whose testing within the community of experienced practising geologists leads over time to a fuller and more accurate body of "well-ascertained knowledge regarding the structure and history of the earth."[109]

The inherent hypotheticity of geology became therefore *the* stumbling block for lay persons with a strict Baconian perspective of science. Being identifiably different from the mathematically-based sciences, the challenging findings of geology were even harder to accept for orthodox Christians. Geological science should therefore, according to Jones, be seen as a 'science falsely so-called' within the scope of the apostle Paul in 1Timothy 6:20.[110]

C. S. Peirce (1839–1914), the originator of the American 'pragmatism' movement, had recognised that geology was actually *the* representative science that made use of a methodological inference, which he originally termed 'hypothesis' but later renamed 'abduction' or 'retroduction.'[111] He once voiced the opinion in a eulogy of the life of James Dwight Dana (an eminent nineteenth-century American geologist) that geology was among *the most difficult of the sciences*.[112] This academic opinion differed substantially from that of the Adventist elders who characterised geology as a 'so-called' science. Occasions on which geologists spoke with appropriate scientific modesty in hypothetic terms were interpreted by Jones as blatant signs of 'uncertainty' and speculation. Geology's inability to devise its own law-like statements constituted for him an unscientific lack of demonstration.

Jones was quick to assert that, of course, he was not at all opposed to true science and had genuine admiration for science, *but* it must be "real science, and not sham science."[113] His eight-article series largely took the shape of a montage comprised of lengthy quotes interconnected with brief comments. With his copious use of quotation

marks, it is sometimes difficult to make a clear distinction between the voices of the quoted authors and Jones' own commentary. At times his logic appeared to be somewhat inverted. On one occasion, after accusing geologists of failing to establish details of Earth's geological history he went on to quote Hebrews 11:1, "faith is the evidence of things not seen," and stated that,

> If the formation, the growth, and the structure of the earth, can be *shown* by geology, if it can be demonstrated, so that it may be a *matter of knowledge*, just then it will be removed from the field of faith.[114]

It would seem by this usage that Jones felt that it would be somehow inappropriate in any case for geology to provide a way to truth. So was geology to be blamed for its failure or not? While no geologically informed person would have resonated with Jones' glibly constructed conclusions they were undoubtedly effective for his already sceptical readership.

Conclusion

By the year 1900 the distinctive ensemble of constituent elements comprising Adventist thought on the Flood had been clearly established by Ellen G. White and, to a much lesser extent, by other Adventist pioneers, none of whom were educated to the point of any telling familiarity with the geological science of their day. It is then not surprising that nineteenth-century Adventist Flood ideas did not reflect the scientific understanding of the day. In fact, the prevalent attitude to science seems to have been one of disdain. It is perhaps not surprising that the latter half of the nineteenth century was labelled by Francis Nichol as the "theological" phase of Adventist flood geology.[115]

It also appears to be the case that, to a large extent, these Flood ideas appear to have been borrowed from other conservative writers.

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3 Fred Veltman, "*The Desire of Ages Project: The Conclusions*", Ministry, 62:12 (December, 1990): 15.

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9 Paul Semonin, *American Monster: How the Nation's First Prehistoric Creature became a Symbol of National Identity* (New York, NY: New York University Press, 2000), 2, 3, 11, 16, 17.

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11 During the early nineteenth century phrenology was a popular pseudoscience that was based on measurements and observations of the shape of the human skull and from which apparently a large range of personal propensities could be deduced. George Combe was a well-known practitioner who brought phrenology to the attention of the British middle classes. He eventually diversified towards discussing the relationship between science and religion and was labelled an atheist and materialist. Phrenologists emphasised the effectiveness of natural laws above God's creation by fiat and His continuing control over nature.

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16 Ibid., 127–8.

17 Ellen G. White, Spiritual Gifts III, 93.

18 Anonymous (Am. Baptist), "Are Miracles Preclude by the Laws of Nature?", *Review and Herald*, 17:11 (29 January, 1861): 81. Article reprinted from Baptist Missionary Magazine (American Baptist).

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21 Ibid.

22 Retrieved from http://longstreet.typepad.com/.a/6a00d83542d51e69e2 0177440c6b58970d-pi (1 August, 2016).

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24 Thomas Burnet, *The Sacred Theory of the Earth: Containing an Account of the Original of the Earth, And of all the General Changes which it has Undergone, Or is to Undergo, till the Consummation of All Things*, vol. II (London: John Hooke, 1719). This was originally published in Latin in 1684.

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brother Charles; The Ellen White phrases shown in Table 2 are taken from Ellen G. White, Spiritual Gifts III, 69–89.

35 John Wesley, *A Survey of the Wisdom of God in the Creation: A compendium of Natural Philosophy*, 2 vols. (Lancaster, PA: William Hamilton, 1810); Ellen G. White, Spiritual Gifts III, 69–89.

