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Understanding the Geologic Record in a Seventh-day Adventist Perspective

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Introduction

In his classical collection of biographies titled *Parallel Lives*, Plutarch tells of the mischievous Procrustes, whose defeat was counted among the feats of the Athenian hero Theseus. Procrustes had the curious habit of inviting any passerby traveler to rest at his abode, only to meticulously impose upon his guest the requirement that the guest be made to proportionally fit the bed that he had provided for him. If the guest were too short, he would be stretched (needless to say, to his death) until the body met the bed's length. If the guest were too tall, he would be executed by having either his head or legs trimmed off with the precision of a tailor. Theseus brings retribution to Procrustes by forcefully fitting the body of the villain to the dimensions of his own eerie bed.[1]

The obsession of Procrustes is allegorically seen in attempted reconciliations of the historical sciences with Scripture. Enthusiasts of naturalistic paradigms of the day will stretch the biblical timescale to fit the procrustean bed of deep time. The analogy does not stop here, however. In the opposing field of ideological contention, scientists and laypersons of various Christian denominations who maintain a commitment to fundamental biblical principles can sometimes also be tempted to engage in procrustean efforts. When some of them do, their methods are unique insofar as the crime of stretching is not committed. Rather, their tool is the

[1] Plutarch, *Parallel Lives*. Online: http://www.gutenberg.org/ebooks/674.

axe, and they will trim off the observed complexity gleaned in the rocks by the observer of nature's record for the sake of fitting observations into the traditional scheme of Flood Geology, which may sometimes be unrealistic or lean too heavily on mechanism.[2]

How, then, do we escape the procrustean disposition and correctly make sense of Inspired Revelation and the Book of Nature? How can these two revealing sources be taken together so that neither one is shrunk or stretched to be made fit for the other? How can the honest Seventh-day Adventist Christian investigate the natural history of our planet's surface and remain in agreement with the historically accurate account of Genesis and the inspired considerations of God's prophets?

This article attempts to present not negative evidence demonstrating inconsistencies of mainline paradigms (which could be found elsewhere), but to positively paint a portrait in suggesting a *tertium quid* or third alternative in unifying apparently contradictory notions from revelation and historical science. This portrait is directed specifically to Seventh-day Adventists, in a format that is more kerygmatic than apologetic. A discussion of principles found in Ellen White's statements will also be useful towards the formulation of a model that will attempt to address this controversial topic. It will follow that Seventh-day Adventist theological concepts improve our understanding of the rock record.

I. Setting the Stage: A Brief Historical Background

As a legacy of Christianity,[3] science benefited greatly from thinkers such as scholastic theologian Thomas Aquinas. Aquinas took aspects of Aristotle and Neo-Platonism that he deemed profitable in light of scriptural revelation and synthetized them.[4] He applied useful categories or "causes" to explain phenomena, namely the material, efficient, formal, and final causes. As Logan Paul Gage illustrates, "Aristotle and Thomas would

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[2] The term *mechanism* refers here to a school of thought and should not be confused with the term *mechanism* in the sense of causation.

[3] Rodney Stark, *For the Glory of God: How Monotheism Led to Reformations, Science, Witch-hunts, and the End of Slavery* (Princeton, NJ: Princeton University Press, 2003), 197.

[4] Jay W. Richards, "Straining Gnats, Swallowing Camels: Catholics, Evolution, and Intelligent Design, Part 1," in *God and Evolution: Protestants, Catholics, and Jews Explore Darwin's Challenge to Faith*, ed. Jay W. Richards (Seattle, WA: Discovery Institute Press, 2010), 208.

explain a marble statue by reference to its material cause (the marble), its efficient cause (the sculptor), its formal cause (the shape of the statue), and its final cause (the purpose of honoring Athena). A modernist, in contrast, sees only material man and marble at work."[5]

The 16th and 17th centuries saw in academia an unfortunate neglect of two of Aquinas' causes, the formal and the final cause, which would no longer be employed in the scientific enterprise.[6] Thinkers such as Thomas Hobbes, René Descartes, and Francis Bacon made the scientific endeavor more mechanistic, as they were keen on foremost considering material causes and efficient causes (or agencies).[7] The comparison of natural processes to the functioning of machinery became norm. There were exceptions, such as Georges Cuvier and German idealists like Friedrich Schelling, who were, in a sense, less mechanistic, since they still acknowledged formal causes–one example being their notion of animal "archetypes."[8] Cuvier embraced the notion of a formal cause or "formative impulse" that guided living organisms.[9] So did Louis Agassiz a century later, expressing belief in a taxonomical system that existed in the mind of God.[10]

The neglect of formal and final causes brought interesting consequences. Teleology, or purpose, if at all considered, would be in line with Aristotle's Immanent Teleology, which suggested that purpose had no reference to transcendence or to a blueprint in God's mind, but rather to local necessity.[11] Scientists of the 17th century, in their subversion of

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[5] Logan Paul Gage, "Can a Thomist be a Darwinist?" in *God and Evolution: Protestants, Catholics, and Jews Explore Darwin's Challenge to Faith*, ed. Jay W. Richards (Seattle, WA: Discovery Institute Press, 2010), 197.

[6] Jay W. Richards, "Separating the Chaff from the Wheat: Catholics, Evolution, and Intelligent Design, Part 2," in God and Evolution: Protestants, Catholics, and Jews Explore Darwin's Challenge to Faith, ed. Jay W. Richards (Seattle, WA: Discovery Institute Press, 2010), 225.

[7] John G. West, *Darwin Day in America: How Our Politics and Culture Have Been Dehumanized in the Name of Science* (Wilmington, DE: ISI Books, 2007), 12.

[8] Stephen C. Meyer, *Darwin's Doubt: The Explosive Origin of Animal Life and the Case for Intelligent Design* (New York, NY: HarperOne, 2013), 19.

[9] David Klinghoffer, 291. "God's Image, Our Mission: Can a Jew be a Darwinist? Part 2," in *God and Evolution: Protestants, Catholics, and Jews Explore Darwin's Challenge to Faith*, ed. Jay W. Richards (Seattle, WA: Discovery Institute Press, 2010), 291.

[10] Stark, *For the Glory of God*, 174.

[11] Richards, "Separating the Chaff from the Wheat," 237-243.

Aristotle's authority, committed the double blunder of rejecting Aquinas for being Aristotelian (in points which he actually drew from Neo-Platonism) while at the same time accepting Aristotle's Immanent Teleology.[12] These changes would have an important bearing on the ensuing path taken by geology as a science.

A second way in which science became more mechanistic was in the neglect, within efficient causation itself, of "primary" causes; this would constitute another divergence from the Christian worldview. Jay Richards defines that worldview: "traditionally, Christian theologians have argued that God can act in the world in two different ways. He can act directly or 'primarily,' such as when he creates the whole universe or raises Jesus from the dead. . . He can also act through so-called 'secondary causes.' These include the choices or tendencies of the creatures he has made."[13]

Eventually, the action of transcendence in the natural world would be relegated to rare instances called miracles, which would soon dwindle in importance. Following William Paley, mechanism and reductionism made its way even into Natural Theology: Robert Chambers, Richard Owen, and Asa Gray held that design in nature would be found not in objects but in nature's laws. This concession to mechanism made Natural Theology more acceptable to the scientific establishment of the day, but it also made design detection irrelevant. It was a move facilitated by German biblical hermeneutics of the time.[14]

In the 17th century, Nicolas Steno laid the groundwork for the methodology to be followed by the newborn science of geology, also establishing its philosophical solidity as a historical science. Steno, who would later abandon his seminal geologic investigations in order to pursue theological studies, not only systematically defended that fossils of animals and plants indicated actual past living organisms (therefore arguing for their organic origin), but also determined their significance in the elucidation of the rock strata (sedimentary rock layers) wherein they were found. In the 1669 prodrome of a dissertation never completed, he argued

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[12] Richards, "Straining Gnats, Swallowing Camels," 221-222.

[13] Jay W. Richards, "Introduction: Squaring the Circle," in *God and Evolution: Protestants, Catholics, and Jews Explore Darwin's Challenge to Faith*, ed. Jay W. Richards (Seattle, WA: Discovery Institute Press, 2010), 17.

