

UNEARTHING THE FLOOD:
EVALUATING GEOLOGICAL FLOOD THEORY AND ITS USE IN CHRISTIAN LIVES

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Abstract

Due to the work of creation science organizations such as the Answers in Genesis apologetics ministry, the possible geologic effects of the Genesis Flood have once again become a popular topic in both scientific and Christian circles. In light of Scripture's account of the Flood and of modern scientific evidence, how valid are the theories of creation scientists in comparison with the theories of mainstream geology? And what is the value of Flood theory to pastors and lay Christians for pre-evangelism and personal use? The phrases from the Flood account itself commonly used in creationist literature provide little scientific support for any theory. The scientific evidence often provided by creation science and mainstream geology concerning the sedimentary strata, the fossil record, and radiometric dating were evaluated. It seems that both sides are able to present reasonable support for their theories, but both are greatly influenced by their preconceptions and biases. While creation science may provide biblical theories for geologic phenomena, its use in pre-evangelism and in Christian lives presents certain dangers to a Christian's faith that would best be avoided. Therefore, wise pastors will stress the gospel and a loving approach to those who discuss topics like the Genesis Flood.

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Introduction

A Christian who believes the Bible is the inspired and inerrant Word of God will often be confronted with scientific theories that seem to contradict the Scriptures they hold so dear. Quite often, when we Christians hear a scientific argument that contradicts the testimony given in the Bible, we can become tense, get defensive, and immediately begin to think of a rebuttal. What is it about such a scientific theory that makes Christians react in such a way? For many, it is the feeling that the deep convictions they hold and have held for many years are being assaulted as well as the fear that such evidence might possibly prove their faith false.

It goes without saying there are many scientific theories accepted by the conventional scientific community today that quite directly contradict the accounts we have in Scripture. Sadly, the heated response of some Christians has resulted in a cultural sentiment that Christians are either against mainstream science or against human reason altogether.¹ In between this divide has arisen a group of scientists who are trying to bridge the gap between scientific observation and the conviction that the Bible is the Word of God. Their efforts to provide biblical explanations to scientific phenomena have been the topic of much discussion in both the church and the scientific community.

No other field of science has felt the effects of Bible-based scientific theories more than geology, and no other topic has garnered more discussion within the geological community than the Flood account found in the book of Genesis. According to some, understanding the possible geological effects of Noah's Flood could be vital for Bible-believing Christians as well as the entire field of geology.

There is no escaping the conclusion that, if the Bible is true and if the Lord Jesus Christ possessed divine omniscience, the Deluge was the most significant event, geologically speaking, that has ever occurred on the earth since its creation. *Any true science of historical geology must necessarily give a prominent place in its system to this event.*²

¹ Montgomery, David R.. *The Rocks Don't Lie: A Geologist Investigates Noah's Flood*. New York: W.W. Norton, 2012. 47.

² Whitcomb, John Clement, and Henry M. Morris. *The Genesis Flood: The Biblical Record and Its Scientific Implications*. 50th anniversary ed. Phillipsburg, N.J.: P & R Publishing, 2011/1961. 216.

Historically, the Flood account has been central to the world's appraisal of the rest of Scripture. "The varying interpretations of the biblical flood story are part of an ongoing battle for the soul of Christianity."³

Therefore, if one is going to assess the scientific theories of this group of Christian scientists trying to defend the Scriptures, there is no set of theories more fitting than the set that is so central to their understanding of the physical world. This essay will seek to evaluate the theories concerning the possible geological effects of Noah's Flood as they are presented by creation scientists and modern mainstream geologists. On the basis of this evaluation, it will then seek to determine the value of creation science and its theories in a Christian's personal life and life as an evangelist. It will also include thoughts specifically for pastors as they guide God's people to have a proper view of these theories and of science in general.

The essayist understands the monumental task of analyzing and summarizing all of the aspects of these theories concerning the Genesis Flood, therefore it is important to understand that this essay is not a comprehensive study. It will be focused on certain case studies of Flood theory in an effort to give the reader an idea of the issues involved for creation science, for Christianity, and for individual Christians. The essayist also acknowledges that he is not a professional geologist and therefore recognizes his limitations in explaining and evaluating these geological theories.

Terminology used throughout the essay will need to be here defined so as to avoid giving the reader a false impression. When the essayist refers to *creation science* and *creation scientists*, he is referring mainly to the predominant group of Christian scientists who have been popularized by the Christian community in recent years, such as the group of scientists affiliated with the Creation Science Museum near Cincinnati, Ohio, and the Answers in Genesis apologetics ministry. Their theories and the historical theories concerning Noah's Flood will be referred to as *Flood theory* or *Flood geology*. Since the Genesis Flood historically was central to geological thought but has since been denied within the past two centuries by most of the geological community, the essayist has chosen to refer to the predominant present day geological community who has denied the historicity of the Flood account as *modern mainstream geologists*

³ Montgomery. *Rocks Don't Lie*. 251.

to avoid confusion as much as possible. The term *uniformitarianism* refers to the predominant mainstream geological philosophy that believes the origin of most geologic phenomena can be determined by analyzing present day rates of geologic processes.⁴ The essayist also acknowledges the theories presented and analyzed in this paper may not be the accepted opinions of all geologists within the wider geological community.

It is also important to recognize that the essayist holds the Bible as the inspired Word of God and the account of the Great Flood in Genesis chapters 6 through 9 to be a true, historical event. The essayist began studying the topic of Flood geology unsure of the value of creation science and its theories concerning the Genesis Flood. He also wants to make clear that just because he is a Christian does not mean his personal opinions are the same as those of creation scientists. Ultimately, it is his heartfelt desire that the reader will not only be enriched by a careful study of God's creation, but will also be edified by a greater appreciation for God's love and mercy, a love and mercy so prominent but often lost within the Flood account. The essay will begin with a look at God's own account of this loving and merciful Flood.

The Flood Account

The fact that the Bible is meant to give us the history of salvation cannot be divorced from any portion of Scripture, especially the account of Noah's Flood. Therefore, any analysis of the events of Noah's Flood needs to be put into its proper context, that is, the events and information recorded in the five chapters preceding the Flood account. Moses' creation account relates to us the detail and the care with which God created the heavens and the earth, all of which was leading up to and created for the crown of his creation, mankind. Everything was deliberately created so that human beings would have a perfect creation in which they would live and serve their loving God who made them. Noteworthy for our purposes are days two and three of creation. On day two, we are told God "separated the water under the vault from the water above it" (Ge 1:7), which some have theorized refers to a hydrological system that was

⁴ The common axiom attributed to uniformitarian geology is "the present is the key to the past."

subsequently altered to the present day system following the Flood^{5,6} (this will be briefly discussed under the examination of the phrase "floodgates of heaven"). On day three, God created land when the water under the sky was "gathered to one place" (Ge 1:9), which some believe may have involved the initial formation of a number of geological features on the earth, such as the first mountains and sedimentary strata.⁷

By the end of the sixth day of creation "God saw all that he had made, and it was very good" (Ge 1:31). This "very good" (perfect) creation was then plagued by sin through the disobedience of Adam and Eve (Ge 3; Ro 5:12,8:18-21), who passed on a sinful nature to each human being (see Ge 5:3) as seen immediately in their first two sons, with jealous Cain murdering his brother, Abel (Gen 4). From there, Moses not only gives us what might be an abbreviated table of the generations between Adam and Noah,⁸ but he also shows God's original warning and punishment that sin would bring death (Ge 2:17,3:3) indeed had come to pass by repeating a phrase after each man he mentions: "...and then he died...and then he died...and then he died" (Ge 5:5,8,11,14,17,20,27,31). Adam and Eve's original sin had disastrous consequences for the human race and all of creation.

However, in the midst of all of this sin and sadness, God promised Adam and Eve one who would defeat sin and the one who had tempted them (Ge 3:15). This promise alone was the beacon of light in a newly-darkened world. It alone gave hope for freedom from the sin and death that plagued not only mankind but all of creation as well (Ro 8:18-21). Therefore, it is this promise that is the central emphasis of the first five chapters of Genesis. The original perfection, the loss of that perfection, and the promised salvation and restoration are masterfully told by Moses so as to put the rest of Scripture into focus, especially the three chapters that follow, the chapters which give the account of Noah's Flood. This is the intended purpose of the Flood account. It is not a scientific treatise meant to give us the details of changes and processes that might have taken place during the Flood. The purpose is to show God's divine judgment upon

⁵ Whitcomb and Morris. *Genesis Flood*. 240,241.

⁶ Whitcomb and Morris also theorize concerning day two that "it is at least possible that further crustal disturbances occurred and also that the waters below the firmament were in continuous intense motion, pounding and grinding and mixing the elements in the superficial materials." *Genesis Flood*. 229.

⁷ Whitcomb and Morris. *Genesis Flood*. 229-232.

⁸ Lawrenz, Carl J., and John C. Jeske. *A Commentary on Genesis 1-11*. Milwaukee, Wis.: Northwestern Pub. House, 2004. 223,224.

the people who so clung to the sin that polluted them and to show his loving and powerful effort to preserve the promise of salvation. It is within this context that we come upon the situation we are told about in chapter 6. Understanding the first eight verses of Genesis chapter 6 go a long way in properly understanding the rest the Flood account. Therefore, a brief commentary is provided in Appendix A.

With the Flood account in its proper context, Moses continues by explaining God's instructions to Noah and Noah's preparation of the ark that will preserve him, his family, two of every kind of animal, and the promise of the coming Savior for us all. God gives a 120-year time of grace for the people of the earth, during which time Noah builds the ark and gathers enough food for what will be a 371-day period of destruction upon the earth (See Appendix B). A summary of the rest of the Flood account will not be provided here. Instead, as we continue to look at the text of Genesis chapters 6 through 9, we will focus our attention on certain words and phrases used in the description of the Flood disaster that are commonly referred to in creation science literature in support of their theories.

"earth"

There has been extensive geological research conducted in the Black Sea region in recent years that has given rise to the theory that the Genesis Flood and other ancient flood stories were simply derived from a great local flood in that region during ancient times.⁹ Consequently, more and more geologists who have researched the Flood account argue that the Hebrew word "earth" used throughout the account may simply refer to the ground and not the entire earth.¹⁰ For this reason, it would be wise to look at the use of this word throughout the Genesis Flood account.

Within the Old Testament, and specifically within the book of Genesis, the Hebrew word *erets* (אֶרֶץ) is predominantly translated as "land" by most of the common English translations found today,¹¹ with "earth" being the second most common translation and "ground" usually a distant third. However, within the Genesis Flood account (chapters 6-9), almost all instances of

⁹ Ryan, William B. F., and Walter C. Pitman. *Noah's Flood: The New Scientific Discoveries about the Event That Changed History*. New York: Simon & Schuster, 1998.

¹⁰ Montgomery. *Rocks Don't Lie*. 166,167.

¹¹ e.g., the NIV, NASB, ESV, NRSV, NLT, and NKJV

erets are translated "earth" by these major English versions of the Bible. Such a shift to "earth" as the preferred translation for *erets* can be understood as a result of the context of Genesis chapters 6 through 9. The most straightforward reading of its use throughout chapter 6 would lead one to read it as a reference to the entire earth: "The tyrants¹² were on the *earth*..." (v.4), "The LORD saw how great the wickedness of the human race had become on the *earth*..." (v.5), "The LORD regretted that he had made human beings on the *earth*..." (v.6), "Now the *earth* was corrupt in God's sight and was full of violence. God saw how corrupt the *earth* had become, for all the people on *earth* had corrupted their ways" (v.11-12), "I am going to put an end to all people, for the *earth* is filled with violence because of them. I am surely going to destroy both them and the *earth*" (v.13), and "I am going to bring floodwaters on the *earth* to destroy all life under the heavens, every creature that has the breath of life in it. Everything on *earth* will perish" (v.17). Considering such repetition, as well as phrases such as "everything under the heavens" and "all people," the most straightforward interpretation of Genesis chapter 6 is that God was going to bring a worldwide flood.

This can also be seen in the rest of the Flood account. A simple reading of the totality of the corruption of mankind, the totality of the Lord's judgment, the fact that we are told the floodwaters covered "all the high mountains under the entire heavens" (Ge 7:19) and "covered the mountains to a depth of more than fifteen cubits" (Ge 7:20), the fact that Noah had to build an ark to save himself, his family, and all of the birds and land animals, and the fact that Noah was told to build an ark for 120 years instead of fleeing to a distant land all point the reader to an understanding that this was a global flood.¹³ This is also supported by the testimony found in the rest of Scripture (Ps 104:5-9; Mt 24:36-39; Lk 17:26,27; Heb 11:7; 2 Pe 2:4-9). A plain reading of Scripture and an understanding of the context surrounding these references most naturally lead

¹² "The simplest way to define the otherwise unknown term *נְפִלִים* [*Nephilim*] is to derive it from the verb *נָפַל* [*naphal*], to fall upon, attack. Luther translates "[tyrants, so called] because of their tyranny and oppression... they fall upon and oppress those who are beneath them... pursue only their own desires and rely on their own power and strength." Lawrenz and Jeske. *Genesis 1-11*. 233.

¹³ In Genesis 6:7, God does state that he "will wipe from the face of the *ground* the human race." However, in light of the rest of the context mentioned above one can safely assume this refers the whole earth. In fact, God may be purposely using the Hebrew word *adamah* (אֲדָמָה), "ground," as part of an alliteration with *adam* (אָדָם), "man," in verse 7. Thus, God is perhaps saying for poetic and emphatic purposes in the Hebrew, "I will wipe the *adam* from the face of the *adamah*."

one to believe that the Genesis Flood was a worldwide Flood, and thus this topic will not be treated further in this essay.¹⁴

"pitch"

It has been argued that Noah's use of "pitch" or "bitumen" to seal the ark disproves that the Flood laid down the sedimentary strata because bitumen only comes from sedimentary rock.¹⁵ The Hebrew word, *kopher* (כֹּפֶר), as it occurs here in Genesis 6:14, has been separated and given its own designation by the *Brown-Driver-Briggs Hebrew English Lexicon*, though the same form of the word also occurs in 1 Samuel 6:18 and Song of Songs 1:14. Its appearance in 1 Samuel 6:18 is connected to a word of the same root, *kaphar* (כָּפַר), meaning "village," and thus does not seem to be related to its usage here in Genesis 6:14. The use of the word in Song of Songs (SS 1:14, plural form in 4:13) in context refers to the name of a plant with clusters, possibly henna,^{16,17} and for this reason may be related to its use here. However, its ultimate meaning and composition here in Genesis is altogether a mystery, as Swanson concludes—most likely from the Flood account itself—that it is "a water seal substance for [a] large vessel...it is not clear what the organic material was composed of, possibly tar or some other bituminous material."¹⁸

The Septuagint translated *kopher* here in Genesis as ἄσφαλτος (from which the English word "asphalt" is derived), while the Latin Vulgate rendered it *bitumen*.¹⁹ These Greek and Latin translations of the word refer to a substance "forming in lumps...on the surface of the river Is near Babylon and at Ardericca near Susa,"²⁰ although Liddell states that even the word used by the Septuagint, ἄσφαλτος, "seems to be a foreign word."

¹⁴ If the reader is interested in a more in-depth analysis of the fact that Scripture treats Noah's Flood as universal, *The Genesis Flood* (p.16-32; 55-85) and *Earth's Catastrophic Past* (p.57-72) provide exceptional explanations, giving both biblical and scientific evidence.

¹⁵ Montgomery. *Rocks Don't Lie*. 235.

¹⁶ Brown, Driver, and Briggs. *Hebrew Lexicon*. 498.2.

¹⁷ Archer, Gleason L. "1025 כֹּפֶר." Edited by R. Laird Harris, Gleason L. Archer Jr., and Bruce K. Waltke. *Theological Wordbook of the Old Testament*. Chicago: Moody Press, 1999.

¹⁸ Swanson, J. (1997). "4109 כֹּפֶר." *Dictionary of Biblical Languages with Semantic Domains: Hebrew (Old Testament)* (electronic ed.). Oak Harbor: Logos Research Systems, Inc.

¹⁹ Lawrenz and Jeske. *Genesis 1-11*. 242.

²⁰ Liddell, H.G. "ἄσφαλτος" *A Lexicon: Abridged from Liddell and Scott's Greek-English Lexicon*. Oak Harbor, WA: Logos Research Systems, Inc., 1996.