36 Anonymous (G.), "The Mighty Convulsions at the Flood", *Review and Herald*, 26:20 (17 October, 1865): 156–7; It appears that during the absence of the resident editor, Uriah Smith, for health reasons, this being concurrent with James White's treatment for a severe stroke, George Amadon took care of Smith's editorial duties from August to December, 1865, and signed articles that he placed for him in the Review and Herald with 'G.'.

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92 William J. Youmans, ed., "Sketch of Sir Archibald Geikie", *Popular Science Monthly*, 43 (June 1893): 258.

93 David R. Oldroyd, *The Highlands Controversy: Constructing Geological Knowledge through Fieldwork in Nineteenth-century Britain* (Chicago: The University of Chicago Press, 1990), 337.

94 Geikie's Text-Book contains a total of 928 pages of text with an additional 42 index pages and is divided into seven major subdivisions (which Geikie named 'Books'): Book I. Cosmic aspects of geology (the movements of the earth in their geological relations); Book II. Geognosy (investigation of the materials of the earth); Book III. Dynamical geology (geological processes beneath and on the earth's surface); Book IV. Geotectonic/ structural geology (architecture of the earth crust); Book V. Palaeontological geology (organic remains/ fossils); Book VI. Stratigraphical geology (organisation of rock strata/ layers); Book VII. Physiographical geology (landscape features due to disturbance of the crust). Jones, however, changed the term 'Book' into 'Part' in his articles (without mentioning this). This is highly confusing since Geikie used the same term 'Part' for further subdivision of his 'Books.' Following Jones' quoted text fragments in Geikie's original book is a time-consuming exercise, particularly since the quotes are not always verbatim.

95 David R. Oldroyd, *The Highlands Controversy*, 337–338.

96 Grove K. Gilbert, "Geikie's Geology", *Nature*, 27:689 (11 January, 1883): 237.

97 Charles Lapworth, "Reviews – Dr. A. Geikie's *Text-Book of Geology", Geological Magazine*, 10:2 (February 1883): 84.

98 Archibald Geikie received the Wollaston Medal in 1895, Lapworth in 1899, and Gilbert in 1900.

99 Jones, "The Uncertainty of Geological Science", 292. Geikie's *Textbook* was hot off the press in 1883 and certainly has the allure of an excellent textbook at its time.

100 Ellen G. White, "Chapter Seven (Concluded), The Flood", *Signs of the Times*, 5:11 (13 March, 1879): 82; Ellen G. White, "Chapter Eight, Disguised Infidelity", *Signs of the Times*, 5:12 (20 March, 1879): 90.

It should be noted that the chapter numbers as used in the Signs do not follow those of *Spiritual Gifts* III, as originally published in 1864. Neither are they those of her later works on the topic. More details are available from Vance Ferrel, *The Editions of Great Controversy* (Beersheba Springs, TN: Pilgrim Books, 1994).

101 Alonzo T. Jones, "The Uncertainty of Geological Science", 292.

102 Ibid., 292. The final question asked in this quotation, together with the suggested answer, was soon taken up by George McCready Price and later by many young-earth creationists.

103 Alonzo T. Jones, "Uncertainty of Geological Science (Concluded.)", *Signs of the Times*, 11:21 (28 May, 1885): 324.

104 Archibald Geikie, *Text-Book of Geology,* Figures 241 and 242 on page 518; 483–6, 500, 617.

105 Ibid., 500. Such overturned rock masses are now generally called thrust faults or simply thrusts which form through great compressional forces that have produced mountain ranges (e.g. The Alps, Rocky Mountains, and Appalachians) where crustal plates have collided.

106 Alonzo T. Jones, "The Uncertainty of Geological Science (Continued)", *Signs of the Times*, 11:20 (21 May, 1885): 308.

107 Ibid., 308.

108 Archibald Geikie, *The Founders of Geology* (Baltimore: The Johns Hopkins Press, 1901), 2.

109 Ibid., 3.

110 Alonzo T, Jones, "Uncertainty of Geological Science (Concluded)", 324.

111 Victor R. Baker, "Catastrophism and Uniformitarianism: Logical Roots and Current Relevance in Geology", in *Geological Society, London, Special Publications* 143, eds. Derek J. Blundell and Andrew C. Scott (1 January, 1998), 171–182.

112 Victor R. Baker, "Geological Hypotheses: Multiple, Working, and Outrageous", abstract for the 2014 GSA Annual Meeting in Vancouver, British Columbia (19–22 October, 2014). Retrieved from https://gsa.confex.com/gsa/2014AM/finalprogram/abstract_245638.htm (5 February, 2015). In email correspondence of 3 January, 2015, Victor Baker gave the source for the remark on the complex nature of geology as: *The Nation* (14 December, 1899).

113 Alonzo T. Jones, "'Evolution' and Evolution (Concluded)", *Signs of the Times*, 11:26 (2 July, 1885): 404.

114 Ibid., 404.

115 Francis Nichol, ed., *Seventh-day Adventist Bible Commentary*, vol. 1 (Hagerstown, MD: Review and Herald Publishing Association, 1978), 72–3.