[14] Stephen C. Meyer, "The Return of the God Hypothesis," *Journal of Interdisciplinary Studies* 11 (no. 1/2) (1999): 1-38.

that the only concepts useful for the elucidation of strata and objects in them contained were place, matter, and motion (agency). Steno neglected formal and final causes, perhaps because he saw that in his time these were excessively utilized, in detriment to the application of material and efficient causes.[15]

The *Sacred Theory of the Earth*, published by Thomas Burnet (1680s), would soon follow Steno's contribution. Heavily influenced by Descartes, Burnet despised the notion of divine intervention in the natural world. Isaac Newton criticized his reliance on Descartes, as evident by their correspondence.[16] To Burnet, Creation was fully loaded and capable of carrying out through its own natural processes even the global cataclysmic event of the Genesis Flood. He considered that Nature ought to be a perfect clock that needed no tinkering from its Designer.[17] The mechanistic philosophy would continue to be dominant in the geosciences.

Another Christian theorist, Jean-André de Luc (18th century), would also follow in that tradition. Although treating Noah's flood as the most significant event to define geohistory, and while attempting to demonstrate the short chronology of the post-flood world with arguments from Nature, de Luc's scheme was still built on material causes and natural agency. A little known fact is that de Luc, anticipating Charles Lyell, proposed the modern usage of "actual causes" as adequate pedagogical concepts for explaining the rock record. He also provided the first hints of the usefulness of fossils as indexes for different succeeding systems preserved in the rock strata, influencing Georges Cuvier in this regard.[18]

It is thus that in the 17th and 18th centuries the procrustean syndrome was already manifested at the birth of geology, despite the best intentions

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[15] Nicolas Steno, *The Prodromus of Nicolaus Steno's Dissertation: Concerning a Solid Body Enclosed by Process of Nature within a Solid* (New York, NY: Macmillan Company, 1916), 215-217.

[16] Scott Mandelbrote, "Isaac Newton and Thomas Burnet: Biblical Criticism and the Crisis of Late Seventeenth-century England," in *International Archives of the History of Ideas (v. 139): The Books of Nature and Scripture,* ed. James E. Force and Richard H. Popkin (Dordrecht: Springer Science + Business Media, 1994), 149-178.

[17] Thomas Burnet, *The Sacred Theory of the Earth*, 2nd edition (London: R. Norton, 1691), 89.

[18] David R. Oldroyd, "Jean-André de Luc (1727–1817): An Atheist's Comparative View of the Historiography," in *Geology and Religion: A History of Harmony and Hostility*, ed. M. Kölbl-Ebert (London: Geological Society Special Publications, 310, 2009), 7-15.

of religious scientists like Steno, Burnet, and de Luc. This pattern would continue well into geology's infancy during the 19th century. In prioritizing material and naturalistic efficient causes, scientists promoted a mechanistic paradigm that would be prone to abandoning scientific and historical claims of Scripture.

At the close of the Napoleonic Wars, geological societies and international scientific cooperation sprang into life, marking the irreversible expansion of that field of inquiry. By then, the key figures of this growing science had taken for granted the notions of deep time and of a mechanistic natural world. According to historian of geology Martin Rudwick, the "scriptural geologists," who took Genesis literally and admitted divine intervention in explanations of geohistory, were often few in number and marginalized by the academic establishment. The great names of 19th century geological pioneering who led pious Christian lives and even carried out ecclesiastical or theological occupations, like Revd. Adam Sedgwick, Revd. William Buckland, and Revd. William Daniel Conybeare, were liberal in their Genesis readings. Martin Rudwick comments: "Conybeare, for example, who did distinguished work in both geology and theology, deplored his compatriots' ignorance of the work of German biblical critics such as Eichhorn, and insisted that 'the Bible is exclusively the history of the dealings of God with men,' and that it should not be misused as a quarry for scientific data."[19] This trend would continue during following decades up to the 21st century.

II. Inspired Revelation and Natural History

Having explored the intellectual background that has shaped our modern conceptions of natural history, we now turn to biblical passages relevant to this topic, especially Genesis 6–9. This portion of Genesis provides the description of an episode that has probably most shaped our present landscape.

As this article is directed to Seventh-day Adventists, its corresponding perspective will be utilized as a theological framework. Statements of Ellen

[19] Martin J.S. Rudwick, "Biblical Flood and Geological Deluge: The Amicable Dissociation of Geology and Genesis," in *Geology and Religion: A History of Harmony and Hostility*, ed. M. Kölbl-Ebert (London: Geological Society Special Publications, 310, 2009), 103-110.

White (generally considered as having been inspired by God) dealing with the natural world will also be analyzed to provide additional light on this topic. As it turns out, the Adventist perspective will be very useful for understanding Genesis; in fact, it has been argued that Genesis serves as the foundation for the Adventist system of truth.[20]

According to C. Mervyn Maxwell,[21] there are four points that have distinguished Adventist theology from mainstream Protestantism: 1) typological understanding, recognizing "types" and "antitypes" in Scripture; 2) a more extensive deconstruction of tradition; 3) *Tota Scriptura* as a principle, treasuring the entire Bible as relevant; and 4) prophetic fulfillment as a hermeneutical tool, resulting in a harmonious system of truth. These four points turn out to be essential to a proper exposition of Genesis 6–9.

A general discussion of White's statements concerning the natural world has already been done elsewhere by Pfandl[22] and by Hasel.[23] Their main points are not the focus of this discussion, but are worth outlining. White states that God's Word is plain and marked by both depth and simplicity. She emphasizes that the creation account is literal, with seven 24-hour days for Creation Week, and a total of several millennia for post-creation history. White goes on to say that natural history is not to be understood by the fallible human intellect alone, or by mere mainstream geology, which is primarily naturalistic and neglects divine intervention and revelation in our world. Additionally, she claims that the separation of the natural and the supernatural corresponds to "false science," because God is constantly at work, making use of His laws without being bound to them. Lastly, she discusses the destruction of the world by a flood, and that fossils serve as evidence of former life. The above points will be here taken

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[20] "The doctrine of Creation is an article of faith on which the Seventh-day Adventist Church stands or falls." (Jiri Moskala, "The President's Page: Creation–The *Sine Qua Non* of Adventism," *Faculty Publications*, no. 11, 2004).

[21] C. Mervyn Maxwell, "A Brief History of Adventist Hermeneutics," *Journal of the Adventist Theological Society* 4(2) (1993): 209-226.

[22] Gerhard Pfandl, "Ellen G. White and Earth Science," *Journal of the Adventist Theological Society* 14(1) (2003): 176-194.

[23] Frank M. Hasel, "Ellen G. White and Creationism: How to Deal with Her Statements on Creation and Evolution: Implications and Prospects," *Journal of the Adventist Theological Society* 17(1) (2006): 229-244.

as granted, so that this discussion may proceed to the deliberation of other aspects that will be more expedient to its defined purpose.

II.1 – Transcendent Principles Attached to the Natural Landscape

Placed in a world under the sovereignty of a benevolent and intelligent being, it becomes useful to us (its inhabitants) to grasp the principles (or purposes) of the landscape that we inhabit. It will be shown that these will bring a more complete comprehension of natural history–even in practical terms. The principles I refer to are beyond the obvious purpose of the landscape in serving as a substrate for harboring life; rather, they are here regarded as transcendent purposes. These principles deviate from Aristotle in that teleology is not merely immanent but extrinsic–derived from transcendence. I here make use of Aquinas' formal and final causation. Although aware of the fact that Nature is an imperfect lesson book of God, as Ellen White pointed out, I propose three principles or missions of our landscape (even of Nature in general), which are exemplified by some of White's statements.

The first transcendent purpose of Nature is to reveal God (Rom 1:19-20), specifically his character (Ps 33:5),[24] goodness (Is 43:20; Matt 5:44-45),[25] and personality (Matt 6:26-30). The main traits of personality

[24] "… the book of nature and the written word do not disagree; each sheds light on the other. Rightly understood, they make us acquainted with God and his character…" (Ellen G. White, *Ellen G. White Statements Relating to Geology and Earth Sciences* [Washington, DC: Ellen G. White Estate, 1982], 7.4).

[25] "Every time I look upon the mountains, I feel gratitude to God. My heart is lifted up in praise to Him who knows the wants and needs of man. If the earth had been a uniform level, there would be stagnant marshes," (White, *EGWSRGES*, 59.5).

here selected are delight in his creation as an artist (Gen 1:31),[26] [27] [28] [29] delight in diversity (Ps 104:24-25),[30] and attentiveness to detail (Ps 8:3-4; Matt 10:29).[31] Of course, there also seems to be an intended limit to the extent of God's self-revelation (Rom 11:33).[32] The second transcendent purpose of Nature is to provide invaluable lessons to us, to instruct humankind.[33] This can be seen in Job 12:7-9; Ps 19:1-2; Is 24:4-7 (the latter showing us how a curse defiles the earth). The third transcendent purpose of the natural landscape is to serve as God's arsenal for the execution of

[26] "God, the great Architect, has built these lofty mountains…" (White, *EGWSRGES*, 59.4).