If Moses was indeed referring to bitumen, then the fact that bitumen is a product found only in sedimentary strata could be a significant argument against creation science's view that the Flood laid down the sedimentary strata. This needs to be noted, although there is so much uncertainty surrounding the exact meaning of the Hebrew word that one cannot lean on this word as an ultimate proof for any argument. It may not be referring to the bitumen we know today but instead, from its possible meaning in Song of Songs and implied by the way Noah used it for the ark, the product of some plant with glue-like properties.

"kinds"

There has been much discussion over the Hebrew word *min* (מִינִי), "kind," and its meaning in the Flood account. A modern reader of an English translation may come to the conclusion that when God commands Noah to take with him "two of every *kind*" of animal on the ark (Ge 6:20), he is speaking of two of every kind of animal species as it is understood according to the Linnaean classification system. However, one cannot say for sure that *min* is used with such specificity in mind, especially considering Genesis is not meant to be a scientific treatise. The only thing we can say for certain is that, as evidenced by its usage in the creation account just five chapters earlier, there are certain reproductive bounds God has put upon each kind, where an animal of a certain kind can only reproduce with another animal within that same kind. For example, a dog and a cat cannot reproduce with each other. This emphasis on reproduction is also the basis for Noah taking two of every kind of animal: "You are to bring into the ark two of all living creatures, male and female, to keep them alive with you" (Ge 6:19). Scientifically, this is as far as Scripture allows us to go with its use of the word *min*.

While the ability to reproduce is often the criterion used today to classify a species, some argue that there has been a great amount of hybridization and variation within the biblical kinds and therefore understanding "kind" as "species" would be misleading, especially considering the various definitions and measures of what constitutes a species being used among biologists today. Some creation scientists have developed the term "baramin" to refer to the "created" (*bara-*) "kinds" (*-min*) as they are distinguished from the species that eventually developed as a result of adaption to different environments following the fall into sin. This implies that there

were far fewer created kinds than what is considered a species today, and it was this original designation from creation that is here referred to by Moses.

It must also be noted that God does not specify the kinds or say how many kinds there were at creation or within the ark.²¹ From the text itself, all we can safely say about the kinds on the ark is that it is implied there was enough room for them within the massive structure and that all bird and land species on the earth today are derived from them. Therefore, to make a *min* equal to a species is unnecessary, and to conclude that there could not have been enough room on the ark for all of the animals based on *min* is a weak conclusion.

"springs of the great deep burst forth"

This phrase from Genesis 7:11 seems to be the most important phrase in the Flood account for creation scientists. It has been central to many of their interpretations of the geologic effects that took place throughout the roughly one year of the waters prevailing on the earth. Many have used this phrase as a means to incorporate the idea of a great amount of volcanic activity that would not only have provided great geologic changes but also another means by which the earth would have been inundated with water.^{22,23} It is necessary, then, to examine the words that make up this phrase and determine the extent of what Moses is telling us.

The word *ma'yan* (מַעַיִן), commonly translated "spring," occurs 23 times in the Old Testament in 12 different books. Each and every time except one it is used in an explicit reference to water, whether that be in close connection with the word "water" itself or an obvious implication of a water source for plants or animals. The only time in the Old Testament it is not used explicitly with water is in Psalm 87:7, where the context is speaking of birth and life. Thus, one could assume that Psalm 87:7 is an indirect reference to the life-giving aspect of springs of water.

The other important term in this phrase is *tehom* (תְּהוֹם), "the deep," used in Genesis 7:11 with the feminine form of the adjective *rav* (רַב) as "the great deep," and also used later in the

²¹ Lawrenz, and Jeske. *Genesis 1-11*. 60.

²² Whitcomb and Morris. *Genesis Flood*. 258.

²³ Snelling, Andrew. *Earth's Catastrophic Past: Geology, Creation, & the Flood*. Dallas, Tex.: Institute for Creation Research, 2009. 474.

Flood account in Genesis 8:2 without the adjective (simply, "the deep"). The first time Moses uses this word is already in the second verse of Genesis where he uses it to describe the vast abyss of water from which the Lord eventually separates "the water above" from "the water below" on the second day of creation (Ge 1:2). Every other time it is used in the Old Testament it is in reference to the deep oceans or seas or to denote the opposite position of the mountains, i.e., the depths of the earth, where one could argue the presence of water is implied by the text. In light of all of this textual evidence, this phrase in context seems to be a simple reference to the water found deep within the earth.

If there was any word in the Flood account that would lead us to think volcanic activity indeed took place during the Flood it would be the verb used in connection with this phrase, *nivk'u* (נִבְקְעוּ), "were broken open." This passive form of the verb *baka* (בָּקַע) is understood as something being ripped, broken, or burst open, such as a heavy cloud giving forth its water (Jb 26:8), a new wineskin bursting open (Jb 32:19), light breaking forth (Is 58:8), or even a serpent's egg hatching out (Is 59:5). With its use here in the Flood account with the "great deep," Moses does seem to imply some sort of miraculous geologic activity of God by which the springs of the great deep could come forth to flood the earth. This geologic breaking open of the earth could very well have also brought with it volcanic activity. However, one should not think that Moses needed or even intended to give a scientific accounting for the processes at work during the Flood, and we must not strain to fit geologic processes into the simple meaning of these words in support of personal theories. The main point of the details Moses does give us is that the destructive force God utilized first and foremost was *water*, and any other forces God used to accomplish this and any phenomena that may have resulted are secondary and speculative.

"floodgates of heaven"

This is another phrase in Genesis 7:11 to which is attributed a great amount of meaning by some creation scientists. The word *a'rubah* (אֲרֻבָּה) translated by the NIV as "floodgate," occurs nine times in six different Old Testament books. It refers to some sort of opening, such as a lattice or a window, and most of the time (six out of the nine occurrences) is used with the word *shamayim* (שָׁמַיִם), "heaven" or "heavens," such as the two occurrences here in the Flood account (Ge 7:11, 8:2), to denote a great amount of rain—or even blessing (Mal 3:10)—from

heaven. While the word *shamayim* in this phrase may simply be referring to the "heavens," i.e., the sky, its use in each context implies an act of God and therefore is acceptably translated either "heaven" or "heavens." In Isaiah 24:18, this phrase is also used in connection with great wrath and judgment from God, similar to the waters of the Flood. However, there Isaiah is looking forward to the wrath and judgment of the Last Day.

A simple reading of the text reveals the obvious meaning of this phrase, that by a divine act there is a great amount of rain that falls from the sky. The important question here in the Flood account is this: Is the rain falling from the sky a result of the same hydrological processes we know today—albeit a miraculous increase enough to help flood the earth—or is the rain a new phenomenon previously not experienced by the pre-Flood peoples? Lawrenz and Jeske make an argument for the latter based on an analysis of Genesis 2:4-5.²⁴ This view is also held by Whitcomb and Morris.²⁵

There are a few passages in Scripture that might suggest this was indeed the first instance of rain on the earth. First of all, Moses explicitly states in Genesis 2:6 and 2:10 that there were streams watering the whole surface of the ground and a river watering the Garden of Eden. He also states in Genesis 2:5 that God had not yet sent rain upon the earth, which in context and in comparison with similar Hebrew vocabulary and structure used in Genesis 3:17-19, may imply the whole period between creation and the Flood, as Lawrenz and Jeske point out in their analysis. Considering also that the Bible does not mention the existence of clouds until after the Flood (Ge 9:13-15) and the rainbow is said to be a new phenomenon following the Flood (Ge 9:13-17), from this evidence in Genesis alone one could argue the floodgates of heaven being opened to begin the Flood was the first instance of rain on the earth. However, it should be noted that some of these arguments are arguments from silence, and simply because something was not mentioned does not mean it did not occur.

There is also a passage in 2 Peter that seems to imply a great change to the earth taking place after the Flood. In 2 Peter 3:3-7, as Peter is confronting the attitude that everything on this earth has gone on as it has since the time of creation, he includes this rebuttal to such an attitude:

²⁴ Lawrenz and Jeske. *Genesis 1-11*. 97-100.

²⁵ Whitcomb and Morris. *Genesis Flood*. 121,255-258.

But they deliberately forget that long ago by God's word the heavens came into being and the earth was formed out of water and by water. By these waters also the world of that time was deluged and destroyed. By the same word the present heavens and earth are reserved for fire, being kept for the day of judgment and destruction of the ungodly. (2 Pe 3:5-7)

In this passage Peter seems to imply that the "present heavens and earth" are different from "world of that time," the period from creation to the Flood. Whitcomb and Morris argue the hydrological system of the pre-Flood world could have consisted of a transparent water vapor canopy enveloping the earth. This canopy would have provided the necessary water and moisture to the plants that were created on day three while also allowing the necessary light from the heavenly bodies created on day four to reach the earth. The idea of a unique water system is also supported by the fact that God's primary source of water for the Garden of Eden was not rain but instead the abundant water that flowed through the garden via a river and underground springs (see Ge 2:6,10), as mentioned above. The health benefits provided by this water vapor canopy could also have contributed to the incredibly long ages of the pre-Flood peoples (see Appendix C).^{26,27} However, scientists argue that the temperature on the earth caused by the resulting Greenhouse effect of such a water vapor canopy as well as the weight of such an amount of water in the atmosphere would have made the earth uninhabitable,^{28,29} though this assumes a Greenhouse effect as understood today would have occurred. In any case, a theory arguing for a pre-Flood transparent water vapor canopy is highly speculative.

"the water receded steadily from the earth" and "the waters continued to recede"

After God stopped the rain and provided a wind to help the waters recede from the earth, we are told the waters were *haloch vashov* (הָלֹךְ וְשׁוֹב), "going and turning back" or "going and returning" (Ge 8:3). Two verses later, after the ark settled upon the mountains of Ararat, we again are told the waters were *haloch v'chasor* (הָלֹךְ וְחָסַר), "going and decreasing" (Ge 8:5). Both of these phrases correspond to the verb used in verse 1, *shachad* (שָׁכַד), meaning to

²⁶ Lawrenz and Jeske. *Genesis 1-11*. 217,332.

²⁷ Snelling. *Earth's Catastrophic Past*. 265,266.

²⁸ Montgomery. *Rocks Don't Lie*. 235.

²⁹ Snelling. *Earth's Catastrophic Past*. 662-665.

"decrease" or "abate."³⁰ In both phrases, the verbs in both pairs are infinite absolutes, which is an unusual construction in Hebrew showing something was continuing for a long time.³¹ One can see why Moses would use such a construction, considering the days of the water going and decreasing are altogether estimated at roughly 164 days, that is, about five and a half months (See Appendix B). Thus, these two phrases, seemingly used synonymously, indicate that after God decided to stop the rain and provide a wind over the earth (Ge 8:1,2), the waters were continuously and for a long time decreasing and abating until the ark came to a rest (v.4), the rest of the tops of the mountains were seen (v.5), and eventually the water had dried up on the earth (v.13).

While such conclusions may seem obvious to the reader, it is important to analyze these two terms because they are the basis for a number of theories concerning the formation of the earth's sedimentary strata. Some believe the different types of rocks found layered throughout the sedimentary strata of the earth are due not only to the original breaking up of the earth's crust but also to the movement of the water at the outset and throughout the period of the Flood.

Powerful currents, of all directions and magnitudes and periods, must have been generated and made to function as agents of immense eroding, transporting, and depositional potency. Under the action of this combination of effects, almost any sort of deposit or depositional sequence becomes possible and plausible. An immense variety of sediments must finally have been the result, after the Flood had run its course.³²

This means the action of the abating waters would have laid down different kinds of sediment at various stages, with variations in the order of the strata in different regions being due to currents and the type of sediment being washed down in each particular region. Mainstream modern geologists argue that the evidence for great floods on the earth indicate they are only large, regional floods, some possibly due to the failure of glacial ice dams.^{33,34} However, with the waters going and decreasing, one would expect large pools of water to be separated from each other and give the appearance of great local floods in each region. While such a theory from

³⁰ Brown, Driver, and Briggs. *Hebrew Lexicon*. 1013.2.

³¹ Gesenius, Wilhelm, and E. Kautzsch. *Gesenius' Hebrew Grammar*. Dover ed. Mineola, N.Y.: Dover Publications, 2006. 344.

³² Whitcomb and Morris. *Genesis Flood*. 265.

³³ Ryan and Pitman. *Noah's Flood*.

³⁴ Montgomery. *Rocks Don't Lie*. 211.

creation scientists is not disproved by the text of Genesis chapter 8, there is no textual support for such a theory and it must be noted that it is based almost entirely on human speculation.

"freshly plucked olive leaf"

After the ark came to a rest upon the mountains of Ararat and as the waters continued to recede, Noah sent out a raven followed by a dove, which returned to him in the ark. A week after sending out the dove, he sent it out a second time and it returned to him again with *aleh-zayit taraf* (עֲלֵה-זַיִת טָרַף), "a leaf of an olive tree, freshly plucked" (Ge 8:11). The Hebrew word for "leaf," *aleh* (עֵלֶה), can denote any sort of leaf, whether green and flourishing (Je 17:8; Pr 11:28; Ek 47:12; Ps 1:3), or dying and windblown (Is 1:30, 34:4, 64:5; Je 8:13).³⁵ We are told this particular leaf came from a *zayit* (זַיִת), an "olive tree," which is significant. "It should be observed that olive trees are capable of sprouting shoots under water, and thus they could have survived the Flood."³⁶ The emphasis there should be on "could have." We are not told in the text how or when this olive tree sprouted. Was it an olive tree that existed before the Flood that miraculously survived the initial rush and year-long inundation from the water, or was it an olive tree that sprouted up as the waters were finishing their "going and decreasing"? The word *taraf* (טָרַף), meaning "freshly plucked," occurs only here in Scripture, but the basic meaning of its root word is to "tear away" or to "tear apart,"³⁷ and therefore might imply that the leaf had to be torn away from a healthy olive tree. Since this leaf is most likely being given to Noah as evidence that life is once again being allowed to sprout on the earth (see v.11), the safest conclusion in context would be that this is a newly sprouted tree. However, in either case a miracle is being assumed. Either God miraculously spared and protected this tree for this moment, or God is once again bringing forth vegetation on a recently devastated land, whether he ensured their seeds would remain in the ground at the appropriate level for sprouting or simply commanded their sprouting as he had done on day three of creation, all of which are miracles. This is important to remember since many people use the existence of a post-Flood olive tree as proof of the scientific implausibility of the Flood as a violent and historical event.

³⁵ Brown, Driver, and Briggs. *Hebrew Lexicon*. 750.1.

³⁶ Lawrenz and Jeske. *Genesis 1-11*. 269.

³⁷ Brown, Driver, and Briggs. *Hebrew Lexicon*. 383.1.

Sedimentary Strata

Moving on from the Flood account itself, we will now focus on the scientific observations and data collected and interpreted within the geological theories of both creation science and modern mainstream geology. The dominant set of observations and data that fuels the differing interpretations concerning these geologic phenomena are associated with the rock layers that make up the outer most portion of the earth's crust. There is sufficient evidence that these rock layers have been successively laid down by water as sediments, and are therefore referred to as *sedimentary strata*, with the lower strata reasonably assumed to have been laid down first and the upper strata last. These sedimentary strata are found throughout the world over vast areas, sometimes spanning great portions of continents, and can vary in thickness and lithological composition (type of rock). However, there is also significant correlation between the order and composition of strata in different regions, suggesting each layer was laid down in a similar fashion at a common point in time and by a common process. While the order and presence of these strata can differ from region to region, the overall correlation is so great that a standard of strata order known as the *geologic* or *stratigraphic column* has been developed. The prime example of the order of strata in the geologic column is the order of rock layers seen throughout the Colorado Plateau (See Figure 1 in Appendix D). However, it should be noted that the geologic column is not complete in any one area and is a composite of partial strata sequences that are pieced together by matching common sequences from different regions, with some "expected" strata missing in some regions altogether.³⁸

It is the "reading" of these strata throughout the world that arguably has influenced geology more than any other type of geological analysis, and the observations taken and interpreted from these rock layers are the foundation for any geological theory. Therefore looking at the sedimentary strata is a fitting place to start in evaluating these different geological theories and will receive the majority of our focus in this portion of the essay. Before evaluating these theories, it would be wise to begin by briefly summarizing the terminology, observations, and data associated with the common groupings of these strata.

³⁸ Snelling. *Earth's Catastrophic Past*. 299.

The lowermost and therefore oldest strata in the geologic column are the Pre-Cambrian rocks (see the left column of Figure 1 in Appendix D). On the modern mainstream geologic time scale they represent the first nine-tenths of earth's geologic history, a history that is said to span roughly 4.4 billion years. These strata are commonly seen at an angle beneath the flat-lying strata above them, with an observable line separating them, suggesting that a major period of erosion had taken place before the Cambrian and younger strata were laid down on top. These Pre-Cambrian formations are commonly seen by creation scientists as the layers and deformations associated with the first three days of creation and the erosion and deposition that had occurred from the fall into sin until the beginning of the Flood. Modern mainstream geologists view these layers as the long beginning of earth's geologic history when the crust was first formed and water first appeared, when the plate tectonic and climate systems were developed and eventually established to what they are today, and when the first forms of life began to appear and evolve within these eventually stable conditions.³⁹ It should be mentioned that far less is known about the Pre-Cambrian period than the Cambrian and later periods due to the depth of these layers in the earth's crust as well as the only recently-developed methods of analysis, such as seismic imaging, which can be very expensive to conduct and therefore is usually limited to areas that have been explored for oil, water, or other valuable natural resources.⁴⁰

The rock layers that lie on top of the Pre-Cambrian layers are commonly separated into three distinct periods: Cambrian, Carboniferous, and Permian (see Appendix D). All of these layers generally lie flat on top of the Pre-Cambrian strata below them. Analysis of these layers shows they were quite obviously laid down by water. The strata alternate between different rock types, such as shale, sandstone, and limestone. Within each of the major strata there are secondary strata laid down roughly around the same time in earth history, with similar rock composition but separated by what shows to be differing periods of deposition. It is within these large and diverse strata where complex fossils begin to be seen, transitioning from predominantly marine fossils to predominantly terrestrial fossils as one goes higher up in the stratigraphic column (see Figure 2 Appendix E). More will be said about the evidence seen in the fossil record later in this essay. However, the reader will do well to note that the fossil record has been

³⁹ Grotzinger, John P., and Thomas H. Jordan. *Understanding Earth*. 6th ed. New York: W.H. Freeman, 2010. 207.

⁴⁰ Grotzinger and Jordan. *Understanding Earth*. 171.

so intimately tied with the geologic column that one cannot mention the one without discussing the other.

The common view among creation scientists of the Cambrian, Carboniferous, and Permian strata is that these were the sediments laid down by Noah's Flood. They believe the evidence of great erosion separating them from the Pre-Cambrian strata, called the Great Unconformity,⁴¹ shows that the pre-Flood geologic formations were eroded all at once by water,⁴² and that the resulting sediments were laid down one layer at a time over the course of the year the floodwaters prevailed upon the earth. This means the differences found within the strata from region to region would have been caused by region-specific currents within the water and regional separation of the water by resulting land masses, which would have prevented some sediments to reach other regions. The most recent deposits (most of the Pleistocene deposits) that lie on top of the Cambrian, Carboniferous, and Permian strata are seen by creation scientists as those that have been laid down by regional catastrophes since the time of the Flood.⁴³

Modern mainstream geologists view the Cambrian, Carboniferous, and Permian strata as evidence of immense ocean beds laid down and solidified over millions of years by various mechanisms and erosional effects, eventually being lifted up as vast land masses to the heights we see today. A comprehensive presentation of the evidence for both theories concerning the sedimentary strata is beyond the scope of this essay. However, some of the observations, analysis, and interpretations commonly mentioned by each are given in the sections that follow.

Creation Science's Interpretation of the Sedimentary Strata

The first observation creation scientists will point to is that all of the recent rock layers show evidence of being laid down successively by water.

Almost all of the sedimentary rocks of the earth...have been laid down by moving waters. This statement is so obvious and so universally accepted that it needs neither proof nor elaboration.⁴⁴

⁴¹ An *unconformity* is "the surface between two beds that were laid down with a time gap between them," i.e., "the boundary along which two existing formations meet." Grotzinger and Jordan. *Understanding Earth*. 196.

⁴² Snelling. *Earth's Catastrophic Past*. 589.

⁴³ Whitcomb and Morris. *Genesis Flood*. 295.

⁴⁴ Whitcomb and Morris. *Genesis Flood*. 124.

Creation scientists believe the waters of the Flood created large amounts of rapid erosion on land surfaces by the fall of rain and the rushing of the floodwaters both up from the fountains of the great deep and along the already existing geologic formations (mountains, valleys, etc.).

Many factors have contributed to this—the driving rains, the raging streams resulting from them, the earthquakes and volcanic eruptions, the powerful tidal waves, then later the waves and other currents generated by the rising of the lands and sinking of the basins, and perhaps many other factors which we cannot now even guess. Never since the world was formed could there ever have been such extensive erosion of soil and rock beds, on a global scale, as during the Genesis Flood. And the materials that were eroded must have eventually been redeposited somewhere, and necessarily in stratified layers, such as we find everywhere around the world today in the great sedimentary rock systems.⁴⁵

According to the most common Flood geology, all of the sedimentary layers around the world above the Pre-Cambrian were successively laid down in the order they are observed today throughout the roughly one year of the floodwaters acting upon the earth.

For creation scientists, the fact that some of the strata sequences match from region to region is a testament to the universality of the Flood and the sediment it carried over the land masses of the entire earth. Snelling speaks of one such example of strata correlation:

There are also numerous examples of discontinuous, but yet spectacular, distributions of similar, or even identical, synchronous deposits. Perhaps the most distinctive are the familiar white chalk beds in the upper Cretaceous strata sequences of northwest Europe, with their layers of black flint nodules and characteristic fossils. The most familiar images of these chalk beds are the white cliffs along the channel coast of England. However, these beds extend from the Antrim area of Northern Ireland, via England and northern France, through the Low Countries, northern Germany and southern Scandinavia to Poland, Bulgaria, and eventually to Georgia in the south of the Commonwealth of Independent States. There are also records of these same white chalk beds on the Black Sea coast of Turkey, and at the other extreme end of the belt, in southwest Ireland, and also covering extensive areas of the sea floor south of Ireland. However, identical chalk beds are also found in Egypt and Israel, but more remarkably, they are also found on the other side of the Atlantic in Texas, as well as in Arkansas, Mississippi, and Alabama. Even more surprising are identical chalk beds, complete with the same black flint nodules and the same familiar fossils, on the coast of Western Australia just north of Perth, overlying glauconitic sands, as in northwest Europe. This global distribution of such uniform beds with the same characteristics and fossils is

⁴⁵ Whitcomb and Morris. *Genesis Flood*. 123.

astounding, given that the chalk is an extremely pure coccolith-bearing limestone that is unique to this level in the geologic record.⁴⁶

Many creation scientists believe that such correlation, along with the present shape of the continents, seems to show that these sedimentary layers were formed on top of one super-continent during the Flood and then pulled apart by a process of what Snelling calls "continental sprint" (as opposed to mainstream geology's "continental drift"), resulting in the composition and overall shape of the continents as we know them today.⁴⁷

Creation scientists will also point to the fact that some sedimentary strata are composed of sediment that could not have been carried from a local source as evidence of the sediment being carried great distances by an immense amount of water. For instance, most of Europe consists of sediments that eroded off from somewhere else,⁴⁸ and the sand that formed the sandstone of the Grand Canyon had to have come from a faraway source. In his analysis of the sandstone layers of the Grand Canyon, Snelling concludes:

The combined evidence indicates that the colossal quantities of sand grains in Grand Canyon sandstones had to be transported and deposited by tsunami-generated ocean currents, which had to also erode and transport the sand over great distances from distant source areas...Abundant evidence for catastrophic, inter-regional erosion, transport, and sedimentation is far more consistent with the biblical description of the Flood and its geological implications.⁴⁹

Creation scientists believe the vast areas sharing a common strata sequence, such as the Colorado plateau and large portions of the southwest United States, which are generally laid down flat on top of the Pre-Cambrian strata, also show that widespread flooding of some form must have taken place.⁵⁰ As mentioned above, this is seen by modern mainstream geologists as evidence of vast ancient ocean beds that have been laid down over millions of years and eventually solidified into rock. They believe these rock layers were then eventually lifted up and exposed as land masses above the water. Whitcomb and Morris point out the difficulty of such a concept, speaking specifically about mainstream geologists' theories concerning the Colorado plateaus:

⁴⁶ Snelling. *Earth's Catastrophic Past*. 491.

⁴⁷ Geology. DVD. Directed by Andrew A. Snelling. Hebron, Ky.: Answers in Genesis, 2009.

⁴⁸ Montgomery. *Rocks Don't Lie*. 103.

⁴⁹ Snelling. *Earth's Catastrophic Past*. 510.

⁵⁰ Snelling. *Earth's Catastrophic Past*. 528-530.

The remarkable thing is that this entire region has somehow been uplifted from far below sea level, without disturbing the horizontality of the strata or summit levels... And this happened not once, but many times, since there are several disconformities in the stratigraphic sequences of these sediments, each supposedly representing a period of uplift and erosion followed by subsidence and deposition.⁵¹

Creation scientists argue that such vast areas of flat sedimentary strata instead fit well within the geological framework of the Genesis Flood.

While it is assumed by mainstream modern geologists that these sedimentary strata must have formed over billions of years, creation scientists argue there is evidence that shows the strata were formed much quicker under catastrophic conditions.⁵² One interesting piece of evidence is that, with the present calculated rates of sediment accumulation from the amount of erosion that takes place on the earth due to wind, rainfall, and other erosive processes each year, there is far less sediment on the ocean floors today than would be expected if extrapolated over millions of years.

This, in turn, implies three possibilities: either the proportion of the land area to water area was larger before the Flood; the ocean basins were shallower before the Flood, in contrast to their depth today; or there was a combination of more land area and shallower ocean basins. In any case, there is much evidence now that today's ocean basins are much younger features on the earth's surface than the continents, with only a relatively thin veneer of sediments on the ocean floors. This is consistent with the great tectonic movements and isostatic adjustments having taken place toward the end of the Flood, in order for land to appear again from under the Flood waters and to form ocean basins sufficient to contain them.⁵³

The breaking up of the fountains of the great deep and the immense tectonic movement that eventually followed sediment deposition are thus used as explanations for the deep ocean basins and the appearance of many of the mountains on the earth's surface and in the oceans.⁵⁴ The falling of these ocean basins are also used by some creation scientists to explain where much of the water retreated to after the Flood, since the amount of water needed to cover the mountains by 30 feet cannot be accounted for with the present hydrological system.^{55,56}

⁵¹ Whitcomb and Morris. *Genesis Flood*. 151.

⁵² Snelling. *Earth's Catastrophic Past*. 487-528.

⁵³ Snelling. *Earth's Catastrophic Past*. 473.

⁵⁴ Whitcomb and Morris. *Genesis Flood*. 128.

⁵⁵ Whitcomb and Morris. *Genesis Flood*. 121,122.

⁵⁶ Montgomery. *Rocks Don't Lie*. 55,56,228.

Another argument used by creation scientists in favor of relatively rapid deposition of sedimentary strata is that some of the strata do not show any evidence of the long periods of erosion and deposition assumed by modern mainstream geologists.

Where there has been no erosion at strata boundaries, yet the geological ages assigned to the strata imply the absence of sedimentation and erosion for presumed millions of years, the physical evidence is really only consistent with deposition having been continuous. Thus, the presumed time gaps of millions of years are eliminated, and bringing into question the conventional geologic age dating. Instead, this evidence supports the role of the global Genesis Flood catastrophe in depositing the strata sequences.⁵⁷

Whitcomb and Morris argue that this assumption of erosion is just part of the "neatly packaged system of geologic interpretation"⁵⁸ developed by modern mainstream geologists that allows them to explain away any contradicting or non-existing evidence.

Another phenomenon found within the sedimentary strata is that some portions of strata show very smooth folding. Montgomery argues that Flood geology cannot adequately explain the vast amounts of folding found in the sedimentary strata because sediment would have to be buried to a considerable depth for it not only to be solidified into rock but also be subjected to the high temperature and pressure required to fold it.⁵⁹ Snelling addresses this issue in light of the observed folding:

It is known from experimental evidence that, under severe pressure and moderate temperature conditions, rocks can be made to deform and flow as if they were plastic, similar to modeling clay. However, when that happens, there is also evidence of the rocks being mineralogically and physically transformed, that is, metamorphosed. Nevertheless, many sedimentary strata sequences have not been so metamorphosed, and even though the strata are now brittle, they appear to have only suffered plastic deformation. The only way this could have occurred, without the tell-tale signs of metamorphism, is when the sediments were still soft after deposition, but prior to diagenesis and lithification. Yet even where the strata show compelling evidence of this having occurred, conventional geologic thinking discounts this evidence, because it automatically accepts the millions-of-years geologic timescale for the deposition of the sequences of sedimentary strata and their subsequent deformation. On the other hand, this evidence of soft-sediment deformation is precisely what would be expected if the sedimentary sequences were rapidly deposited and then deformed in the year-long Genesis Flood.⁶⁰

⁵⁷ Snelling. *Earth's Catastrophic Past*. 595.

⁵⁸ Whitcomb and Morris. *Genesis Flood*. 136.

⁵⁹ Montgomery. *Rocks Don't Lie*. 195,196.

⁶⁰ Snelling. *Earth's Catastrophic Past*. 598.

Therefore, creation scientists look to the year-long effects of the continued breaking up of the springs of the great deep and the powerful effects of the abating floodwaters to explain the smooth sediment deformations of what they consider to have been soft sediment layers at the time of deformation.

One major area of contention between creation scientists and modern mainstream geologists involves the timeframe required for sediments to be hardened into rock, a process called *lithification*. For modern mainstream geologists, the process of lithification for these sedimentary strata must have taken millions of years to complete in light of presently observed processes. However, some creation scientists point to evidence given by recent floods of rapidly deposited layers of sediments, which can even contain secondary layers created by underwater landslides called turbidity currents.⁶¹ Geologists have also found that ripple marks and rain drop impressions have been preserved, which have no modern parallel and would almost certainly have been washed away before lithification. Creation scientists believe this suggests that there was rapid lithification of the sediment followed by rapid burial as the strata formed.⁶²

Modern Mainstream Geology's Interpretation of the Sedimentary Strata

In essence, the overall geological theory of modern mainstream geologists is anchored in the belief that any valid theory must be testable according to the present day observations of geologic processes and properties, with catastrophes having occurred where the evidence suggests they have occurred. For this reason, they dismiss the idea of a miraculous global flood since miracles cannot be tested or proven:

Science...is based on testable hypotheses and comprehensible cause and effect relationships. Miracles are excluded because they appeal to something unknown and therefore lead nowhere. Modern young-earth creationists have attempted to overcome this restriction by proposing detailed historical models with some testable predictions to compare with prevailing scientific models. In essence they are trying to pursue a

⁶¹ Parker, Gary. "The Grand Canyon." *Answers in Genesis*. January 1, 1994. Accessed November 27, 2014. <http://answersingenesis.org/geology/grand-canyon-facts/the-grand-canyon/>.

⁶² Snelling. *Earth's Catastrophic Past*. 535,536.

scientific methodology within certain boundaries—those boundaries being the major miracles that are central to their faith.⁶³

Thus modern mainstream geologists demand a divorce between science and miracles because miracles force the observations and data to follow admitted, preconceived, and untestable restrictions.

Therefore, in light of observable and measureable present day processes, modern mainstream geologists see a great amount of evidence supporting the formation of the sedimentary strata over billions of years, with the Cambrian, Carboniferous, and Permian strata having been formed within roughly the last 542 million years.⁶⁴ These specific amounts of time are based on radiometric dating, which will be examined later in this essay. As mentioned above, geologists believe these strata were formed long ago when they were eroded from exposed landscape and deposited on ancient ocean floors. Montgomery provides a good summary of the process and the nature of geological research of sedimentary strata:

Everywhere on Earth is either eroding and losing material or receiving deposits of material eroded off of somewhere else—one geologic realm sheds sediment, the other accumulates it. But the places where each is happening change over time. The most obvious change apparent in the walls of the Grand Canyon is that the marine rocks exposed in it have switched from one domain (deposition) to the other (erosion). Eroded upland environments are not preserved in the rock record because there's nothing left to see—they've vanished. The geologic signature of mountains is recorded by its absence, a gap in the record of time, while the story of our planet and life on it is archived in the sediments of depositional lowlands and marine environments—the places where sediment piles up over geologic time.

Deciphering earth history involves establishing the basic relationships between different rock formations and the nature of the boundaries, or contacts, between them. Two layers of sedimentary rock deposited one atop the other without any discontinuity are considered conformable—they accumulated with minimal interruption. An eroded surface leaves a discontinuity between two rock units, a gap representing missing time that geologists call an unconformity. An unconformity represents how far down erosion wore into an ancient landscape before additional sediment was deposited on top. A whole series of unconformities exposed in the canyon walls tell of multiple rounds of deposition, deformation, and erosion before the whole package of rocks rose from the sea to the level at which we find them eroding today.⁶⁵

⁶³ Heaton, Timothy H. "Recent Developments in Young-Earth Creationist Geology." *Science & Education* 18, no. 10 (October 1, 2009): 1356.