[27] In White's visit to the Rocky Mountains, USA: "Mountains of masonry have the appearance of being hewed, squared, chiseled, and polished by art and piled one above another in grand towers, stretching upward toward heaven as though directing the minds of all who look upon them to God," (White, *EGWSRGES*, 61.6).

[28] In White's visit to the Green River Formation, USA: "These rocks assume most curious and fantastic shapes, as if chiseled out by the hand of art. These are in lofty domes and pinnacles and fluted columns. These rocks resemble some cathedral of ancient date standing in desolation. The imagination here has a fruitful field in which to range," (White, *EGWSRGES*, 63.1).

[29] In White's travels near Moutier, Switzerland: "The battlements of rocks—the time-worn rocky walls that have stood since the Flood, washed with the mountain torrents—stand out smooth as if polished, while rocks diverse from these in shape are seen in regular layers as if art had fashioned them," (White, *EGWSRGES*, 63.2).

[30] "The universe contains one great masterpiece of infinite Wisdom in innumerable diversities of His great works, which, in their matchless variety, form a perfect whole," (White, *EGWSRGES*, 23.6).

[31] "Every drop of rain or flake of snow, every spire of grass, every leaf and flower and shrub, testifies of God. These little things so common around us, teach the lesson that nothing is beneath the notice of the infinite God, nothing too small for His attention," (Ellen G. White, SDA Bible Commentary vol. 3 [Washington, DC: Review and Herald, 1954], 1141.3).

[32] "God's purpose is to conceal more of Himself than He makes known to man. Could men fully understand the ways and works of God, they would not then believe Him to be the infinite One. He is not to be comprehended by man in His wisdom, and reasons, and purposes. 'His ways are past finding out,'" (White, 3 SDA BC, 1141.2).

[33] "The mountains of rocks towering up so high, of every shape and of immense magnitude led us, as we looked upon them, to have deep and solemn thoughts of God. These are His works, evidences of the greatness of His power. He has set fast the mountains, girding them with His power, and the arm of God alone can move them out of their place. Rising before us in their grandeur they point us heavenward to God's majesty, saying, 'He changeth not.' With Him there is no variableness nor shadow of turning… His words of promise are as unchangeable as His mountains," (White, *EGWSRGES*, 58.4,7).

judgment.[34] [35] This can be seen in Num 16:29-34, Job 38:22-23, Ps 18:7-14, Is 34:8-10, and Rev 11:13-14; 16:8-9; 16:17-21.

II.2 – A Brief Hermeneutic of the Flood Account

With that in mind, we now turn to the Flood account. Noah, the main character, shares several parallels with Adam; the events of Gen 6–9 have parallels with Gen 1–2 and with Rev 21–22. There are also parallels between Gen 1–2 and Rev 21–22. In keeping with Adventist theological principles, Scripture must be taken seriously, particularly where it assumes to be a source of valuable historicity, and this includes the first chapters of Genesis. Types and figures connecting biblical characters and events across centuries provide harmony to the biblical framework. Lastly, with a prophetic-fulfillment narrative, we improve our understanding of the Flood story as we compare events spanning from Genesis to Revelation on our hermeneutic approach.

We start with the similarities between Adam and Noah. Noah, a "man of the soil" (Gen 9:20), evokes Adam's occupation in Eden as a gardener (Gen 2:15)[36] and brings to mind a Hebrew word for "earth"–*adamah*, which is a play on Adam's name. Noah's responsibility of tending to the animals in the ark (Gen 6:19-21; Gen 7:2-3) brings to mind Adam's responsibility in naming the animals (Gen 2:19-20). God's provision of food for Adam and the animals under his care (Gen 1:29-30) is repeated towards Noah and the animals under his care (Gen 6:21). Like Adam (Gen 3:10), Noah is also found naked after transgression involving fruit (Gen 9:21). For both Adam (Gen 3:21) and Noah (Gen 9:23), someone else would cover their nakedness.

Next, we note the similarities between the waxing waters of the Flood

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[34] "In the bowels of the earth God has in reserve the weapons that He will use to destroy the sinful race," (White, *EGWSRGES*, 57.7).

[35] "God controls all these elements; they are his instruments to do his will; he calls them into action to serve his purpose. These fiery issues have been, and will be, his agents to blot out from the earth very wicked cities… These manifestations bear the special marks of God's power, and are designed to cause the people of the earth to tremble before him…" (Ellen G. White, *Spiritual Gifts*, vol. 3 [Battle Creek, MI: Seventh-day Adventist Publishing Association, 1864], 80-81).

[36] Joseph Blenkinsopp, *Creation, Un-Creation, Re-Creation: A Discursive Commentary on Genesis 1-11* (New York, NY: T&T Clark International, 2011), 154.

and the chaos preceding Creation. According to several Genesis commentators,[37] the Flood represents the undoing of Creation–a reversal to chaos prior to the emergence of a new world.[38] That comparison is particularly striking in Gen 7:11b;[39] [40] it also exists in the rest of Chapter 7.[41] The scene of Gen 7:18, when the ark "moved about on the surface of the waters," parallels Gen 1:2, when God was "hovering over the face of the waters." The undoing of Creation is evident: the waters cover the Earth, and there is no more separation between waters and dry land (Gen 7:17-20) as described in Gen 1:9. All living flesh that moved upon the Earth is destroyed (Gen 7:21-23).

Additionally, there are similarities between the waning flood waters and the Creation Week. Gen 8 brings parallels to the account of Creation as it describes the reinstatement of order.[42] Gen 8:1 and Gen 1:2 have elements in common.[43] [44] The new earth of Noah is "new" in the sense of

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[37] Sarna, for example: "…the Deluge is directly connected with Creation. It is, in fact, the exact reversal of it…The connection between Creation and the Flood is a very real one in biblical theology… the notion of Noah as the second father of mankind…idea of the immediate post-diluvial period as a new beginning to life on earth… Noah's ark is thus the matrix of a new creation," (Nahum M. Sarna, *Understanding Genesis*, Vol. 1 [New York, NY: McGraw-Hill, 1966], 55-56).

[38] Brodie: "There are two major sections: a return to a form of watery chaos (Gen. 6-7) and the reemergence of creation (Gen. 8:1-9:17)," (Thomas L. Brodie, *Genesis as Dialogue: a Literary, Historical, & Theological Commentary* [New York, NY: Oxford University Press, 2001], 170).

[39] Gunkel on Gen. 7:11b: "…the supra and subterranean waters, united in Chaos and separated in the Creation, flow together again in the Flood… A second chaos fell in on the world. The old world was created from water. Through water it was destroyed (2 Peter 3:5-6)," (Hermann Gunkel, *Genesis* [Macon, GA: Mercer University Press, 1997], 78, 146).

[40] Von Rad on Gen. 7:11b: "The two halves of the chaotic primeval sea, separated – the one up, the other below–by God's creative government (Gen 1:7-9), are again united: creation begins to sink again into chaos," (Gerhard von Rad, *Genesis: A Commentary* [Philadelphia, PA: The Westminster Press, 1972], 128).

[41] Westermann: "there is many an echo of Gen. 1:1-2, 4a in 7:17a, 18-21, 24," (Claus Westermann, *Genesis 1-11: A Commentary* [Minneapolis, MN: Augsburg Publishing House, 1984], 438).

[42] Brodie, *Genesis as Dialogue*, 173.

[43] Hamilton refers to this similarity as a "blatant connection," (Victor P. Hamilton, *The Book of Genesis: Chapters 1-17* [Grand Rapids, MI: William B. Eerdmans Publishing Company, 1990], 299-300).