⁶⁴ Grotzinger and Jordan. *Understanding Earth*. 289.

⁶⁵ Montgomery. *Rocks Don't Lie*. 20,21.

In the minds of modern mainstream geologists, earth's history must be incredibly long considering the amount of rock formation, erosion, deposition, and subsequent sedimentary formation that is evident from sedimentary strata all over the world.

Yet another reason most geologists believe that the Cambrian, Carboniferous, and Permian strata were formed over millions of years is the fact that the sandstone beds, such as those seen at the Grand Canyon, could not have been solidified into hard rock beds unless they experienced an incredibly high amount of temperature and pressure,⁶⁶ as mentioned above. Combine this with the different conditions required to form different types of rock, such as the alternating layers of shale, limestone, and sandstone in the Grand Canyon (see Figure 1 in Appendix D), and the modern mainstream geologist has no problem concluding that the Genesis Flood could not have formed the sedimentary strata seen around the world.

A simpler, fatal problem for the creationist interpretation of Grand Canyon geology is that sandstone...and shale form under completely different conditions than limestones...Marine limestone forms when organisms whose bodies are made of calcium carbonate—like coral, clams, or microscopic foraminifera—die. Their shells and skeletons pile up on the seafloor and, if subjected to enough pressure, temperature, and time, eventually form carbonate rock. Because the organisms that become carbonate rocks take time to grow and don't live in turbid waters, the alternating layers of biologically precipitated limestone and mechanically deposited sandstone and shale that settled out from turbid water could not have formed during the same event. The alternating sequence of different rocks types stacked one atop the other in the canyon walls records a long series of events and environments.⁶⁷

The dissimilar marine environments as well as the formation of these strata under presently observed rates lead mainstream geologists reasonably to conclude that they were formed over long periods of time and under different conditions specific to each type of rock. However, it should be noted that Snelling argues ancient limestone differs in a number of ways from the modern lime muds used for comparison to make these conclusions, and he provides examples of rapidly deposited lime muds following catastrophic events such as hurricanes.⁶⁸

The seeming discontinuity between strata does not end with large sedimentary rock layers. In many places throughout the world there are places—sometimes extremely vast

⁶⁶ Montgomery. *Rocks Don't Lie*. 26,94,195.

⁶⁷ Montgomery. *Rocks Don't Lie*. 27.

⁶⁸ Snelling. *Earth's Catastrophic Past*. 493-499.

regions⁶⁹—that show thousands and sometimes millions of separate, much thinner layers of rock. One example is the Green River formation of Colorado, Wyoming, and Utah, with its thin layers of shale, alternating in color and averaging only 1/2000 of a foot in thickness.⁷⁰ Thin and patterned layering is also seen in the Grand Canyon:

The distinctive microrhythm of course to fine, course to fine, course to fine in the walls of the canyon proves how the now rock-solid sediment settled out from a series of flows. The hundreds of thousands, if not millions, of layers of silt could not have settled out and separated from the intervening layers of sand during the passage of a single violent current because turbulence would have resuspended the fine sediment. Individual layers of clay, silt, and sand take a long time to segregate out.⁷¹

With the violent action of water remixing all of the saturated sediment and with only a year to settle out so specifically, it is difficult to see how the Flood could have created such thin, specifically patterned strata. To the modern mainstream geologist, such observations can only be explained by allowing for numerous periods of deposition over an immense amount of time.⁷²

Other interesting phenomena concerning sedimentary strata involve overthrust structures and upside-down strata. A stratum that has been sheered over another stratum after collision is said to be an *overthrust* (see Figure 3 in Appendix F), and this overthrusting apparently can be such a powerful force that a strata can fold over top of itself and appear upside down. These upside-down strata show sediment orientation and burrow holes from small animals that seem to suggest this process of folding and flipping must have taken place.⁷³ Whitcomb and Morris argue against such large-scale, upside-down overthrusting on the basis that it is unreasonable and is often assumed to have taken place even without any evidence simply because the strata appear out of order with the geologic column.⁷⁴ They do, however, acknowledge that smaller-scale overthrusting is evident and argue that these structures were formed when the strata were still soft following sedimentation.⁷⁵

Mainstream geologists will also often point to the incredible correlation of the radiometric ages of the rock layers in the geologic column. As one goes down the geologic

⁶⁹ Montgomery. *Rocks Don't Lie*. 102.

⁷⁰ Whitcomb and Morris. *Genesis Flood*. 424.

⁷¹ Montgomery. *Rocks Don't Lie*. 25.

⁷² Montgomery. *Rocks Don't Lie*. 118,119.

⁷³ Montgomery. *Rocks Don't Lie*. 233,234.

⁷⁴ Whitcomb and Morris. *Genesis Flood*. 180-191.

⁷⁵ Whitcomb and Morris. *Genesis Flood*. 195.

column, the relative radiometric ages of the rocks get older and older.⁷⁶ This not only fits modern mainstream geology's belief in extremely old rock layers, but it also seems to contradict the idea of a global flood since, again, all of the rocks layers in a global flood would have been mixed together and, even if they were laid down one after the other by a global flood, the radiometric ages of the rocks would not have aligned so perfectly by age. On the other hand, creation science will point out that this is assuming the radiometric ages are indeed absolute ages and their alignment by radiometric age is not due to some other outside, unknown cause.

For a mainstream geologist, after all of the strata were laid down, hardened, and then uplifted, the erosive processes would have been able to begin taking their toll on the exposed rock. Specifically for the Grand Canyon, this would have meant the Colorado River could have begun its destructive power of carving a canyon that is up to 6,000 feet deep today.⁷⁷ Such deep erosion by a river into hard rock, even with the apparent help of uplift of the plateau, could not be possible unless the river was afforded a great amount of time. However, this assumes the Colorado River was the cause of the original erosion and not simply a result of some greater, catastrophic force that originally cut through the strata, leaving the river to the cut through the bottom of the canyon after the catastrophe, as creation scientists believe.

Dwarfing even the erosive power of rivers are the forces that created the tilted sedimentary strata found throughout the world. If it is reasonably accepted that sediment settles flat along the bottom of a body of water, what could explain the many strata found tilted at extreme angles, some even lying straight vertical right next to horizontal strata? To help explain this, Montgomery points us to Siccar Point on the east coast of Scotland, a "holy site" for geologists since this is where James Hutton "discovered geologic time."⁷⁸ Siccar Point consists of three different formations of layered sandstone, with two red sandstone formations lying at different extreme angles—one of them vertical—and a white formation of sandstone lying vertical and adjacent to both of them (see Figure 4 in Appendix G). Montgomery summarizes the geographic processes that formed Siccar Point and marvels at the implications:

Although I'm well versed in thinking about geologic time, I still have a hard time grasping how long it must have taken to raise and erode a mountain range, deposit the

⁷⁶ Montgomery. *Rocks Don't Lie*. 29,196.

⁷⁷ Grotzinger and Jordan. *Understanding Earth*. 251.

⁷⁸ Montgomery. *Rocks Don't Lie*. 93.

resulting sand in the sea, fold up the seabed into another mountain range, and then erode it all back into a new ocean. Siccar Point stands as a natural monument to the unimaginable expanse of time required to account for geologic events.⁷⁹

Another such example is the small promontory in Western Australia called the Jack Hills, where geologists have pulverized rock samples and isolated a few zircon grains, one of which was dated to 4.4 billion years ago, the oldest radiometric date yet known for a grain of the earth's crust.⁸⁰ A combination of these tilted sedimentary beds and radiometric dating confirms the immense age of the earth for modern mainstream geologists.

While most of the present day processes help mainstream geologists explain geologic phenomena over vast periods of time, geologists today do acknowledge that great catastrophes have indeed happened in the past. Even when speaking of the Grand Canyon, Montgomery states:

Although the Great Flood did not carve the canyon itself, there is evidence of grand floods within it. Breaching of cooled lava dams that impounded the [Colorado River] may have launched catastrophic floods down through the canyon. One of these natural dams was over two thousand feet tall. Flood deposits found within the canyon include huge boulders perched hundreds of feet above the river. No doubt a flood capable of stranding boulders so high on the canyon walls would have been spectacular—had anyone been around to see them.⁸¹

In light of evidence such as this in regions around the world for great, local floods, for much of his book Montgomery argues that mythological flood stories do seem to originate from actual floods. However he believes these floods could only have been local and are assigned religious meaning by the local culture, sometimes eventually being exaggerated to grand scales and borrowed by neighboring or later cultures. He believes this is what happened with the Genesis Flood since geologists in recent years have found evidence of a large flood occurring in the Black Sea region, which is where many of the ancient flood stories have originated.^{82,83}

⁷⁹ Montgomery. *Rocks Don't Lie*. 96.

⁸⁰ Grotzinger and Jordan. *Understanding Earth*. 207,208.

⁸¹ Montgomery. *Rocks Don't Lie*. 28.

⁸² Montgomery. *Rocks Don't Lie*. 5-7,119,147,210-223,248,249.

⁸³ Ryan and Pitman. *Noah's Flood*.

The Fossil Record

Very closely tied with the sedimentary strata is the fossil record. Combined with the sedimentary strata, the fossil record provides a great deal of insight with which to analyze the rock layers where fossils are entombed. Within modern mainstream geology the Theory of Evolution is assumed to be true, and therefore the fossil record is used in conjunction with the sedimentary strata and radiometric dating to form the basis of the theory of deep geologic time. Since fossil anatomy tends to be outside the realm of geology, geologists have leaned on the expertise of biologists to analyze, categorize, and reconstruct the fossils found in the rocks. Geologists then utilize this information to analyze more fully the history and possible formation of the stratigraphic record.

Geologists and biologists have a very good reason for analyzing the fossil record in relation to the stratigraphic record. One observation that cannot be denied is the incredible order with which the fossils were deposited in relation to the stratigraphic column. Going from the lower strata to the upper strata, the fossils entombed in each layer show a number of patterns:

There is a distinctive order of first appearance of the fossils of the various groups of animals and plants in the rock record... This pattern holds true at the lower taxonomic levels of genus and species as well... We observe that fossilized bacteria and algae appear first in the rock record, followed by soft-bodied metazoan fossils, and then invertebrate animal fossils, while fossils of the more structurally complex types appear in successively higher strata in the rock record. It has been noted earlier that this same pattern of fossil occurrence occurs also on a more localized scale, as in the example given of the Grand Canyon-Bryce Canyon area, which reinforces the reality that the geologic column's fossil sequence can be verified and confirmed at the local and regional scale...

Another pattern that should be noted is that there is the ever-increasing percentage of extinct groups as one goes further back in the fossil record. When the stratigraphic distribution of the major groups of animals and plants in the fossil record is examined, including the distribution of extant and extinct forms, it is obvious that the groups of animals and plants that live today are common as fossils only in Pleistocene and upper Tertiary strata. Commonly, groups lower in the rock record tend not to be found higher in the record...

Yet another general trend evident in the fossil record... pertains to the environments in which the fossilized plants and animals presumably lived. Most fossils found in Paleozoic rock sequences, especially in lower Paleozoic strata, represent organisms that lived in marine environments. The fossils found in the Mesozoic, on the other hand, are a mixture of organisms that lived in marine and terrestrial environments. By contrast, the fossils found in the Cenozoic represent organisms that lived mostly in terrestrial environments.

A high percentage of fossils in the Paleozoic rock sequences are in extinct groups, while the percentage of modern groups increases strongly towards the upper part of the fossil record. This predominance of fossils in Paleozoic strata that represent organisms that lived in marine environments is also reflected in the dominant rock types. Limestone is abundant in Paleozoic rock sequences, while the amount of it decreases higher in the geologic column, with very little limestone being formed today.⁸⁴

Thus geologists and biologists see general patterns of marine to terrestrial, extinct to not extinct, simpler to more complex within the fossil record that also correlates well with the rock types found in the stratigraphic column as one travels up the column (see Figures 2, 5, and 6 in Appendices E, H, and I, respectively).

The close relationship of the fossil record to the sedimentary rock layers cannot be overstated. In modern mainstream analysis, quite often the age of a fossil found within a certain stratum will be determined by the accepted age of the rock layer in which it is found. Likewise, the age of a stratum is often determined by the types of fossils it contains, with frequent use of what are called "index fossils," that is, fossils that always seem to appear within the same stratum or strata.⁸⁵ It is vital, therefore, to look at the data and observations made from the fossils themselves as well as those from the relationship of the fossils to the strata. Since an exhaustive presentation of all of the facts and data associated with the fossil record is beyond the scope of this essay, this portion of the essay will present creation science's strongest arguments as well as their rebuttals to a few common claims from mainstream geologists and biologists concerning the fossil record.

Creation Science's Interpretation of the Fossil Record

First and foremost, even though it may be obvious to the reader, it should be stated that mainstream scientists' use of the fossil record and its correlation with the stratigraphic column to justify the Theory of Evolution is staunchly opposed by creation scientists.

While it is generally true that this pattern of occurrence in the fossil record fulfills the expectations of the evolutionary theory for the supposed development of life, this should not surprise us nor prompt us to deny that this pattern exists. It is important to recognize

⁸⁴ Snelling. *Earth's Catastrophic Past*. 353-355.

⁸⁵ Fowler, Thomas B., and Daniel Kuebler. *The Evolution Controversy: A Survey of Competing Theories*. Grand Rapids, Mich.: Baker Academic, 2007. 88.

that the correlation between evolutionary theory and the fossil record occurs in large part because evolutionary theory has been crafted to include and reflect the order of first appearance actually observed in the fossil record. That is, the assumption has been applied that the observed order in the fossil record must logically be the order of evolutionary development. Our challenge, however, is to seek a better and more robust explanation for these observational data within a biblical geologic model for earth history based on the scriptural details of creation and the Flood.⁸⁶

On the basis of their faith in Scripture as the Word of God, creation scientists assert that the Theory of Evolution is accepted as fact largely because of mainstream scientists' assumption of deep geologic time in the stratigraphic record and its assumed connection to the fossil record.

Perhaps the greatest argument in favor of creation science when analyzing the fossil record is the sheer amount of fossils that have been entombed within the sedimentary strata. Fossilization is essentially the lithification—conversion into stone—of the remains of plants and animals.⁸⁷ While much about the mechanisms and timescales involved in fossilization remain uncertain,⁸⁸ the formation of such a vast amount of fossils in each layer is remarkable considering the special conditions required for fossil formation and the fact that no tremendous fossiliferous beds are being formed today.⁸⁹

Never does one find, in the present era, great "graveyards" of organisms buried together and waiting fossilization. But this is exactly the sort of thing that is encountered in the fossil deposits in many, many places around the world... It is not easy to imagine any kind of "uniform" process by which this conglomeration of modern and extinct fishes, birds, reptiles, mammals, insects and plants could have been piled together and preserved for posterity. Fish, no less than other creatures, do not naturally become entombed like this but are usually quickly devoured by other fish after dying.⁹⁰

The hard parts of an organism must be able to survive the many ways in which it can be decomposed, and therefore it is reasonably assumed that the organism must be covered rapidly by sediment in order to experience fossilization.⁹¹ For creation scientists, such rapid burial, as well as such vast varieties of species being entombed,⁹² fit in quite well with the conditions brought on by the Genesis Flood.

⁸⁶ Snelling. *Earth's Catastrophic Past*. 353-354.

⁸⁷ Fowler and Kuebler. *Evolution Controversy*. 213.

⁸⁸ Fowler and Kuebler. *Evolution Controversy*. 214.

⁸⁹ Snelling. *Earth's Catastrophic Past*. 531,536.

⁹⁰ Whitcomb and Morris. *Genesis Flood*. 156-157.

⁹¹ Snelling. *Earth's Catastrophic Past*. 531,536.

⁹² Whitcomb and Morris. *Genesis Flood*. 123.

If the Genesis Flood was indeed rapid and violent enough to bury so many animals, how does one explain the incredible order of the rock types and the general patterns found within the fossil record? Creation scientists often explain these phenomena by arguing for the successive burial of different ecological zones as the floodwaters continued to increase. This succession, they argue, would naturally have led to the marine-to-terrestrial pattern as well as the less complex organism to more complex organism pattern found within the stratigraphic column.⁹³ As the floodwaters carried vast amounts of sediments from the land into the bodies of water, marine animals would naturally have been entombed first, with the progressive burial of environments that became more and more terrestrial in nature. Thus, as the more complex land animals ran to higher ground to escape the floodwaters, the amphibian, reptilian, and less complex terrestrial animals would have been successively buried as their native environments and the types of rocks found in those environments were deposited in layers. It should be noted, however, that the pattern of the organisms from less complex to more complex has many exceptions.⁹⁴ See Figure 7 in Appendix J for one creationist model concerning the patterns found within the sedimentary strata and the fossil record.

There are also major gaps in the pattern of the fossil record that creation scientists will often point out in an attempt to show the inconsistencies of mainstream science's theories concerning evolution. One such gap is just before the so-called "Cambrian Explosion" where three billion years separated the evolution of single-celled organisms into the vast complex forms of life that suddenly appeared within the fossil record in the Cambrian stratum⁹⁵—a gap that comprises nine-tenths of the evolutionary chain.⁹⁶ While mainstream scientists do acknowledge these gaps and believe these gaps will eventually be closed with further discovery,^{97,98} "neat sequential progressions delineating the orderly gradual transition of one species into another

⁹³ Whitcomb and Morris. *Genesis Flood*. 275.

⁹⁴ "Increase in body size is very common... The phenomenon is perhaps sufficiently usual to be a rule, but the rule has many exceptions. Even in the horse family, several evolving lines became smaller rather than larger. The apparent extent of this rule has been exaggerated by students who thought it absolute and who insisted that because an earlier animal was larger than a later relative therefore it was not ancestral to the latter." George Gaylord Simpson as quoted by Whitcomb and Morris. *Genesis Flood*. 285.

⁹⁵ Gish, Duane T. *Evolution, The Challenge of the Fossil Record*. San Diego, Calif.: Creation-Life Publishers, 1985. 55.

⁹⁶ Whitcomb and Morris. *Genesis Flood*. 272.

⁹⁷ Fowler and Kuebler. *Evolution Controversy*. 86.

⁹⁸ "Even staunch Darwinist Ernst Mayr agreed on this point regarding the presence of gaps in the fossil record, writing in his last book that 'the fossil record is one of discontinuities.'" Fowler and Kuebler. *Evolution Controversy*. 86.

species are relatively rare."⁹⁹ Even the accepted progressions and transitions are questioned by creationists,¹⁰⁰ to the point where Morris states that evolution is "purely a belief system."¹⁰¹

It is also significant that the fossil forms actually found within the strata remain stable for relatively long periods of time within the fossil record.

One of the most popular college textbooks on evolution puts it this way: "Perhaps the most prominent pattern in the history of life is that new morphospecies appear in the fossil record suddenly and then persist for millions of years without apparent change." Stasis is the rule rather than the exception. In fact, the stability of fossil forms is a valuable tool for biostratigraphers who date rocks for the purpose of locating oil and minerals. Because fossil forms are stable, biostratigraphers date rocks by identifying a particular index fossil that is always found in a certain rock layer. They do not date rocks by looking for stages of evolution in specific species because these stages are more difficult to identify and are often absent.¹⁰²

Many scientists believe the seeming appearance of stable fossil forms does not take into account that soft tissues might be changing within these long time periods, "but the raw observational data are that most of the traits appearing in the fossil record are stable over vast expanses of time (millions of years)."¹⁰³ Thus, this stability of fossil forms compounds the problem of these missing links or transitions in the fossil record and may lend itself more to the creationist argument that the fossil record does not support the Theory of Evolution.

In between these stable fossil forms, mainstream scientists have discovered what they believe to be at least five mass extinction events in earth's history.

Since the evolution of life on land, several events have killed off over half of all animal species. Every school kid learns that dinosaurs died off and mammals began rising 65 million years ago during the great Cretaceous-Tertiary extinction event. The less well-known, but far deadlier, Permian-Triassic extinction event 251 million years ago killed off almost all of the animal species on Earth, ending the age of trilobites and setting up the rise of dinosaurs. More recently, the last glaciation of the Quaternary Period (the so-called ice age of the past several million years) saw the demise of mega-fauna, like mammoths, and ushered in a modern world increasingly dominated by people.¹⁰⁴

⁹⁹ Fowler and Kuebler. *Evolution Controversy*. 88.

¹⁰⁰ Fowler and Kuebler. *Evolution Controversy*. 87. Gish. *Evolution*. 76-117.

¹⁰¹ Morris, Henry M., and Gary Parker. *What Is Creation Science?* Rev. and Expanded. ed. El Cajon, CA: Master Books, 1987. 27.

¹⁰² Fowler and Kuebler. *Evolution Controversy*. 88.

¹⁰³ Fowler and Kuebler. *Evolution Controversy*. 88.

¹⁰⁴ Montgomery. *Rocks Don't Lie*. 90-91.

While these extinctions seem to contradict the purpose of Noah building an ark to preserve these animals,¹⁰⁵ creation scientists often point out that a species does not necessarily equal what is called a "kind" in the book of Genesis, as was mentioned earlier in this essay. They also argue that just because a species no longer appears in the sedimentary strata above a particular layer does not mean that species did not continue to live on. Their dead bodies could have been decomposed before rapid burial and fossilization could occur, and thus they would not have left behind any further evidence in the fossil record. For these reasons, along with the fact that these mass extinction events seemed to have affected organisms of almost all kinds and environments,¹⁰⁶ creation scientists believe such mass extinctions could also show support for the devastating effects of the Genesis Flood.

Perhaps the most well-known extinct animals found in the stratigraphic column are those mentioned in the quote above: dinosaurs. The sudden extinction of these diverse animals has been a mystery for paleontologists, one which they know "will probably never be solved."¹⁰⁷ However, the sudden disappearance of the dinosaurs from the fossil record is not difficult to explain for the creation scientist who holds to the Genesis Flood. The great dinosaur graveyards that have been found—apparently as a result of catastrophic action that was possibly even brought on by water¹⁰⁸—fit well within the framework of a sudden, global, catastrophic flood.¹⁰⁹ Many creation scientists even speculate that younger, smaller dinosaurs were aboard the ark, and that these species eventually died out either by post-Flood climate change or some other unknown reason without leaving behind any additional fossils.¹¹⁰ They also point out that this is supported historically by the existence of ancient stories of dragons and great sea creatures,^{111,112} an idea they believe is even supported by Scripture (e.g., Job 40:15-41:34, Ps 74:13, Isa 27:1).

¹⁰⁵ As Montgomery states, "If all the creatures buried in that mile-high wall of rock (the Grand Canyon) had been put there by the biblical flood, then why aren't modern animals entombed among them? That the vast majority of fossils are extinct species presents a fundamental problem for anyone trying to argue that fossils were deposited by a flood from which Noah saved a pair of every living thing." Montgomery. *Rocks Don't Lie*. 27.

¹⁰⁶ Snelling. *Earth's Catastrophic Past*. 357.

¹⁰⁷ Whitcomb and Morris. *Genesis Flood*. 280.

¹⁰⁸ Whitcomb and Morris. *Genesis Flood*. 280.

¹⁰⁹ Whitcomb and Morris. *Genesis Flood*. 280,281.

¹¹⁰ Whitcomb and Morris. *Genesis Flood*. 280.

¹¹¹ Whitcomb and Morris. *Genesis Flood*. 280.

¹¹² Ham, Ken. *The Great Dinosaur Mystery Solved!* Green Forest, AR: Master Books, 2000. 33-52.

Another fossil type that is commonly used to argue for deep geologic time is the coral reef.

Fossilized coral reefs really provide the nail in the coffin for flood geology. Whitcomb and Morris explain fossil reefs found in the geologic record as ripped up and deposited along with everything during the Flood. But if you actually go out and look at ancient reefs, as I did at my graduate field camp, you find that they are not composed of randomized chunks mixed up in the chaotic detritus of a violent deluge. Instead you generally find a massive limestone core, sometimes with delicate corals still in growth position. Whole reefs are preserved along with the associated lagoons, fore-reef and back-reef zones, and open-water marine environments right where you'd expect to find them in relation to one another in a modern reef. Preserving the spatial arrangement of different parts of a coral reef while ripping it to pieces and flinging them around the globe presents a logical absurdity.¹¹³

However, Snelling argues that many so-called fossil reefs "are not coral framework structures that we are familiar with today." He also states,

Many fossil-bearing limestone deposits that once were interpreted as "fossil reefs" have been reinterpreted as debris flows (thick slurries of broken rock and sediments mixed with water resulting from underwater landslides) or other geologic structures that resulted from erosion, not creatures living on reefs... These misidentified "fossil reefs" thus are reefs that grew before the Flood but were eroded, fragmented, and carried by debris flows. These fragments were then deposited as large chunks of rock mixed with finer sediment debris (megabreccias) or are simply piles of broken shells and other body fragments that were later cemented together by lime muds. In other cases, former reefs have been transported and buried elsewhere en masse. Therefore, no long time periods were required for any reefs to grow in place during the short span of the Flood.¹¹⁴

It is also argued by mainstream scientists that present day living coral reefs, such as the Great Barrier Reef, are simply too large to have been formed in the past few thousand years, but Whitcomb and Morris argue that present day living coral reefs could certainly be formed within that timespan at the presently observed rates of growth.¹¹⁵ Thus, for creation scientists, fossilized reefs as well as present day reefs still fit well within the framework of the Genesis Flood.

¹¹³ Montgomery. *Rocks Don't Lie*. 234.

¹¹⁴ Snelling, Andrew. "Ancient Fossil Reefs-Formed in the Flood?" *Answers in Genesis*. December 11, 2012. Accessed February 2, 2015. <https://answersingenesis.org/fossils/how-are-fossils-formed/ancient-fossil-reefs-formed-in-the-flood/>.

¹¹⁵ Whitcomb and Morris. *Genesis Flood*. 408,409.

Any theory that wants to account for the fossil record must also account for the vast amounts of coal, oil, and natural gas found within the sedimentary strata. Creation scientists have challenged the conventional belief that such natural resources require millions of years to be deposited and formed. Coal beds in particular are said to be formed from ancient peat swamps.¹¹⁶ Speaking specifically of coal beds, Snelling argues,

The conventional uniformitarian peat swamp model does not easily explain how coal beds are so widespread across adjoining continents and so often interbedded with sediments containing marine fossils, even within the coal beds themselves. The uniformitarian explanation requires the impossible scenario of vast peat swamps sinking and being invaded by the sea, remaining buried until the land rises again to form new peat swamps, with this process being repeated many times in succession in order to generate the so-called cyclothems and coal measure sequences. Thus, with its 80 stacked coal beds, the Illinois Basin would require 80 cycles of peat swamps being invaded by the sea and then the land rising again! The actual field evidence is far more consistent with repeated sediment deposition cycles, in which various portions of the broken-up floating vegetative mat on the Flood waters were buried to become the coal beds, sometimes with the upright tree stumps buried with them. Once the vegetative debris was buried, it was easily and rapidly transformed into coal, as numerous experiments at easily obtainable low geological temperatures have shown.¹¹⁷

Thus, creation scientists believe the formation of coal and other fossil-fuel resources could be explained by the Genesis Flood if the rate of formation of these resources is understood to be far more rapid than is commonly accepted by the mainstream community.¹¹⁸ In support of more rapid formation are the many upright tree stumps commonly found within these coal beds, as mentioned by Snelling in the quote above. Mainstream geologists believe these trees took long periods of time to grow in place, however creation scientists argue the fact that the trees' roots have been broken off as well as the fact that the trees and vegetation associated with these coal beds have not been found in present day peat swamps also fit well with their formation during the Genesis Flood.¹¹⁹

¹¹⁶ Grotzinger and Jordan. *Understanding Earth*. 634-635.

¹¹⁷ Snelling. *Earth's Catastrophic Past*. 960.

¹¹⁸ For similar arguments from Snelling concerning oil formation, see *Earth's Catastrophic Past*. 965-976.

¹¹⁹ Snelling. *Earth's Catastrophic Past*. 959.

Evaluation of Creation Science's Interpretation of the Fossil Record

The fossil record certainly presents some challenges for creation science. That there are so many fossils buried in the sedimentary strata all over the world does indeed support Flood theory, but the incredible order and general patterns found within the fossil record as one travels up the stratigraphic column might be too much to overcome with the concept of successive burial of different ecological zones. Add to this that biologists believe 99.9% of all species have become extinct over the course of earth's history,¹²⁰ and one could understand why the Theory of Evolution is so convincing for mainstream scientists. However, it should be noted that it is uncertain if this figure includes the undiscovered nine-tenths gap between the Pre-Cambrian and Cambrian strata. If it indeed does, then this statistic loses much of its weight. In any case, it is still significant that the vast majority of fossils found today are believed to be extinct,¹²¹ with the percentage of extinct fossils decreasing as one travels up the geologic column.¹²²

Yet the pattern of marine to terrestrial found in the fossil record and the geologic column is indeed striking. At first glance, this might seem to support the theory that life transitioned from the waters to the land as mainstream scientists believe.¹²³ However, isn't this just the pattern one would expect to occur in the Genesis Flood as well? When we think of the inundation of the earth by the floodwaters we often assume it happened quite rapidly, almost instantly. But the Genesis account tells us the floodwaters rose for forty days after the springs of the great deep burst open until the waters rose above the mountains and all life on earth perished, with the water level being maintained for another 110 days (Ge 6:17-24; see Appendix B). From a biblical perspective, it is certainly possible at the very least that an ecological differentiation could have occurred as the floodwaters inundated new territories over the first 40 days. The sudden loss of amphibian and reptile tracks as well as the correlation of the increase in reptile body fossils to the decrease in amphibian body fossils from the Triassic to Cretaceous strata in the stratigraphic column could give support to such ecological differentiation (see Figure 8a in Appendix K).

¹²⁰ Fowler and Kuebler. *Evolution Controversy*. 84.

¹²¹ Montgomery. *Rocks Don't Lie*. 27.

¹²² Montgomery. *Rocks Don't Lie*. 24.

¹²³ See table in Fowler and Kuebler. *Evolution Controversy*. 85.

This could also be true for the pattern of percentage of extinction. Even from a scriptural perspective, it could make sense that more extinct species would be found in the lower strata. Those would be the animals—especially in the marine areas—where there would be a far greater chance of submersion by the initial runoff and deposition of sediment by the floodwaters. The animals that survived in the upper strata were more complex and therefore had a higher mobility on land, not to mention that two of every kind of *land* animal was preserved in the ark (Ge 6:19-20,7:21-23). However, this theory of ecological differentiation seen in the geologic column should be taken for what it is: a highly speculative theory that would possibly necessitate a deliberate attempt on the part of God to deposit the strata and fossil record with incredible order, something that is not explicitly stated in Scripture.¹²⁴

Some Christians have attempted to reconcile the fossil record with Scripture in another way, believing that God created the fossils within the sedimentary strata during the six days of creation. While it cannot explicitly be concluded that God did not create the fossils within the six days of creation, it seems extremely unlikely. Since fossils are the lithified remains of dead organisms, and if it is understood from Scripture that death is a result of sin entering the world through Adam and Eve (Ro 5:12,6:23), and if it is also understood that this sin subsequently affected all living organisms on the earth (Ro 8:20-22), then it can be reasonably assumed that a creation of the fossil record within the sedimentary layers during the six days of creation would have contradicted God's creation of a perfect world. Some also argue that God could have created fossils as a judgment on the unbelief of future generations of human beings. However, if God intended to create a perfect world without sin, a world he saw as "very good" in his eyes (Ge 1:31), the idea that he would preemptively create fossils within the sedimentary strata as a judgment against future generations of human beings would seem to contradict the understanding that he desired to create the world as a blessing for the crown of his creation, humankind. Though it should be noted that if in any way these assumptions are incorrect, then any theory that holds that the Genesis Flood created the fossil record comes into serious question and may invalidate it altogether.

¹²⁴ Though it is highly speculative, if these patterns were indeed a result of the Genesis Flood it is interesting to consider that even in an event as chaotic as the flooding of the entire earth God still managed to destroy all life in an orderly manner (see 1 Co 14:33).

It is the loss of this perfect creation that had drastic effects on everything within creation, effects that we cannot fully comprehend. Since the fall into sin, so much within the lives of animals has been engineered to avoid death that we cannot possibly understand how such subsequent necessary adaptation could have changed what we know about life and nature. It is very possible that what we consider to be the microevolution (minor adaptation within the "kinds") of animals was directly a result of death entering the world, and thus we would have no possible means of accurately analyzing the difference between the anatomy and development of animals at creation and the anatomy and development of animals in the present day. Sin entering the world was undoubtedly the greatest disaster within nature this world and its inhabitants has ever seen, and the consequences of such a worldwide effect are more than we can possibly know, consequences that could have even been compounded by the Flood as evidenced by the drastic drop in human lifespans (see Appendix C). Thus, from what can be observed of the fossil record and what can be gleaned from Scripture concerning the effects that death has had on this world, it seems that any analysis of the fossil record will fall short of being truly accurate.