[44] Cassuto also points out this similarity. Umberto Cassuto, *A Commentary on the Book of Genesis: Part II, From Noah to Abraham* [Skokie, IL: Varda Books, 1992), 101.

being a return to its original state.[45] In Gen 8:6, we see Noah opening a window of the ark. Noah "removed the covering of the ark and looked," Gen 8:13; there might be a parallel here with the creation of light.[46] There might also be a parallel between the creation of the firmament (Gen 1:6-8) and the release of birds by Noah (Gen 8:6-12).[47] Further, there is similarity between the account of mountaintops appearing (Gen 8:5) and the account of the creation of land (Gen. 1:9-10); dry land is again separated from the waters.[48] This symbolism is repeated in Gen 8:13, 14.[49] In Gen 8:11, vegetation returns, and in Gen 8:16-19 animals and humans are finally reinstated to the land. Gen 8:22 marks the reestablishment of seasons. The term cease (in the command that the natural order would not cease as long as the earth endured) is also pointed out as a parallel to the Creation Rest, since the verb to cease has in Hebrew the same root as that of the word Sabbath.[50] In Gen 9:1, 7, as in Gen 1:28, humanity is blessed and told to multiply and increase. Gen 9:3-4 sees the provision of food for the human family, as in Gen 1:29. Several commentators have previously pointed out these parallels.[51] [52] [53]

Lastly, we see similarities between Rev 20–22 and Gen 1–2, 6–9.

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[45] Cassuto shows this connection in 3 points: 1) The waters receded ("returned") gradually; 2) The land becomes dry again; 3) A full year for the Flood: "the cycle was complete: the sun returned to the point at which it was on the day the Deluge began, and the earth returned to the state in which it then found itself…" (Cassuto, *A Commentary on the Book of Genesis*, 102-114).

[46] Westermann points to Gilg XI 135: "I opened a hatch, and light fell upon my face," (Westermann, *Genesis 1-11*, 447).

[47] Brodie, *Genesis as Dialogue*, 173.

[48] Cassuto, *A Commentary on the Book of Genesis*, 106.

[49] "… the proper time had not yet arrived to leave the ark, and it was necessary to wait until the earth was dried out and returned to the state befitting the name it had received at the time of Creation, when it was said (Gen. 1:9): 'let the dry land appear'" (Cassuto, 113).

[50] "Another parallel to the story of Creation," (Cassuto, 123).

[51] Hamilton on Gen. 9:1– "…such an exhortation transports the reader back to the world of Gen. 1, much as the mention of dry land in Gen. 8:13-14 recalled the Creation story of Scripture's first chapter. Noah is a second Adam. What God told Adam he now tells Noah," (Hamilton, *The Book of Genesis*, 313).

[52] Gunkel on Gen. 9:1-7: "The new order of Creation: the old order is renewed (vv 1, 7) and altered. The memory of the creation (v 1) governs the whole piece," (Gunkel, *Genesis*, 148).

[53] Reno: "This echo of Gen. 1:28 is repeated in Gen. 9:7," (R.R. Reno, *Genesis* [Grand Rapids, MI: Brazos Press, 2010], 124).

Correspondence between the story of Noah and the book of Revelation has been suggested.[54] [55] Even New Testament writers make use of the analogy, as we see in Matt 24:37-39; Luke 17:26-27; 2 Pet 2:4-9. When describing the New Earth in Rev 21:1, John writes: ". . . and the sea was no more." This language reminds us of the waters prior to Creation in Gen 1:2, as well as of the waters that covered the Earth during the Flood. In Rev 21:2, 10 the New Jerusalem "coming down out of heaven" evokes Noah's ark resting on the mountains of Ararat (Gen 8:4). The ark and the New Jerusalem are both symbols of God's protection (Gen 7:23; Rev 21:3-4), and are described in their makeup and dimensions in noted detail (Gen 6:14-16; Rev 21:11-21). We also see that into both not all may enter (Gen 7:1; Rev 21:27). In Revelation, there is judgment and destruction prior to the new creation (Rev 18:21; 20:14). Rev 22:1-2 mentions the river of life and the tree of life, clearly pointing to the former Eden. Rev 22:3 announces the end of the curse, and Rev 22:5 tells of a new source of light.

Thus, we see three major sets of chaos-order diptychs (a diptych is an artwork structured into two main parts), consisting of chaos followed by divinely interposed order: 1) the world before and after Creation; 2) the destruction of the Flood and the new earth populated by Noah's family; and 3) the Earth destroyed and made new in the eschaton.

II.3 – An analysis of Ellen White's Statements Concerning the Flood Story

The immediate and ultimate purposes of our natural landscape kept in mind, we now turn to White's comments concerning Noah's Flood. The first point is that the surface of the Earth was changed in a significant and drastic way, and that God's ability to bring about a complete reversal of the created order is not to be underestimated:

> The Lord had given evidence that by His power He could in one short hour dissolve the whole frame of nature. He can turn things upside down,

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[54] Westermann: "The exegesis of Gen. 6-9 showed that creation and flood are complementary; this corresponds to the apocalyptic where the creation of a new heaven and a new earth (Isa. 65:17) follows the apocalyptic world judgment," (Westermann, *Genesis 1-11*, 476).

[55] Von Rad: "Thus the story of the Flood–and this is theologically the most important fact–shows an eschatological world judgment…" (Von Rad, *Genesis: A Commentary*, 129).

> and destroy the things that man has built up in his most firm and substantial manner.[56]
>
> They have limited ideas of the size of men, animals and trees before the flood, and of the great changes which then took place in the earth.[57]

These changes mark a return to the chaos preceding Creation. At that instant, therefore, one could argue that the Earth's transcendent principles previously mentioned were suspended. Desolation and ruin dominated the landscape at the close of this cataclysm:

> Because mankind had perverted His gifts, God would deface and destroy the things with which He delighted to bless them; He would sweep away the beasts of the field, and the rich vegetation which furnished such an abundant supply of food, and transform the fair earth into one vast scene of desolation and ruin.[58]
>
> The earth presented an appearance of confusion and desolation impossible to describe.[59]

Having noted the strong language being used here in the description of a disfigured planet, it seems that the scene being painted contrasts sharply with a more favorable representation of the current conditions of our planet, also made by White, in the statements below.

> Even now, if the curse of sin were not corrupting the earth, it would be a happy place. . . .[60]
>
> If everything in God's works looks to us so beautiful, and the majestic mountains and towering stern old rocks have attractions, how far exceeding it in beauty, in grandeur and loveliness, was the world before the flood, which was destroyed because of man's sinfulness.[61]

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[56] White, *EGWSRGES*, 19.
[57] White, *EGWSRGES*, 3.4.
[58] White, *EGWSRGES*, 41.1.
[59] White, *EGWSRGES*, 49.5.
[60] White, *EGWSRGES*, 56.1.
[61] White, *EGWSRGES*, 56.1.

Although they might have served for slightly different purposes in what she was seeking to communicate, the apparently conflicting statements above were made in the same context of changes brought about by the Flood, during and after the catastrophe. It is worth exploring this apparent difference further. It seems that the destroyed Earth is to be distinguished from our current Earth, the former being short-lived. This contrast can lead one to suppose that there has been a post-diluvial recovery, intentional or not on God's part, in the subsequent landscape, which still bears a few traces of ruggedness and wildness, to be fair. White compares two worlds, thereby making them distinct. The present world does not totally invoke confusion, and is put in opposition to the short-lived, defaced, and ruined landscape. Our present world is habitable according to its transcendent principles.

The question that arises, then, is whether this post-diluvial recovery was inevitable or intentional. The following passages suggest that this process of recovery, in addition to the previous destruction itself, carries elements of divine intentionality:

> God by His miraculous power preserved a few of the different kinds of trees and shrubs alive for future generations. Soon after the Flood trees and plants seemed to spring out of the very rocks. In God's providence seeds were scattered and driven into the crevices of the rocks and there securely hid for the future use of man.[62]

> Every time I look upon the mountains I feel gratitude to God. My heart is lifted up in praise to Him who knows the wants and needs of man. If the earth had been a uniform level there would be stagnant marshes.[63]

The first statement suggests that vegetation was not re-created, but allowed to germinate freely under God's direction. It is as if he did not intend to re-create their basic types (much like for the animals, which were brought into the ark) or to relegate to Noah the task of reseeding the Earth. The divine intention and intervention are also pointed out as necessary to the refitting of the landscape according to its original mission and transcendent principles. These principles were outlined previously and are

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[62] White, *3 SG*, 76.2.
[63] White, *EGWSRGES*, 59.5.

here summarized in an additional statement:

> The great Architect has formed and fashioned the scenes of nature that they may have an important bearing upon man's intellectual and moral character. These are to be God's school to educate the mind and morals. Here the mind may have a vast field for study in the display of the majestic works of the Infinite One. The rocks are among the precious things of earth, containing treasures of wisdom and knowledge. In the rocks and mountains are registered the fact that God did destroy the wicked from off the earth by a flood, and the broken surface of the earth reveals, in the gigantic rocks and towering mountains, that the Lord's power has done this because of the wickedness of men in the transgression of His law. The ever-varying scenery that meets the eye is the work of the God of wisdom, that in His stupendous works men may discern that there is a living God whose power is unlimited. The marvelous works of majesty are to refine the soul and to soften the roughness of man's nature, to help him in character building.[64]

In the statement above, White starts discussing the original landscape formed during Creation and then proceeds to discuss the one existing after the catastrophe. There is an implicit necessity of maintaining the original purpose of the primal landscape as far as possible in the present one.