Radiometric Dating

One of the main tools used by modern mainstream geologists for evaluating and dating the rock record of the earth is *radiometric dating*, also called *radioactive dating*. When human reason in light of the present day rate of geologic processes was left to conclude that geologic phenomena must have developed over an immense period of time, the discovery of radioactivity and radiometric dating provided a means of collecting tangible evidence to determine an otherwise impossible-to-determine age of the rocks and ultimately the earth. Radiometric dating is widely accepted by modern mainstream geologists as a way to calculate a rough but accurate approximation of the age of rocks as well as carbon-containing material. To acquaint the reader with this important geological tool, a brief overview of the concept behind radiometric dating methods is provided in the following section. Please note: the following description is the accepted and trusted view of modern mainstream geology.

The goal of radiometric dating is essentially to measure the amount of spontaneous decay that has transformed one atom into another atom in a particular substance, such as rock. The

original atom is a radioactive isotope of a particular element and is called the *parent atom*. The atom that has resulted from the decay is called the *daughter atom*. For example, a common isotope used for radiometric dating is rubidium-87, which spontaneously emits an electron and is transformed into strontium-87 (see Figure 9 in Appendix L). Scientists are able to measure the amounts of parent atoms and daughter atoms in a particular substance by using a mass spectrometer. Since the rate of decay for an isotope is constant, they are able to determine the isotope's half-life, the time required for one-half the original parent atoms to be transformed into daughter atoms (see Figure 10 in Appendix L). Comparing a substance's ratio of parent atoms to daughter atoms to the known half-life of the isotope allows geologists to determine the amount of time that has elapsed since the rock was formed.

What if the amount of the daughter atom was not zero at the time the rock was formed? In order to address this issue, scientists use other elements in the substance that are known not to be the product of any other radioactive decay and known not to decay themselves. For example, while strontium-87 is the product of the radioactive decay of rubidium-87, strontium-86 is not radioactive and is not formed by any other radioactive decay. Scientists are then able to use the amount of these stable isotopes of a particular element to determine the original amount of the atom and thus the age of the rock.

However, there are difficulties that can arise from determining the age of a substance from radiometric dating methods other than the difficulty of determining the original amount of a daughter atom. As one geology textbook points out:

Many other complications make isotopic dating a tricky business. A mineral can lose daughter isotopes by weathering or be contaminated by fluids circulating in the rock. Metamorphism of igneous rocks can reset the isotopic age of minerals in those rocks to a date much later than their crystallization age.¹²⁵

Therefore a geologist will need to analyze carefully any rock layer that may have been influenced by any of these possible external factors. For this reason, geologists tend to favor more reliable isotopic calculations, such as the two related isotopes of uranium-238 (which decays to lead-206) and uranium-235 (which decays to lead-207) since "together they provide a

¹²⁵ Grotzinger and Jordan. *Understanding Earth*. 204.

consistency check that helps geologists compensate for the problems of weathering, contamination, and metamorphism."¹²⁶

The most commonly-known radiometric dating method is carbon dating. Carbon dating measures the amount of parent carbon-14 versus the amount of daughter carbon-12. Since plants, for example, continuously incorporate carbon into their tissues while they are living, the ratio of carbon-14 to carbon-12 at the time the plant dies is identical to the ratio found in the atmosphere. By measuring the ratio of carbon-14 to carbon-12 of a dead plant and comparing it to the known ratio in the atmosphere scientists are able to determine the time the plant died. The half-life of carbon-14 is quite short by comparison with rock, so it is estimated that the reliability of carbon dating is restricted to a few tens of thousands of years in the past.¹²⁷

Creation Science's View of Radiometric Dating

While radiometric dating can be a reliable tool for geologists when used to compare different rocks and rock layers, many scientists have expressed concerns over its reliability in determining true age. The issue is usually focused on the "critical assumptions" made when using radiometric dating methods. These critical assumptions are summarized and evaluated by Snelling:

It should be evident that the calculation of the "age" of a rock or mineral...requires three critical assumptions:

1. The number of atoms of the daughter isotope originally in the rock or mineral when it crystallized can be known. In other words, it is assumed that we can know the initial conditions when the rock or mineral formed. In the potassium-argon method it is usually assumed that there was originally no daughter argon; therefore, all the argon measured in the rock or mineral derived by radioactive decay from *in situ* parent potassium.
2. The numbers of atoms of the parent and daughter isotopes have not been altered since the rock or mineral crystallized, except by radioactive decay. In other words, it is assumed that the rock or mineral remained closed to loss or gain of the parent and/or daughter isotopes since crystallization.

¹²⁶ Grotzinger and Jordan. *Understanding Earth*. 206.

¹²⁷ Grotzinger and Jordan. *Understanding Earth*. 206.

3. The rate of decay of the parent isotope is known accurately, and has not changed during the existence of the rock or mineral since it crystallized.

These assumptions require careful evaluation for each rock or mineral being dated, and obviously impose certain restraints in the interpretation of the resultant calculated "ages." Indeed, these assumptions simply cannot be proven, because, when most rocks or minerals crystallized, no human observers were present to determine the original numbers of atoms of the daughter isotopes. Nor were human observers present throughout the histories of most rocks and minerals to determine whether the rocks and minerals have remained closed to loss or gain of parent and/or daughter isotopes, and if the rates of radioactive decay of the parent isotopes have not changed. Thus, it logically follows that these assumptions are, strictly speaking, not provable. It is often claimed that it is obvious where assumption two has failed, because anomalous results are obtained, that is, results not in agreement with the expected "ages." Otherwise, the calculated "ages" are often what are expected, and so the methods are confidently accepted as valid. Of course, this is uniformitarianism in the extreme, because it is assumed that decay rates measured in the present (over the past century) have been constant for millions and billions of years, an extrapolation of up to seven orders of magnitude!¹²⁸

Snelling also questions the reliability of the use of stable isotopes, such as strontium-86 mentioned above, to determine the original amount of daughter atoms of a particular radioactive isotope. This also includes untestable assumptions concerning the formation of the different mineral grains within a rock.¹²⁹

These critical assumptions are also a major concern of creation scientists when it comes to carbon dating. The assumption that the ratio of carbon-14 to carbon-12 in the atmosphere has always remained constant is the basis of the radiocarbon dating method. Since there is no way one can know this ratio in the past, creation scientists question the reliability of carbon dating beyond roughly 5,000 years based on estimated corrections to the assumption.¹³⁰

The development and acceptance of uniformitarian ideas in the geological community have also had a profound effect on geologists' trust in radiometric dating. Since these ideas have been taught in schools as trustworthy for such a long time, creation scientists often point out that

¹²⁸ Snelling. *Earth's Catastrophic Past*. 800,801.

¹²⁹ Snelling. *Earth's Catastrophic Past*. 801. See p.803-843 for a look at the specific concerns of certain radioactive dating methods.

¹³⁰ Riddle, Mike. "Doesn't Carbon-14 Dating Disprove the Bible?" *Answers in Genesis*. September 20, 2007. Accessed October 16, 2014. <https://answersingenesis.org/geology/carbon-14/doesnt-carbon-14-dating-disprove-the-bible/>.

modern mainstream geologists tend to pick and choose data that fits their preconceived biases or theories. Snelling relates an interesting story:

C14 dating was being discussed at a symposium on the pre-history of the Nile Valley. A famous American colleague, Professor Brew, briefly summarized a common attitude among archaeologists towards it, as follows:

"If a C14 date supports our theories, we put it in the main text. If it does not entirely contradict them, we put it in a foot-note. And if it is completely 'out of date,' we just drop it."¹³¹

However, it should be noted that this is simply one story related by Snelling and is not the procedure of all mainstream scientists.

Evaluation of Radiometric Dating

The concerns of creation scientists over radiometric dating are valid concerns. An assumption of a constant rate over such a long period of time seems scientifically and historically unwise considering the evidence of geologic and biological catastrophes in the past shown in the rocks themselves. For a scientist who believes the earth is billions of years old and therefore has little problem viewing external effects on rock and carbon-containing material generally as constant over that time, it is easy to slip into the opinion that these radiometric calculations are good approximations, especially with very few methods available that are able to give numerical dates from tangible evidence. However, with the numerous and incredibly complex processes that are at work in this world geologically, biologically, chemically, etc., all interacting with each other throughout the history of this earth—not to mention the effects of the catastrophes that have happened in the past—it would seem a bit naïve to assume anything was so constant over such a long period of time when we human beings cannot possibly comprehend such a timespan.

The same concerns can be valid specifically for the assumptions involved with carbon dating. Snelling offers a number of possible factors that could have contributed to a change in the carbon in the atmosphere following the Flood, including the number animals containing carbon being buried in the sedimentary strata, a change in the earth's magnetic field, and even the

¹³¹ Snelling, *Earth's Catastrophic Past*. 90.

presence of high levels of crustal neutrons as a result of the Flood,¹³² though most of his possibilities are highly speculative. For Christians who hold the Flood as a historical event, the possible altering of the atmosphere and the resulting change in the carbon-14 to carbon-12 ratios may also have contributed to the loss of significant health benefits following the Flood, which is evidenced by the sharp drop in human lifespans in the post-Flood world (See Appendix C).

Even if the radiometric dates of rocks are indeed "true ages," this may not contradict the biblical view of creation since the earth as it was created would have certainly had the appearance of age. In the way we humans perceive "age," the original rocks and even vegetation would have been miraculously and instantly created as if they looked like they had been formed or grown over many years. That is exactly the miracle of the creation account. Therefore, while we Christians do have issues with many of the radiocarbon dates calculated by geologists and biologists, many of the incredibly old radiometric dates of rocks actually may not conflict with a scriptural view of geology.

Overall Evaluation of Modern Mainstream Geology

Modern mainstream geology has certainly evolved into an impressive field of scientific study. With the methods available to them and following the observations they have made from the physical world, their arguments are scientifically quite sound. By what we can observe in nature, without any other revelation, one can see why they believe the things they believe about the earth. These are not unintelligent people by any means. Geologists are quite gifted and correctly follow their reason in many ways. One might even be able to say that if we had their preconceptions we would come to the same conclusions with such a careful study of the world.

However, that is precisely the issue that separates modern mainstream geologists from creation scientists: their preconceptions. The way a person interprets the world around them may cause them to see and analyze observations differently than someone else, even if both are observing the same piece of evidence. Modern mainstream geologists are not immune to preconceptions, as they will readily admit.¹³³ In fact, for mainstream geologists, preconceptions

¹³² Snelling. *Earth's Catastrophic Past*. 861-863.

¹³³ Montgomery. *Rocks Don't Lie*. 80.

concerning the natural world are what drive them to come to the conclusions that they do. Preconceptions such as a denial of any possibility of the supernatural, the acceptance of the Theory of Evolution, and the concept of deep geologic time lead them to believe a global flood could not have happened in earth's past.

The foundation of all of these preconceptions is the elevation of human reason above all other sources of truth. Human reason is a gracious and blessed gift from God. It allows us to make wise and beneficial choices, analyze the world around us, and leads us to develop many scientific blessings such as medical advances, technological advances, etc. While human reason can err and itself be subject to biases, the problem is not human reason. The problem is how we human beings view our human reason. For the modern mainstream geologist, the view that human reason is "humanity's greatest asset"¹³⁴ is what has led many people away from the revealed knowledge of God in Scripture and the supernatural events it relates and supernatural promises it gives to us. This type of elevation of human reason is what causes them to demand observable scientific explanations before they even begin to consider whether any theory is believable or not.¹³⁵

It is obvious from some mainstream geologist literature that many modern mainstream geologists do not see the events recorded in the Bible as anything more than mythological fantasies and fairy tales, therefore much of their resistance to Flood theory may be the reluctance to make scientific evidence fit what they see as a myth or a fairy tale. Montgomery reveals this opinion throughout his book by sometimes pointing to old, superstitious beliefs about geologic formations and fossils.¹³⁶ Ironically, he ignores the fact that such theories were *rational* explanations for the people of those times according to their presuppositions.

Also while reading modern mainstream geological theories, it quickly becomes clear that the presupposition of deep geologic time is accepted as absolute fact. When looking at the world, one cannot blame them for having this view. By all appearances the world's geology speaks of powerful forces that were able to separate the continents, cause huge landmasses to rise and fall, drive landmasses together to form mountains and cliffs, erode extraordinarily large

¹³⁴ Montgomery. *Rocks Don't Lie*. 254.

¹³⁵ Heaton. *Recent Developments*. 1356,1357.

¹³⁶ e.g., Montgomery. *Rocks Don't Lie*. 57-59.

areas of rock into nonexistence, and to break apart deep ocean floors. In light of the present day rates of these processes, and in terms of the physical world we can observe with our senses, with the data we presently have one would have to conclude that the world's geologic features were created over billions of years.

However, in science you are taught to look at one variable at a time, thus assuming or keeping other possible variables constant in order to calculate or evaluate accurately the variable in question. This is very difficult to accomplish in the geological realm, and the resulting spirit within mainstream scientists is to assume that the variables they cannot possibly control are constant simply because at present they are observed to be constant. But if a scientist is being fair with their science, they will also recognize and grant that variables assumed to be constant indeed may not be. The numerous variables and factors involved in long-period geological theory—and even global Flood theory—are more than what anyone can possibly try to reconstruct theoretically with any confident accuracy if they are being completely honest with their science.

Thus, even though many geologists are disturbed by creation science's use of untestable miracles, they often dismiss the fact that their theories depending on deep geologic time also ultimately cannot be verified. No human being can go back millions or billions of years to verify theories of past geologic events, and no human being will be around for millions or billions of more years to verify theories concerning future geologic processes. As Morris and Whitcomb state:

The uniformitarian assumption is certainly a reasonable assumption, provided there is no sufficiently valid evidence to the contrary, but it must always remain merely an assumption.¹³⁷

A reasonable assumption is still an assumption, and to believe or even portray an untestable assumption as absolute fact on purely scientific grounds is unfair to those who are not able to verify the evidence, especially those who simply believe the assumption as fact because an expert in a particular field has told them they can do so.

Another concern for creation scientists is that, because of these preconceptions, modern science has created for itself a system of analysis that can absorb any contrary evidence. When

¹³⁷ Whitcomb and Morris. *Genesis Flood*. 131.

the order of strata do not follow the expected order of the geologic column, it is assumed to be the result of erosion or overthrusting even when there is no evidence that erosion or overthrusting took place. When a fossil is found in a stratum that it was not expected to be in, it is assumed that it was either displaced from the proper stratum or it didn't originate or become extinct when geologists and biologists originally had thought. While mainstream geologists will point to this as proof of just how solid their theories are, to build a system of thought that can explain away data and observations on the basis of untestable assumptions is a poor way to utilize science and human reason. Note: The fact that creation scientists are guilty of the same thing will be discussed in the following section.

And yet, considering the history of geology—and of science in general in the past 500 years—one can see why mainstream geology has developed the assumptions and biases it has. The combination of pressure and heretic-hunting from the Catholic Church¹³⁸ followed by Christian opposition to the first theories concerning deep geologic time has created a deep-rooted opposition to returning to Noah's Flood as a possible geological explanation. Since the first geologists were Christians who were trying to force their observations to prove the miraculous event of the Genesis Flood, the mainstream geological community tends to deny any theory having to do with Noah's Flood because it would not only be incorporating religious ideas into scientific theories, but it would also mean going backward in scientific development to a past theory currently believed to be refuted.¹³⁹ Thus, ironically, conventional geologists deny any geological theory that is based on Noah's Flood even when not in the too distant past the theories of deep geologic time were also outright dismissed in the same bias-maintaining manner. The old bias clung to religious sentiment while the modern bias seems to cling to an anti-religious sentiment.

¹³⁸ Throughout all of this research, it has become apparent to the essayist that the Roman Catholic Church and its history of opposing scientific theory it thought had contradicted Scripture has left a bad taste in the mouth of many scientists even today. The awful theology and practice by the Roman Catholic Church during the 16th and 17th centuries has, in the realm of science, left a wake of sad effects on those outside the church.

¹³⁹ It is interesting to consider that many scientists in the past who were Christians and even wanted to prove Noah's Flood eventually changed to a belief in deep geologic time. This could have simply been a result of their elevation of human reason, but it also could have been the result of their poor theology and personal view of Scripture considering Montgomery's summary of the history behind the "discovery" of geologic time. See *Rocks Don't Lie*, p.93-114.