> It is the diversity in the surface of the earth, in mountains, plains, and valleys, which reveals the wisdom and the power of the great Master Worker. And those who would banish from our earth the rocks and mountains, the wild gorges and the noisy, rushing streams, and the precipices, as unsightly deformities in nature, and would have a smooth level—their senses are too limited to comprehend the majesty of God. Their minds are bound about with narrow ideas.[65]

Is there additional indication of conscious and purposeful attending to our natural surroundings by the divine initiative in moments following the close of the flooding? Additional related statements follow below:

> God so ordered that men, beasts, and trees, many times larger than those

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[64] Ellen G. White, *1886 Manuscript 73* (Washington, DC: Ellen G. White Estate), 5-6.
[65] White, *EGWSRGES*, 59.3.

> now upon the earth, and other things, should be buried in the earth at the time of the flood, and there be preserved to evidence to man that the inhabitants of the old world perished by a flood. God designed that the discovery of these things in the earth, should establish the faith of men in inspired history.[66]
>
> At the flood the surface of the earth was broken up, marked changes took place, and in the re-formation of the earth's crust were preserved many evidences of the life previously existing.[67]
>
> He caused the ark to rest upon the top of a cluster of mountains, which God in His power had preserved and made them to stand fast all through that violent storm.[68]
>
> Everywhere were strewn the dead bodies of men and beasts. The Lord would not permit these to remain to decompose and pollute the air, therefore He made of the earth a vast burial ground. A violent wind which was caused to blow for the purpose of drying up the waters, moved them with great force, in some instances even carrying away the tops of the mountains and heaping up trees, rocks, and earth above the bodies of the dead. By the same means the silver and gold, the choice wood and precious stones, which had enriched and adorned the world before the Flood, and which the inhabitants had idolized, were concealed from the sight and search of men, the violent action of the waters piling earth and rocks upon these treasures, and in some cases even forming mountains above them.[69]

These statements indicate active intention in modifying and improving the wreck that remained after the execution of judgment by God. In fact, Ellen White suggests that God's intervention is still present today (cf. Psalms 65, 104, and 147), so that the operation of our Universe is not left to natural laws only, but is actively sustained by God:

> God has finished His creative work, but His energy is still exerted in

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[66] White, *3 SG*, 95.1.
[67] White, *EGWSRGES*, 44.2.
[68] White, *EGWSRGES*, 47.2.
[69] Ellen G. White, *Patriarchs and Prophets* (Washington DC: Review and Herald, 1890), 107.

upholding the objects of His creation.[70]

> But the power of God is still exercised in upholding the objects of His creation. It is not because the mechanism once set in motion continues to act by its own inherent energy that the pulse beats, and breath follows breath. Every breath, every pulsation of the heart, is an evidence of the care of Him in whom we live and move and have our being. From the smallest insect to man, every living creature is daily dependent upon His providence.[71]

> When scientists seek to separate the works of nature from the immediate and constant manifestation of Divine power, they are at sea without a compass. . . .[72]

> God is perpetually at work in nature. She is His servant, directed as He pleases.[73]

Considering that the surface of the Earth was partly modified by God's direct involvement in salvaging it, exactly what, does the natural historian ask, are the remaining traces or evidences of that catastrophe that could still be observed today? Where could scientific evidence of Noah's Flood be found? The following statements could provide some suggestions:

> These mountains speak to us of the desolating wrath of God in vindication of His broken law; for they were heaved up by the stormy convulsions of the flood.[74]

> We see in the broken face of nature, in the cleft rocks, in the mountains and precipices, that which tells us a great wrong has been done, that men have abused God's gifts, forgotten the Creator, and that the Lord was grieved and punished the wicked transgressors of His law, and as the result we have its effects in creation.[75]

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[70] White, *EGWSRGES*, 23.3.

[71] Ellen G. White, *Education*, (Mountain View, CA: Pacific Press Publishing Association, 1903), 131.

[72] White, *EGWSRGES*, 29.5.

[73] White, *EGWSRGES*, 31.5.

[74] White, *EGWSRGES*, 52.8.

[75] White, *EGWSRGES*, 56.6.

> Men may trace, in the broken surface of the earth, the evidences of the flood.[76]

> All around him [on the island of Patmos] the apostle [John] beheld witnesses to the Flood that had deluged the earth because the inhabitants [of the antediluvian world] ventured to transgress the law of God. The rocks thrown up from the great deep and from the earth by the breaking forth of the waters, brought vividly to his mind the terrors of that awful outpouring of God's wrath. In the voice of many waters—deep calling unto deep—the prophet heard the voice of the Creator. The sea, lashed to fury by the merciless winds, represented to him the wrath of an offended God. The mighty waves, in their terrible commotion, restrained within limits appointed by an invisible hand, spoke of the control of an infinite Power.[77]

One will note that White makes here frequent reference to mountains and irregular terrain as evidence of the catastrophic nature of Noah's judgment. As seen in previous statements, she points out that fossils are witnesses of past life that perished then. However, it is interesting that no mention is made of sedimentary rock strata as a record of sediment deposition processes directly caused by that catastrophe.[78] Take the reference to Patmos, for example. White says that John saw in that rugged island the evidences of the past occurrence of a great inundation. Patmos is a volcanic island; sedimentary strata are therein absent. In this case, the only clues to Noah's destruction referenced by White could be, therefore, in the lines of physical processes related to the power of rushing water (as well as to volcanic activity, resulting in lava extrusion, rupturing of rocks, and debris). One should note that in this statement about Patmos, White suggests that John saw "evidence" not only in the rocks, but also in the symbolic action of the waves on the shore during his own time. Though the aim of this discussion is not to build a natural history model upon the writings of Ellen White, a careful examination of them will offer useful insights. We know that in prophetic revelation God approaches humans

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[76] White, *EGWSRGES*, 60.1.

[77] Ellen G. White, *Acts of the Apostles* (Mountain View, CA: Pacific Press Publishing Association, 1911), 572.

[78] This point naturally arises from the consideration of White's collective body of writings; it is not the purpose of this article to frame it as an argument from silence.

where they are, speaking in their language, and working through their frailties and limitations. This commands caution. Nevertheless, it is not expedient to neglect the light that God provides through his instrumentalities, and it is the aim of this analysis to draw out as much as possible from her inspired text. Having made this brief hermeneutical approach to the inspired revelation concerning natural history, we now turn to attempt to answer the question initially posed: how can Seventh-day Adventists understand the geologic record?

III. A Possible Solution

In light of the above concepts gained from White's statements and from biblical hermeneutics, it is possible to speculate that the full picture of processes occurring during a worldwide flood would not be predominantly seen in the sedimentary rock record. Why? Because that domain would be involved in the intentional burying of organisms and in the refashioning of our landscape in accordance to its purposes. In this interventionist scenario, God is neither creating out of nothing nor submitting to natural processes; he is merely refashioning or rearranging. Causation in the natural world that does not completely derive from natural process is difficult to pinpoint through the methods of natural science. Thus, the information gleaned by the study of sedimentary rocks would mostly concern life that perished, including plants, animals, and microorganisms transformed into fossils and fossil fuels. When White mentions sedimentary strata, it is usually in terms of design, art, and aesthetic remodeling.[79]

Some Flood Science adherents today inadvertently follow de Luc's same methodological treatment of natural history, as they see the world in terms of material and efficient causes alone. Some may attempt to describe most of the geologic column as the natural product of a global inundation. We often tend to regard the rock strata with a mechanistic paradigm, and look for natural chronometers that would confirm short-chronology schemes. I believe that this mode of investigation is not the only alternative in satisfactorily explaining our natural landscape in a biblical and scientific perspective.