This historically-developed bias will continue to present difficulties to those who believe in the Flood and desire a fair presentation of geologic data. Whitcomb and Morris describe the reason behind the difficulties of the continued study of Flood geology:

It will likely have to be attempted, if at all, largely by men outside the camp of professional geologists. It is unlikely that many students majoring in the field could survive several years of intensive indoctrination in the uniformitarian interpretation of geology without becoming immune to any other interpretation and still less likely that they would ever be granted graduate degrees in this field without subscribing wholeheartedly to it.¹⁴⁰

By dominating the academics of geology, the biases present in modern geology will undoubtedly continue for many years and for many years will continue to affect thought in our culture.

Overall Evaluation of Creation Science

With the publishing of the influential book, *The Genesis Flood*, by John C. Whitcomb and Henry M. Morris, the study of biblical creationism and the effects of Noah's Flood subtly began to be reinvigorated. Now headlined by Ken Ham and Andrew A. Snelling, the study of creation science is developing into a popular Christian subject once again. Christians who have been mocked for holding a literal view of Scripture are looking to creation science for scientific proof of the beliefs they hold so dear. However, for the Christian, not only are there difficulties that arise from the modern mainstream geological community, but there are also difficulties that arise from creation science that should be noted as well.

First of all, it must be acknowledged that the motives of creation scientists are admirable. They hold the Bible to be the supreme source of truth, "far weightier than the evidence for any fact of science," and they promote their theories to prevent current believers influenced by mainstream science from falling away from the faith.¹⁴¹ They want Christians to be aware that modern mainstream geological theory does not refute the biblical account as mainstream geologists claim.

We can only show that those who want to believe the Bible can do so in full confidence that the actual data of geology are consistent with such a belief, even though the apparent

¹⁴⁰ Whitcomb and Morris. *Genesis Flood*. 120.

¹⁴¹ Whitcomb and Morris. *Genesis Flood*. 118.

weight of scholarly opinion for the past century has been on the side of those who want to believe otherwise.¹⁴²

Their desire is simply to show that the Bible is not just a supernatural or mythical book for people who have "altogether abandoned reason," as many mainstream geologists seem to believe about Christians.¹⁴³

Yet many mainstream geologists criticize the methodology used by creation scientists. Many of them feel creation scientists ignore numerous amounts of evidence and cling to a few pieces of evidence in order to support and promote their theories, especially their theories concerning Noah's Flood because it is so vital to all of creation science.

Rejecting conventional geology out of hand, creationists selectively interpret the rock record to support their view that Noah's Flood deposited all the fossil-bearing rocks and sculpted the world's topography over the course of a single year. In such a short span of time a flood of epic proportions is the only geological mechanism that could do it. It's all creationists have that can explain earth history, and without it their intellectual house of cards comes crashing down.¹⁴⁴

Knowing full well this view predominates among mainstream geologists, Whitcomb and Morris express their frustration with this type of caricature of creation science by stating that some of their views are "simply denied, not refuted."¹⁴⁵ However, any Christian looking into creation science will need to bear in mind the prevailing view of it among mainstream scientists today.

Another reason mainstream scientists criticize creation science is their use of the Bible as the ultimate truth, with seeming contradictions often explained away by scientific-sounding miracles.

While young-earth creationists are to be commended for their honesty and constructive efforts, they still fall short of engaging in real science because of the absolute authority they give to their faith. They cannot functionally integrate with the scientific community if tangible elements of their models are sacred and off limits to testing. That approach defies the whole scientific enterprise. In order to gain scientific respectability the advocates of supernatural causes need to admit where their science ends and their faith begins, propose historical models that contain testable elements, and accept the results of those tests even if it means revising elements of their faith.¹⁴⁶

¹⁴² Whitcomb and Morris. *Genesis Flood*. 329.

¹⁴³ e.g., Montgomery. *Rocks Don't Lie*. 47.

¹⁴⁴ Montgomery. *Rocks Don't Lie*. 13.

¹⁴⁵ Whitcomb and Morris. *Genesis Flood*. 137.

¹⁴⁶ Heaton. *Recent Developments*. 1357.

While the Christian who holds to Scripture as the highest authority and source of truth is obviously doing a God-pleasing thing, Heaton does make a good point about creation scientists invoking supernatural explanations wherever their science falls short. Claiming a miracle occurred where Scripture does not make clear that one occurred is a dangerous practice for Christians because it is not only ascribing a great act to God that he may not have done but also leads to another danger:

A recurring problem faced by creationists is that once miracles are allowed, there are no rules to govern the number or nature of the miracles that can be imagined, and wide disagreement generally results.¹⁴⁷

By analyzing the world scientifically, yet driven by a religious motive, creation scientists have tended to conjure up miracles to explain observations that do not fit their models and that may actually have a legitimate scientific explanation yet unknown.

Ironically, it is the insistence of scientific explanations for miracles that gives rise to another danger of creation science. By analyzing every little bit of the Flood account and how it could have affected the world's geology—even if it is not their intent—creation science is emphasizing the need for scientific explanation and giving the impression that every phenomenon needs modern scientific explanation. The Christians who learn the creationists' theories and follow them so closely may develop a dependency on scientific explanation. This is a danger for weak Christians. What happens when parts of Flood theory are proven false? Strong Christians will simply rework their opinions to fit the new evidence, but weak Christians may be lost. This is why it is a great danger to base any part of our faith on scientific evidence. Believing in the Flood as a real, historical event is already believing the miraculous and supernatural, therefore there is no need for every process to have a scientific explanation. More of this will be discussed later in the essay.

In order to give scriptural support for both their miracles and their scientific explanations, creation scientists quite often bend the plain words of Scripture to fit their theories. One example, as discussed earlier, is the phrase "the springs of the great deep burst forth" (Ge 7:11). This phrase appears in many creationist geological theories and a great number of geologic phenomena has been attributed to it both reasonable and purely conjectural, such as the breaking

¹⁴⁷ Heaton. *Recent Developments*. 1347.

up of the earth's crust, the vast upheaval of the sea bed, and even volcanic emissions causing supersonic steam jets to shoot high up into the sky.¹⁴⁸ The wise Christian will read with caution when reading material that both assigns specific miracles not explicitly stated in Scripture and also claims scientific support from a passage of Scripture when scientific support is not explicitly given.

Another caution needs to be raised concerning creation science. Since mainstream science is not kind to creation scientists, many creation scientists tend to be quite defensive about their theories. This causes them to sound condescending toward and extremely critical of mainstream scientists in their writings. This is easily seen in Whitcomb and Morris' *The Genesis Flood* with the numerous exclamation points used throughout when attacking mainstream geological thought. This is a poor attitude in apologetics and has served only to drive those who disagree with creation science farther away and to oppose creationist biases all the more.

There is also an inherent difficulty in any study concerning Noah's Flood: If the earth was vastly different before the Flood than it has been since, as creation science implies (and may very well be the case), then how could we possibly be able to evaluate the geologic phenomena according to the same criteria with which we evaluate it now? If there indeed was some sort of water vapor canopy over the whole earth as many creationists believe, and if the land was indeed in a much different form and possibly all connected into one giant land mass as many geologists believe, then who could possibly say "This is how it has changed" if we don't know exactly what it looked like and what the then-natural processes occurring within it were? If there was indeed that much change that occurred during the year-long flooding of the entire earth, then we have no standard by which we can make any comparison. Christians will do well to keep this in mind when reading any creationist theory concerning the geologic effects of the Flood.

Assessing the Overall Geological Debate

Upon reviewing the theories from both creation science and modern mainstream geology, it seems that both sides are theorizing beyond what they can possibly know. Yet both sides claim to have evidence that refutes the other. Both sides provide seemingly sound evidence to

¹⁴⁸ Snelling, *Earth's Catastrophic Past*. 31-33.

support their own theories. Both sides have biases and preconceptions that direct their observations. Both sides accuse the other of ignoring evidence or explaining it away to suit their own theories. Considering the history of geological theories, it is difficult to trust any geologist who claims we know anything for certain, especially when it involves untestable assumptions, which are evident in both sides. Each new generation of geologists speaks of the false and misguided theories of geologists in the past. One may wonder what will be said in the future of this present generation of geologists—both mainstream geologists and creation scientists.

It is evident there is one predominant factor separating the two: time. Both sides are looking at the geologic anomalies of the earth and trying to fill in the gaps of our human reason with something incomprehensible. On the one hand, modern day geologists fill in the gaps with an immense amount of time in light of the present day slow processes. On the other hand, creation scientists fill in the gap quickly with God's miraculous power and the unimaginable forces of the Flood. Much of what makes a global flood not fit with present geologic observations is the assumption that a long time is necessary for certain features to develop. If evidence eventually comes to light that shows many geologic processes do not require the amount of time geologists presently assume is required, it could potentially have a profound effect on many geologists' view of Noah's Flood, that is, if the evidence is taken seriously and not dismissed on the basis that it suggests a global flood.

Yet we must not think the issue of time is all that separates the two sides. Even given the fact that the earth was undoubtedly created with what we now consider from our point of view in time as "age," one cannot reconcile young-earth geological theory with old-earth geological theory by simply saying, "The earth was created with age." The differing views of the fossil record provide a good example of why this is so. Belief in the Theory of Evolution as evidenced by the fossil record in the sedimentary strata, as mainstream geology now professes, contradicts what we are told in Scripture that God created mankind without experiencing death. One cannot reconcile the theory that mankind has evolved over millions of years, having been spurred on by adaptation to avoid death, with what we are told about mankind physically and spiritually in Genesis chapters 1 through 3. For this reason alone one can see that there is more than time that separates a Bible-believing creationist from a modern mainstream geologist. So how does one bridge the gap between someone who believes in modern mainstream geological theory and

Bible-based geological theory? This is what will be discussed in the following portion of this essay.

A Christian's Use of Creation Science in Pre-Evangelism

Having evaluated the theories concerning Noah's Flood and its possible geologic implications, it is now time to discuss the proper use of these scientific theories in a Christian's life. One of the main reasons Christians become enamored with creation science is that they want to have some facts and theories they can use when someone either has scientific questions about or is attacking the authenticity of Christianity or the Bible. But what is the apologetical value of these geological theories and creation science in general in an evangelism setting? Would one use creation science in an evangelism setting at all?

First, it is important for every Christian to establish and remind himself or herself—over and over again if need be—what it is that actually creates faith. It is not scientific argument. No one has ever been argued into having faith. That would be like trying to twist someone's arm until they "gave in" to faith. That is impossible. It is the Holy Spirit working through the gospel message that creates faith.¹⁴⁹ The gospel is what has the true power (Ro 1:16) and that is a Christian's goal in every witnessing effort: to talk about Jesus and what he did for all people.

But if it is the gospel message that brings one to faith and it alone has the power, would one use creation science at all when leading someone to the message of Jesus? This is certainly a valid question. When researching the possible geologic effects of Noah's Flood, the essayist was consistently confronted with the question, "When would Christians ever use this information? If Christians were talking with someone and wanted that person to believe in Jesus, wouldn't they just tell that person about Jesus and skip the scientific argument?" The answer to that question

¹⁴⁹ "For, first of all, even though human reason or natural intellect may still have a dim spark of knowledge that a god exists (as Romans 1[:19–21, 24, 32] states) or of the teaching of the law, nevertheless it is ignorant, blind, and perverted so that even when the most skillful and learned people on earth read or hear the gospel of God's Son and the promise of eternal salvation, they still cannot comprehend, grasp, understand, or believe it on the basis of their own powers; they cannot regard it as the truth. Instead, the more assiduously and diligently they exert themselves and want to comprehend these spiritual matters with their reason, the less they understand or believe. They regard all these matters as simply foolishness and fables, until the Holy Spirit enlightens and teaches them." Formula of Concord SD II 9. Kolb, Robert. *The Book of Concord: The Confessions of the Evangelical Lutheran Church*. Minneapolis: Fortress Press, 2000. 545.

is: Yes. If one has the opportunity to use the gospel, he or she should use it every time. There is no substitute in bringing someone to faith and there is nothing more powerful. Even if that person does not believe the Bible is the Word of God, there is a good chance he or she has never heard the pure message of God's grace through Jesus. Therefore, if a Christian does decide to use creation science in witnessing, the goal of doing so should never be to prove the Bible but only to break down walls in order to give a hearing to the gospel message. Creation science, if used in an evangelism setting, is *pre-evangelism*. Christians want to break down the walls people have put up between themselves and the gospel message so that Christians can eventually share that message with them.

If the gospel is the most powerful message a Christian could give someone, then why would one use creation science at all to break down those walls? It is difficult to give a general answer to this question. This is the question each Christian will have to wrestle with in each individual situation. Once again, if given the opportunity, the wise Christian will steer the conversation toward Jesus. If the hearer vehemently rejects the message of Jesus' work when it is lovingly presented to them, then it is unlikely that any scientific argument, especially one centered on a miraculous global flood, will ever break down whatever wall he or she has put up to Christ (Lk 16:31). For this reason, it may be best to limit any arguments from creation science simply to answering questions that arise in conversation in an effort to get the person to question his or her preconceptions. The best use of creation science in most cases is most likely being prepared to give an answer to any scientific questions that are actually answerable and allowing the other person to bring up the topic in conversation.

If indeed one does decide to use creation science in pre-evangelism, it is imperative that he or she first analyze his or her own motivation in doing so. People love to be right, and Christians are certainly not excluded. Therefore, many Christians cling to creation science to try to prove their convictions, especially in the presence of others. They want to be proven right in matters otherwise scientifically unprovable, that is, spiritual matters and matters of faith. As a result, many Christians become hungry for scientific evidence they can use when discussing scientific matters in order to "win"—or at least survive—a scientific argument. All Christians must check this attitude and rid themselves of it if they are properly going to use creation science at all. Attacking or shaming people—even just a little bit—for their anti-scriptural theories will

simply lead them to become defensive and hardened in their theories. It will push them away rather than bring them closer, and that is the opposite of a Christian's goal. A Christian's goal is to lead them to Christ, not to insult their intelligence.

In this regard, it is good for every Christian to put himself or herself in the frame of mind of those who argue against religious opinions. When people deny beforehand the miraculous, supernatural, and spiritual, one cannot blame them for coming to the conclusions they do. They are simply interpreting the world by what they see and believe and know, just like Christians do. Christians believe in a revealed knowledge that tells them there's more than what people can see, hear, taste, touch, and smell. For those who deny such revealed knowledge, their billions-of-years-old earth is a product of their minds. They see *Christians* as trapped, ensnared, and unenlightened because of their faith. They want to "free" *Christians* with scientific evidence. Christians feel the same way about such people and their *lack* of faith. Therefore, Christians will do well to keep this in mind as they engage in discussion with someone who holds to modern mainstream geological theories.

It is also important for Christians to use arguments of sound science and valid evidence, not only with those who oppose the idea of a global flood but also with those who are interested to learn about Flood theory. If people later discover that the scientific arguments Christians have made are not valid, it may cause them to revert back to their doubt of the biblical Flood account and in their blind trust of mainstream interpretation. A lack of scientific knowledge can hurt a Christian's arguments, make him or her look foolish, and may discredit the gospel message in people's minds. If one is truly going to support creation science research and use it in witnessing, he or she needs to make sure to know the science well and be devoted to staying current on the latest theories.

However, such a devotion to scientific theory can also lead to other dangers in witnessing and in the Christian's personal life of faith. Being so devoted to being able to make scientific arguments may lead a Christian to become too attached to the idea of needing scientific arguments or even needing proof for certain matters of faith, such as the Genesis Flood. It may also give the wrong impression to whomever he or she is witnessing to that they need scientific proof to become or remain Christians. That type of attitude is not the nature of faith. That attitude is, in fact, detrimental to faith. Christians do not want to point such people to their

minds; they want to point them to their God, his love, and the Savior he sent. Scientific theories will always change—whether from modern mainstream scientists or from creation scientists—but their Savior never has and never will. Any Christian who uses creation science as a pre-evangelism tool will need to be careful to avoid giving the wrong impression of the nature of and the object of Christian faith.

This is especially true when speaking with a scientifically knowledgeable unbeliever who seems to cling to scientific theory. A Christian arguing his or her faith on the basis of science will only be detrimental to his or her efforts. It seems a major reason many of those who cling to anti-creationist theories that discredit a global flood is that they assume every little detail must be explained scientifically, i.e., without any room for the miraculous or supernatural. Creation scientists have tried to match mainstream arguments based on science, but will that ever change people's minds? Will appealing to people's seeming need for scientific explanation help guide them to believing the miraculous nature of so many things in Scripture, most importantly the greatest miracles related in the Bible, that is, the redeeming death and the resurrection of Jesus? No, one must use law and gospel, sin and grace with those who obviously feel they need scientific proof.