The diversity of landscape features found today in our planet would hardly be expected as the output of a global catastrophe that would tend to

[79] See footnotes 26-29, in this article.

create monotonous plains of mud, sand, and debris, all the while increasing the planet's disarray and entropy. What we see instead is a far-from-equilibrium system with a great variety of rock formations, soil types, and environments. Could it be that God's interference in reordering the surface of the Earth after its destruction was more intense than what is imagined by our current paradigms (which may lean on traditions established in the 16th and 17th centuries)? If so, to what degree would this interference have operated, and what would it mean for natural history?

It is quite possible that God could have refashioned the Earth's surface, particularly the sedimentary rock strata. His intervention would be carried out to accomplish his unchanging transcendent purposes for our planet's landscape. One such purpose is to instruct humanity and to reveal his character. His actions are consistent with a God who is good, attentive to detail, merciful, creative as an artist, loving diversity, and who provides for his creatures' needs. His intervening actions during and immediately after the catastrophe are in line with his mercy in remedying a scene of chaos, while still maintaining its mission and eschatological symbolism as a prefiguration (or type) of the restoration to take place after the final judgment and destruction of our planet.

Although the notion of a landscape restoration suggested here is not blatantly asserted in Gen 6–9 and in Ellen White's statements, it nevertheless does not contradict them (being, in fact, derived from them). Caution is obviously needed; it is important to note, for example, that the restoration following Noah's Flood was not meant to be final.[80] It is also worth mentioning that the account of Gen 6– 9 does not seem to have much interest in emphasizing re-creation so much as exploring the theme of destruction, judgment, and deliverance.[81] Further, that account stresses a

[80] Blenkinsopp, on God's new covenant with Noah and the allowance for a carnivore diet: "There remains nevertheless a deep and sad sense that this is not the way it was meant to be. The new order is therefore by no means a complete restoration," (Blenkinsopp, *Creation, Un-Creation, Re-Creation*, 146).

[81] Gunkel writes: "The secondary parallelization of the Flood with primal chaos can be explained in relation to the fact that the Flood legend and the Creation account report massive water and the subsequent origin of a new world. A similar view of nature underlies both narratives. They are clearly distinguished, however, primarily in that the Creation emphasizes the new world, the Flood the destruction of the old. The Flood legend agrees much more with the Sodom story in the one, common chief motif of an individual delivered from a great catastrophe because of his piety," (Gunkel, *Genesis*, 78-79).

re-creation that is more concerned with humanity than with the natural world. These observations might justify the apparent lack of details concerning the possible reshaping of our landscape in Gen 8–9.

Even so, God's intentional restoration is both inferred from the text and understood in the typological dimension of the episode. According to Westermann, the framework of the Flood narrative is "the decision to destroy and its reversal at the end of the story."[82] Westermann goes on: ". . . the mounting of the flood in Gen 7:17-21, 24 is described objectively as a natural phenomenon. . . the subsiding of the waters on the other hand is an act of God: 'then God thought of Noah. . . and God made a wind blow . . .' There is theological reflection here which makes a deliberate distinction between the indirect action of God in the catastrophe and his direct action in saving; it is the work of God who is both distant and near."[83] As the second cycle of the chaos-order diptychs, the restoration of the Earth after the Flood is a reality paralleled by the accounts of the Creation Week and of the New Earth in Revelation.

The possibility of a landscape intentionally arranged and having aesthetic value occurred to me while doing research at Snow Canyon State Park, Utah. The resemblance of this locality to a work of art was striking. The colorful combination of black hues from the basalt, orange and white from the sandstone, and the peculiar green of sagebrush appealed to that sense; it should not be hastily dismissed for the mere fact that it had humble origins in the realm of intuition. The noted geologist Kenneth Hsü tells the episode of a visit with his family to Holland. His teenage son, Peter, easily recognized from far off that a certain painting in the Mauritshuis of The Hague was Rembrandt's, after being only a few hours in the Rijksmuseum of Amsterdam seeing some of his paintings. Hsü observes that certifying Rembrandt is a challenge even for art historians, and that his son had no training in art.[84] In dealing with the aesthetic and with the intuitive, it is certainly difficult to argue objectively. Nevertheless, one might still sense through the effects of design that the legitimate author is afoot.

One interesting consequence of the solution proposed here is that natural history takes a singular turn in employing concepts from art. In

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[82] Westermann, *Genesis 1-11*, 479.

[83] Westermann, *Genesis 1-11*, 441.

[84] Kenneth Hsü, *Physics of Sedimentology*, 2 ed., (Berlin: Springer-Verlag, 2004), 4-5.

categorizing God's approach in creation and re-creation, one could assume that in the context of art theory it closely resembles the notion of realism or of the hyperreal. In art, hyperrealism is the attempt to portray authenticity, so that, for example, paintings may resemble high-resolution photographs or even real objects. The hyperreal in creation and re-creation is a consequence of God's acute effectivity in designing environments that have all the resemblance of maturity (commonly stressed as "age"), balance, and completeness. It is much like the activity of a production designer in setting up a scene for the shooting of a western cowboy film. The designer will give to each element that makes up the background an appearance of being worn, making it appear genuine and real without it being so. It would be unreasonable to plague this design with accusations of trickery and deceit of an audience that will delight in the final production.

In like manner, God's intentional meddling with our landscape after the destructive chaos of a global inundation could carry elements of landscape design and scenario building. The resulting landscape would portray maturity, which a natural historian with a mechanistic paradigm would term "appearance of age." Regardless of what we call the hyperrealism factor, this postdiluvial world would not be the first instance of "appearance of age" resulting from God's involvement in the natural world. It is expected, for example, that when God created the world he furnished the first garden with well-matured soil horizons (which typically take centuries to develop), karst landscapes, and fully matured trees. The Garden of Eden was not a seed-plot. A natural historian resenting the way in which God might have been deceitful in making our surroundings possess maturity or an appearance of age would be missing the point.

It is worth clarifying that when I mention the hyperreal in art it has nothing to do with the concept of the hyperreal as developed by Umberto Eco and Jean Baudrillard in sociology and semiotics, where hyperreality has different (and negative) connotations. In our case, God provided a hyperreal system in that it resembled what its future unfurling would tend to generate. God created in Eden a mature chicken as a creature that would later be set to arise and develop from an egg. The hyperreal is not here a simulation without reference to anything previously existing, as the concept

of hyperreality was framed by Baudrillard.[85] The chicken previously exists in the mind of God. Additionally, God creates not a *Wunderkammer* ("wonder-room") showcasing a virtual mechanistic geological past (as the hyperreal of Umberto Eco would allude to), but a representation of what future natural operations would tend to form if left to their own. There is, however, one useful analogy provided by Umberto Eco, and that is of the human-made world of Disneyland.[86] Disneyland illustrates how designed environments (in this case, a theme park with various "worlds") expectedly incorporate artistic detail in producing a hyperreal or authentic scenario in which accusations of deception would be the least of concerns.

How does the idea described in this article relate to traditional historical geology? It questions the validity of Steno's implicit axiom of the temporal reality of natural history read in the rock record, as well as questioning the adequacy of causes now in operation as tools for interpreting the entirety of that same rock record. The geological processes operating today and their effects observed in our present landscape would have no continuity with natural features that are mistakenly taken to represent past events in a mechanistic paradigm.

The following episodes illustrate where and how one could draw a line for the applicability of traditional natural history, as well as illustrating the reasoning being advocated here. The recognition of changes in Earth's landscape that occur during the span of human history, associated with natural causes recently in operation, became even more apparent after Steno. One example was the late 18th to early 19th century interest in the ruins of a Roman market in Pozzuoli, Italy. Borings left by marine mollusks on its three surviving columns and a wave-sculpted coastal terrace on higher ground attested that relative sea level had advanced, covered the market area, and retreated within recent centuries.[87] This observation became for the engaged savants of the time further demonstration that either the Earth's crust or its shoreline were not totally static, but slightly changed, even in recent times. This was a reasonable and sound conclusion.

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[85] Jean Baudrillard, "Simulacra and Simulations," in *Jean Baudrillard: Selected Writings*, ed. Mark Poster (Redwood City, CA: Stanford University Press, 1988).

[86] Umberto Eco, "Travels in Hyperreality," in *Travels in Hyperreality: Essays*, transl. William Weaver (San Diego, CA: Harcourt Brace & Company, 1986).

[87] Martin J.S. Rudwick, *Worlds Before Adam: The Reconstruction of Geohistory in the Age of Reform* (Chicago, IL: The University of Chicago Press, 2008), 106-109.

The natural processes altered the state of the Roman ruins, which were well-situated in historical time; the processes had been witnessed (although not fully recorded).

However, in another related episode natural history would be arguably taken too far. In 1822, in the coast of Chile near Valparaiso, an earthquake resulted in a permanent local rise of land, causing relative sea level to fall four feet. Witnessing the event was Maria Graham, who would record observations and go so far as to infer similar past events to explain other similar features of that coastline on higher ground. Her report would be read at the Geological Society of London. She wrote: "I found good reason to believe that the coast had been raised by earthquakes at former periods in a similar manner; several ancient lines of beach, consisting of shingle mixed with shells, extending in a parallel direction to the shore, to the height of 50 feet above the sea."[88]

These two episodes were very significant to the debate concerning natural causes responsible for changes in relative sea level, and to concluding whether these causes had local or global import. More significantly, they demonstrate to us what sort of reasoning should be handled with caution. In the first episode, changes in the landscape were constrained by historical landmarks and were prone to have been witnessed. In the second episode, the logical jump of interpreting unwitnessed past events, as done by Maria Graham, by reference to natural causes, can seem at first glance to be reasonable, but rigorously speaking it offers no surety or proven basis. I believe that this is where one should draw the line, realizing the inevitable uncertainty associated with the unwitnessed past.

Another way in which this article relates to historical geology is that it also questions the rules we have established for the behavior of the Supreme Being. For Steno, it is unlikely that God inserted shells onto a cliff, refashioned rock strata, or outright sculpted them for aesthetic purposes; for him, fossils and strata and their arrangement according to their respective depositional environments have significance not as a product of realism in a designed landscape, but in the reality of actual history. Although I have much regard for Steno's attitude in breaking with the authoritative basis for science, the tools of investigation provided by him still fall short of what is necessary for a complete understanding of

[88] Rudwick, *Worlds Before Adam*, 114-116.

Earth's History. Nevertheless, we must not be quick to judge Steno and indulge in excessive anachronistic fault-finding. Steno did envision the possibility of primary causation in the natural world. Although in practical terms he was more of a mechanist, he did leave the door open for divine intervention:

> Surely to deny to this cause the power of accomplishing results contrary to the usual course of nature, is the same as to deny to man the power of changing the course of rivers; or of battling with sails against the winds; or of kindling fire in places where without man fire would never be kindled; or of quenching a light which would not wane except with the ceasing of its supply; or of engrafting the shoot of one plant upon the branch of another; or of producing summer fruits in mid-winter months; or of making ice in the very heat of summer; or of a thousand other things of the kind which are in conflict with the usual laws of Nature. For if we ourselves, who know not the structure of our own and other bodies, change the determination of natural motions every day, why cannot He change their determination who not only knows our structure and that of all things, but also made them?[89]

The idea proposed in this article advocates for the consideration of art in comprehending the "natural history" of our planet's surface. Thomas Aquinas, a great thinker of the past millennium, rejected Aristotle's Immanent Teleology and was thus free to compare Nature to art (as well as asserting God's freedom):

> Furthermore, all creatures are related to God as art products are to an artist, as is clear from the foregoing. Consequently, the whole of nature is like an artifact of the divine artistic mind. But it is not contrary to the essential character of an artist if he should work in a different way on his product, even after he has given it its first form. Neither, then, is it against nature if God does something to natural things in a different way from that to which the course of nature is accustomed.[90]

IV. A Possible Objection

We now turn to address the possible objection that the model defended

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[89] Steno, *The Prodromus of Nicolaus Steno's Dissertation*, 215.
[90] Thomas Aquinas. *Summa contra Gentiles* III (100:6). Online: http://dhspriory.org.

here uses *God-of-the-gaps* reasoning or unnecessary interventionism. The God-of-the-gaps fallacy is the misguided attempt to justify a belief in God's direct involvement through the pointing out of a lack of knowledge in a certain domain of science and by the consequent invoking of God's intervention as a plausible explanation that would fill the gaps left by that lack of knowledge. This article does not employ the typical God-of-the-gaps reasoning. The main purpose here is not to point out problems in mainstream science and then utilize them in the argument (although much could be said in that matter). Mechanistic models are here outright abandoned for their incongruence with any serious biblical exegesis. Further, I start out by assuming a priori God's existence and involvement, and then providing a model that makes sense of natural history in a biblical perspective. This approach fits in to what William Dembski calls Pragmatic Naturalism, which "wants simply to understand nature and doesn't care what entities are invoked to facilitate that understanding, so long as they prove conceptually fruitful."[91] I do not mean by this to suggest that my approach is that of scientific anti-realism as described by van Fraassen;[92] the concepts that I am defending are not meant solely for empirical adequacy, informativeness, or simplicity, but for the truth that they potentially carry.

If there is any God-of-the-gaps reasoning here, it would be, perhaps ironically, in considering that some of our Flood Geology models have not provided agreeable explanations, thereby calling for a different view of the God who would fill those gaps in our knowledge or broaden our discernment. This article is an attempt to encourage further exploration on this topic.

Nevertheless, the real issue to be defended here is the assumption of God's involvement or intervention in ways more intense than in the mere occasional miracles that are usually considered. Even our treatment of the term *miracle* is problematic. As Dembski points out, the original definition of miracle is something that inspires wonder while being an improbable event. In his words, "to define a miracle as a violation or suspension or

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[91] William A. Dembski, *The Design Revolution: Answering the Toughest Questions about Intelligent Design* (Downers Grove, IL: IVP Books, 2004), 177.

[92] Bas C. van Fraassen, *The Scientific Image* (New York, NY: Oxford University Press, 1980).

overriding of natural laws is already to presuppose what nature is like (namely, that nature is a closed causal nexus governed by inviolable rules). It is also to impose prior limits on divine action."[93] We must realize that God is not subject to natural laws or to secondary causation.

Unfortunately, as we have seen, science took a mechanistic turn in the 16th and 17th centuries. Attempts to reconcile mechanistic science and theism still exist today, like those of physicist Van Till, for example. Van Till has proposed the *Robust Formational Economy Principle*, suggesting a fully gifted or front-loaded Creation fully determined from its beginning, and capable of unravelling itself solely through natural processes and chance. These claims are laden with difficulties, and have already been disputed elsewhere,[94] not being the focus of this section. In section I, we have oversimplified our discussion to a dichotomy of mechanism vs. interventionism. At this point, it is necessary to expand that discussion, exploring other paradigms and the role of divine primary causation.

The analogy of the Universe as a crafty watch running on its own internal gears, as utilized by William Paley, has been pointed out as unfortunate. This illustration of nature as a self-run clock was in fact already provided by Nicole Oresme in the 14th century,[95] and even further back by Cicero.[96] It is unfortunate because we might be lead to think that the perfect clock should be a self-sustaining one. This imagery perpetrates mechanistic thinking. In contrast to the watch or clock analogy, one could alternatively see that God enjoys being involved, like a gardener who likes to get his hands dirty.[97] Another useful illustration, borrowed from early church father Gregory of Nazianzus, compares God to a lute-maker and

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[93] Dembski, *The Design Revolution*, 183.

[94] See, for example, Jay W. Richards, "Making a Virtue of Necessity: Howard Van Till's 'Robust Formational Economy Principle,'" in *God and Evolution: Protestants, Catholics, and Jews Explore Darwin's Challenge to Faith*, ed. Jay W. Richards (Seattle, WA: Discovery Institute Press, 2010), 132.

[95] Stark, *For the Glory of God*, 147.

[96] Cicero, *On the Nature of the Gods* (Book II, chapters XXXIV, XXXVIII). Online: http://www.gutenberg.org/ebooks/14988.

[97] Jonathan Witt, "Random Acts of Design: The Inconsistency of Francis Collins," in *God and Evolution: Protestants, Catholics, and Jews Explore Darwin's Challenge to Faith*, ed. Jay W. Richards (Seattle, WA: Discovery Institute Press, 2010), 114.

lute-player[98] constantly bringing out the best of his creation, or lute, in ways that make Creation complete through engagement. Furthermore, God could also resemble a playwright, designing the universe as a stage where he himself is both actor and director. As Wiker and Witt suggest, "the living world is more like Shakespeare's Globe Theater than the tidy and tightly bound circle of the watch."[99]

Although rejecting mechanism, these analogies do not drift toward its extreme opposite –that of pure occasionalism. Occasionalism is the belief (held by a few medieval and recent scholars) that God always bypasses natural laws, so that his direct working performs whatever happens in Nature.[100] Islamic (and a few Catholic) scholars held this belief, which is the antithesis of Descartes' mechanism. Thomas Aquinas, in turn, has championed the balanced middle ground. According to Aquinas, God acts not out of necessity but out of his free will,[101] making use of both primary and secondary causes.[102]

As we have seen, both Burnet and de Luc have forwarded mechanistic paradigms even though they were theists. We also see, nevertheless, positive examples of theists who made use of "teleo-mechanistic" paradigms[103] envisioning God's primary causation while still avoiding occasionalism. Among them are Robert Boyle, Isaac Newton, and other scientists who considered God's freedom in acting through secondary causes, like Johannes Kepler.

The insight of these scientists was tremendous. Whereas Aristotle (and the legacy of his ideas, known as "Latin Averroism" or "aristotelianism") argued that Nature was obliged to follow principles deduced metaphysically, these scientists saw, in turn, the reality that God acted freely, surpassing any expectation of what Nature ought to be like. This

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[98] Gregory of Nazianzus, *The Second Theological Oration* (Oration 28: VI). Online: http://www.newadvent.org/fathers/310228.htm.

[99] Benjamin Wiker and Jonathan Witt, *A Meaningful World: How the Arts and Sciences Reveal the Genius of Nature* (Downers Grove, IL: IVP Academic, 2006), 52.

[100] Alfred J. Freddoso, "Medieval Aristotelianism and the Case Against Secondary Causation in Nature," in *Divine and Human Action: Essays in the Metaphysics of Theism*, ed. Thomas V. Morris (Ithaca, NY: Cornell University Press, 1988), 74-118.

[101] Aquinas, *Summa contra Gentiles* II (23). Online: http://dhspriory.org/thomas/Contra Gentiles2.htm#23.

[102] Gage, "Can a Thomist be a Darwinist?" 194-196.

[103] Richards, "Separating the Chaff from the Wheat," 244-245.

concept is in line with Ockham's strong voluntarism, which argues for the precedence of God's will over God's reason. Although these scientists rejected aristotelianism, they did not drift towards its extreme opposite, known as nominalism, which posits freedom for God's actions while denying the existence in Nature of any fundamental laws.[104]

Kepler, for example, dismissed Aristotle's conclusion that planetary orbits ought to be perfect circles. He demonstrated, instead, that orbits were ellipses–a fact that could not have been predicted by any metaphysical conception of perfection. Rather, Kepler argued that one must "think God's thoughts after him" (and not before him), while still recognizing the role of laws in the natural world. These scientists considered the possibility of precedence of "God's choice" over "what's expected of his nature." Regrettably, scientists since Paley have pursued the belief that Nature must be self-sustaining. Thus, they have maintained the trend of upholding paradigms that emphasize what is "expected" of the Universe. This is in stark contrast to visionaries like Boyle, Newton, and Kepler, who considered that God acts freely. This view was anticipated by Athanasius and the Cappadocian church fathers, who in countering the Greek thinkers, proposed that the world was not to be a cosmos, but a creation; God is free from our ideals and expectations of perfection.[105]

The significance of figures like Boyle and Newton cannot be emphasized enough. Boyle, much like Ulysses navigating through the straits between Scylla and Charybdis, skillfully steers between the perils of aristotelianism and nominalism.[106] He also manages to stand clear between mechanism and occasionalism, surprisingly leaning towards the latter.[107] Newton appears to have followed in the same track in his rejection of mechanism.[108] He believed that God tinkered with the orbits of planets in the Solar System–an idea that was later questioned by Leibniz, and called out as unnecessary by Laplace.[109] Even if Newton were to be wrong in this

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[104] Wiker and Witt, *A Meaningful World*, 124-125.

[105] Dembski, *The Design Revolution*, 174.

[106] Timothy Shanahan, "God and Nature in the Thought of Robert Boyle," *Journal of the History of Philosophy* 26 (1988): 547-569.

[107] Richards, *God and Evolution*, 368.

[108] Stark, *For the Glory of God*, 168.

[109] Ronald G. Larson, "Revisiting the God of the Gaps," *Perspectives on Science and Christian Faith* 61(1) (2009): 13-22.

particular case, nothing prevents that his overall vision could still be correct, as David Snoke points out.[110]

Tragically, the mechanistic worldview has continued to be dominant, despite the valuable groundwork laid out by the visionaries here outlined. Why is a mechanistic worldview attractive? Perhaps because it is convenient, breaking down the complexity of reality and making it more accessible to investigation through the formulation of simplified models. A worldview that takes into account God's primary causation and freedom of action is not only an alternative to mechanism, but also more comprehensive and inclusive. Mechanistic theories may explain well a certain set or domain of observations, but in their self-limited scope they leave out much.

V. Concluding Remarks

The model here proposed argues that our planet is best understood not merely through material and efficient causes, but also through formal and final causes (in the sense of Aquinas); the purpose of our natural landscape transcends local necessity. The new world surfacing from the Flood through God's intentional activity represents a chaos-order cycle that has parallels to Creation Week and to the eschatological restoration. The significance of primary causation is emphasized, rescuing the worldview of teleo-mechanistic scientists like Robert Boyle and Isaac Newton. God acts freely in ways that surpass our ideals and expectations of a tidy clock-like Universe. Art becomes significant in understanding natural science and even natural history.

This proposition has also implications for the liberation of society from the hegemony of the scientific establishment concerning origins narratives. The common simple understanding of the devout layperson that attributes land and sky to God's creative skill has always provided a more accurate and compelling story than all of the most intricate natural history models at our disposal. As George MacDonald reflects in his novel *Phantastes*:

> They who believe in the influences of the stars over the fates of men, are,

[110] "The falsification of a subtheory within a larger world view does not falsify the whole world view," (David Snoke, "In Favor of the God-of-the-Gaps Reasoning," *Perspectives on Science and Christian Faith* 53-3 [2001]: 152-158.)

> in feeling at least, nearer the truth than they who regard the heavenly bodies as related to them merely by a common obedience to an external law. All that man sees has to do with man.[111]

G.K. Chesterton proposed the following paradox in discussing the shortcomings of the expert when compared to the amateur:

> The more a man looks at a thing, the less he can see it, and the more a man learns a thing the less he knows it. The Fabian argument of the expert, that the man who is trained should be the man who is trusted would be absolutely unanswerable if it were really true that a man who studied a thing and practiced it every day went on seeing more and more of its significance. But he does not. He goes on seeing less and less of its significance. In the same way, alas! We all go on every day, unless we are continually goading ourselves into gratitude and humility, seeing less and less of the significance of the sky or the stones.[112]

Our own intuition recognizes God's role in Nature, and the great thinker Blaise Pascal has mused that the proper intuitive reasoning is just as valid as the "mathematical."[113] The model discussed in this article simplifies natural history and attempts to provide to the public a paradigm that they can embrace as their own, and perchance bypass the monopoly that scientific specialists have had on natural history narratives. It will also prevent some of us from promoting elaborate and speculative Flood Science theories that are unable to account for a great deal of scientific observations. The comprehensive worldview of today's Christian scientists and laypersons brings a confidence that can sometimes be unfortunately misplaced, leading them to attempt to beat secular scientists in their own game of mechanistic inquiry (albeit with good intention). An improper reliance on pure mechanism is a self-limiting approach.

Would the model here proposed hinder further investigations in natural

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[111] George MacDonald, *Phantastes*. Online: http://www.gutenberg.org/ebooks/325.

[112] G.K. Chesterton, *Tremendous Trifles*. Online: http://www.gutenberg.org/ebooks/8092.

[113] "But in the intuitive mind the principles are found in common use, and are before the eyes of everybody. One has only to look, and no effort is necessary; it is only a question of good eyesight, but it must be good…" (Blaise Pascal, *Pascal's Pensées* (I – 1). Online: http://www.gutenberg.org/ebooks/18269).

science? The study of modern geological processes and phenomena would continue, so that the inquiry concerning our planet's functioning would not be barred. The notion that these processes should be applied in explaining the rock record would be questioned, however. The processes operating today and the resulting changes observed during human history will have little continuity with natural features that are mistakenly taken to represent past events in a mechanistic worldview.

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