Even though it is not generally recommended, if one indeed is going to engage in a scientific discussion, what might one say? If a Christian is going to use creation science, perhaps the best way to do so is simply to know some counter-arguments that show mainstream geological assumptions may be inaccurate, thus showing that such assumptions are not as trustworthy or certain as someone might think. Therefore, using creation science can be done in a way that presents a paradigm shift. It can get someone to realize the world can be seen in a different way. For example, believing in evolution may have simply come from being taught that evolution was the only possible option in school. The Theory of Evolution may seem compelling for that person, but at its core it is a trust in an interpretation. Perhaps this means Christians need to present their arguments as "This is what I believe the data shows..." This would be presenting another paradigm option for someone who possibly had not previously considered it.

This would also be a good segue to evangelism. For example, "This is what I believe the data shows...because I also believe...(the gospel)," or, "This is what I believe about the

earth...and here's why...(what Jesus has done)." Maybe one could say, "This is what I believe about the earth...Do you know why Christians believe this? Because we believe the Bible is the Word of God. And if the Bible is not correct, then the whole world is in trouble because that means all of us are still lost in our sins and in death. But for some strange reason, Christians *know* they're not still lost in sin and death. We *know* Jesus did indeed die for everyone's sins. He did indeed defeat death for all people. Knowing that, we know the Bible that testifies about him is true, and if we know God's Word is true then it makes us look at the earth from a different perspective." This is simply one example of how one might transition from a scientific discussion to a presentation of the gospel.

One common fear for Christians in having these scientific discussions is that they do not like the possibility of having someone think they are unintelligent simply because they believe in the Bible. However, this is nothing new for Christians. Christians have been confronted with this accusation since the Garden of Eden (see Ge 3:1-5) and will continue to be confronted in such a way until the Last Day. Christians have to be willing to be seen as "foolish" if the end goal is to win a person for Christ. If someone says to a Christian, "You believe that Noah's Flood was a real event?! You believe that a big flood actually covered the whole earth?" that Christian has to be willing to respond along the lines of, "Yes, but even crazier than that, I believe someone actually rose from the dead. I believe God actually freely forgives us," and so on. Christians need not be afraid of the "crazy" things they believe.

This also means Christians should not be afraid of saying, "I don't know." If someone says to a Christian, "You really think Noah's Flood created all of these rock layers and fossils?" or something similar, that Christian could simply say, "I don't know, I wasn't there." None of us were there. None of us know for certain what happened geologically during creation or during the Flood. How could God create the world the way he did or flood the entire world the way he did? How could the Flood cause so many geologic changes, if it even did in the first place? No Christian knows. It's the truth. There is no need to know because ultimately every Christian can still say, "I don't know...but there's one thing I *do* know: God has forgiven us through Jesus."

If a Christian is confronted by someone who staunchly believes in mainstream scientific theories and proceeds to attack that Christian's faith in Jesus, God's Word, etc., it is important for he or she to remember that the best defense is always love. Christians need to show such people

that they are not there to fight them. Christians need to show them how much God loves them, and tell them about his love. Christians can tell them about the grave situation they and all people are in by saying, "We believe in different interpretations about the earth, but we have the same problem: we both sin and we're both going to die," or they can tell them about what God did to fix it and why: "We look at the earth differently, but we're in the same boat: God sent his Son to die for my sins and for your sins, he loves us both that much." It is difficult for people to staunchly oppose Christians when Christians show them they are on their side and they love them very much.

Lastly, it must be said that any attempt at using creation science without transitioning to the gospel is an empty and fruitless form of pre-evangelism. What is the difference between a Christian who believes in Noah's Flood and someone who believes in mainstream geologic time? Faith in Jesus. That's why Christians believe in the Flood. That's why Christians espouse a global flood no matter how modern geology interprets the evidence. They know it had to have happened because all of Scripture speaks of salvation history, it tells them of their Savior. This is why every Christian is to hold every thought captive to Christ (2 Co 10:5). Christians know they need him. They know they need the truth of his Word, the same Word that testifies to Noah's Flood as a real event. After presenting a paradigm shift or a preconception evaluation, no other argument could possibly change a person's heart to believe in Noah's Flood except the argument (message) of Jesus and his work for all people. This must always be the goal when discussing any scientific theory with someone a Christian hopes to lead to Christ.

A Christian's Personal Use of Creation Science

Now that the limitations, dangers, and possible uses for Flood geology and creation science in pre-evangelism have been discussed, it would be good to discuss the same for a Christian's use of creation science in his or her own life. It is important to mention yet again that Christians believe in the Genesis Flood account because they believe in Jesus as their Savior and in God's Word being his Word, not the other way around. It is the gospel that has changed their hearts and it is the God-given faith they have that leads them to believe in his supernatural power

and the Word that testifies to it. Christians have already been shown that the knowledge of Jesus is far more important than any scientific knowledge.

Therefore, which should a Christian spend more time studying: the gospel or creation science? Obviously, the answer is the gospel. There is so much to learn in the gospel and in salvation history that a Christian will never stop learning more about God's love and his work in this world. This also means the deeper one's knowledge of the gospel, the less he or she is going to care about the rebuttals of modern mainstream science. A grounded Christian knowledgeable in God's Word is in a far better position than a weak Christian knowledgeable in scientific theories. There is great danger in someone who does not know their Bible, Bible history, Bible transmission, etc., well enough looking into the arguments of both sides of scientific interpretation and being led astray due to some misrepresentation of Scripture or some false doctrine or principle.

In fact, this can be a struggle for any Christian because the human brain is hardwired to trust and seek guidance from human reason and observation. Hearing or reading scientific theories that seem quite sound and seem to be supported by a good amount of evidence can have a major effect on a person's mind. It brings many questions to the forefront, which is not bad, but questions involving faith and originating from scientific theories that have been refined to appeal to human reason and human senses have a profound way of making Christians take their faith from the context of spiritual truth and bring it into the context of physical truth where it should not and cannot be evaluated.

However, this battle between the Bible and mainstream geology is more vital than many realize for Christians in our culture. If mainstream geology claims that it shows the Genesis Flood could not have happened, then the inerrancy of the plain words of Scripture come into question, which, as can be seen from the incredible number of interpretations given of the Flood account throughout the last two hundred years, can distort and destroy the message the Bible is trying to convey. Because of this struggle, the essayist can see why so many Christians have thought to change their interpretation of Scripture. Such people think they are saving their faith. Therefore, it is crucial for Christians who are looking into geological theories to be strong in their faith in their Savior, for their faith and eternal life are at stake if they let this internal

struggle overtake them and side with the words and interpretations from human beings instead of with the words and revelations from God.

As Christians look at Flood theory, they will also do well to realize and remind themselves of the history of Flood theory. Flood theory is nothing new. It was widely accepted as the cause of the earth's present geologic features long before the current mainstream theories were widely accepted, which only became accepted as the result of an assumption (deep geologic time). Actually, part of the reason there was a shift to present mainstream thought was that there was an increase of reliance on scientific, reason-dominated thinking that denied the supernatural and demanded only natural explanations among the *Christian* geologists who made up most of the geological community. In essence, Christian geologists eventually elevated human reason above God's Word because their focus became the interpretation of physical evidence and physical processes. Thus, if Christians desire to learn from history, they will take caution with their desire to research creation science.

This means any Christian looking into Flood theory needs to take a step back and ask himself or herself why. "Is it because I'm interested, or is it because part of me needs scientific confirmation for what I believe?" The desire for creation science may show a lack of trust in God's Word and therefore in God. "Is it because I want a good defense in this day and age?" Christians have to be careful not to latch on to creation science simply because it attempts to defend the Bible. The Bible can defend itself and has for millennia. The gospel message has been doing well for itself for quite some time; you just have to let it loose.¹⁵⁰ If it is persecution a Christian is afraid of or being called unintelligent, then, again, one need only look to Scripture itself to see this is nothing new for believers and will not cease happening until the Last Day. Christians need not be afraid to say, "I can't give you the scientific proof for it." There are many things Christians do not have proof for and yet believe. These are the types of things a Christian will need to keep in mind when evaluating his or her motives for looking into creation science because there is a thin line between desiring Flood theory in a God-pleasing way and in a sinful or detrimental way.

¹⁵⁰ "The Word of God is like a lion. You don't have to defend a lion. All you have to do is let the lion loose, and the lion will defend itself." This thought is commonly attributed to Charles Spurgeon as a reference to comments made in two of his sermons, *Christ and His Co-Workers* (1886) and *The Lover of God's Law Filled With Peace* (1888).

This does not mean that scientific study of God's creation is a bad thing at all. Trying to understand the world as it was created and affected by God's power is not an evil thing. The natural knowledge of God in creation can certainly be appreciated and studied. Flood theory is not the life-giving gospel, but it still can provide comfort to a current believer, indirectly, by removing some fears he or she has about science. This does not create or strengthen faith in Jesus, but instead it is meant to knock down one of the flaming arrows Satan hurls at believers. As long as Christians research creation science with good intentions, it can certainly be a God-pleasing thing. The Christian will simply have to exercise extreme caution because all people are sinful and are easily influenced by sinful desires.

Therefore, if one were to ask the essayist if he thought Flood theory and creation science in general were useful, he'd say, "Yes." If one were to ask him if he thought Christians should not preoccupy themselves with Flood theory and creation science and instead concentrate their time on the gospel, he'd say, "Yes." This means that if one is truly interested in researching the science involved in Flood theory they can certainly do so and enjoy it—much like the essayist did—but it is the opinion of the essayist that a Christian's time simply would be better spent studying the Word. Creation science has some useful and beneficial aspects, but people do not have enough time in their lives to learn the fullness of God's love in the gospel, which is far more important to know. This is something all creation scientists would certainly agree with. So, one must not say that it is wrong to look into creation science. However, because of the dangers, it is simply far wiser to study the depth of God's love in Christ with the limited free time everyone has in this life.

A Pastor's Use of Creation Science

Pastors who are going to teach or promote creation science in their congregations or who know that their members are interested in creation science theories will wisely caution their members of the dangers already mentioned. They will guide their members to appreciate Christ's own words: "Blessed are those who have not seen and yet have believed" (Jn 20:29). They will teach their members the historical examples within Scripture of the misguided desire and demand for proof and the only proof Jesus ever promised (Mt 12:38-42; Jn 2:18-22; Lk 16:27-

31). They will remind their members the faith Christ commends the most is childlike faith (Mk 10:13-16; Lk 18:16-17).

On the other hand, pastors who do not promote creation science in their congregations should be careful not to go too far in the other direction and denounce creation science. Jesus says those who have not seen are blessed (Jn 20:29), but he does not condemn "seeing." Jesus does not call wicked those looking at evidence of God's existence and power; he calls wicked those demanding it (Mt 12:39,16:4). Looking at the beauty of God's creation and appreciating it because it confirms what you already believe is not displeasing to God. Therefore, pastors will be careful not to promote a spirit of denouncing creation science among their members because their interest in it and motivation to study it may indeed be admirable.

The wise pastor will also be careful and warn against a malicious spirit of denouncing mainstream science. Mainstream scientists are seeking to make sense of the world they observe. They are seeking to help and educate their fellow man, not harm or mislead him. Mainstream scientists who oppose religion and the supernatural are not unintelligent; they are simply misguided by their preconceptions and worldview. They need Jesus. Christians have Jesus. It is not Christians versus mainstream science. It is Christians versus the devil, who has led many mainstream scientists astray in their view of God's role in this world. To promote this issue as faith versus science has led far too many people to be unloving in their approach with people who deny God and side with the anti-scriptural aspects of mainstream science. A wise pastor will promote an evangelical approach with such people.

At the same time, pastors will have to caution their members about ascribing too much weight to mainstream and creationist scientific theories as they read and hear about them in our culture. The essayist has found that sometimes the evidence as it is portrayed is not always as factual or solid as the researchers claim it to be. For this reason, one important thing a pastor could do with his congregation is train his members to read scientific evidence and findings with trust and a willingness to accept it, but also to be able to recognize assumptions inherent in the interpretation. This is a difficult task for any pastor, but it could be very valuable considering the day and age in which we live. The science one might come across is usually reasonable, but it may be affected by preconceptions. For example, when a sign in a museum states that a certain fossil has been dated to having lived millions of years ago, there have been assumptions made in

the accuracy of the radiometric dating methods, the fossil's location in the geologic column and its relation to other strata, and the overarching Theory of Evolution. Or when congregation members go on vacation, join a tour of some geologic formation, and the guide tells them the rock formation was formed over a span of billions of years, their pastor can help them realize the scientific analysis behind that piece of information is assuming the present processes have always been constant. Or conversely, when someone reads an article on the internet from a creation science resource that says the rain from the Genesis Flood came from supersonic steam jets or condensation caused by volcanic ash, there is an assumption being made that the source of the rain must have been supplied in a natural instead of supernatural way. These are just a few examples where recognizing the assumptions and preconceptions that shape scientific theories will help a pastor's members.

A pastor has many opportunities to help his members with their interests in scientific theories. The topics discussed here are not the only ways a pastor can provide godly leadership in our modern culture, but they can provide a good amount of direction in having a scientifically knowledgeable and spiritually faithful congregation. By stressing the gospel, providing the example of an evangelical attitude, promoting Scripture's admiration of childlike faith, and even leaning on the possible scientific expertise of his members, a pastor will help his members properly appreciate the God-given blessings of human reason and scientific research.

Conclusion

After carefully studying the theories concerning the Genesis Flood from creation scientists and modern mainstream geologists, it seems that the science of both sides cannot be fully trusted. Evidence supports both sides in different ways. The majority of scientists do agree with mainstream geology (hence the designation "mainstream"), but, over the history of scientific discovery and scientific development, simply trusting the theory supported by the majority of scientists has sometimes proven to be a poor determination of truth. In every field of science, theories come and theories go. Of all the sciences that can be trusted on the basis that its science has been refined over time, mainstream geology is perhaps the least trustworthy due to its present attachment to deep geologic time, an ultimately untestable theory built on the general

assumption that geologic processes have been the same for billions of years, save for places where obvious catastrophes have occurred. The fact that this assumption of deep geologic and evolutionary time has affected interpretation in all fields of science is seen in every mainstream textbook today.

With sinful human beings, assumptions and preconceptions affect the way we see and interpret the world, whether one is a scientist or not. In the realm of science, this can affect how one determines "relevant" and "outlying" data, giving each scientist a tendency—even if it is a very small tendency—to see the data that correlates well with their personal theory with rose-colored glasses. This is true of both creation scientists and modern mainstream scientists. At the same time, someone trusting a theory simply because it supports his or her religious bias is just as dangerous. Clinging to every argument made by creation scientists simply because they are Christian and believe in the creation account is putting too much trust in a group of scientists whose science might have been negatively affected by these biases.

It is also important that Christians realize the data and observations are not what disagree with Scripture. It is the mainstream interpretation of those data and observations that disagrees with Scripture. The raw data and purely objective observations of nature do not contradict the testimony given by Moses and the other inspired authors of the Bible. The problem for Christians, if one could even call it a problem, is that the Bible was not written to be and is not meant to be a scientific treatise. The Bible is meant to give us the history of our salvation, not to give us all of the answers we want in life. Christians have to learn to be OK with not knowing the exact answers and arguments for everything and be satisfied with the far more important knowledge the Bible does give us: the knowledge of God's promise and his work to save us from the punishment our sins deserve. His work in the preservation of that promise is exactly what the Great Flood in Genesis is meant to communicate.

This means Christians also have to be OK with saying three words: "I don't know." How do Christians explain geologic phenomena while believing in a "young earth"? Christians ultimately don't know, and no matter how convincing mainstream geologists' theories may be and no matter how many times they may say they *know* what happened, they, too—whether they admit it or not—do not know for certain. Every generation of scientists has claimed to *know* the truth and the *facts*—many of whom were Christian scientists—and yet every subsequent

generation of scientists has explained how the last generation was close to the truth but was misled, had a lack of evidence in comparison with the present generation, or simply was wrong. Christians have had their source of truth questioned, attacked, supposedly refuted, dismissed, laughed at, and disbelieved for millennia, and yet it still stands solidly as a beacon of divine light. For this reason, Christians need to be more comfortable with saying "I don't know" when it comes to ever-evolving scientific interpretation and hold confidently to "I know!" when it comes to the Scriptures. They are revealed and empowered by One who is far greater and more trustworthy than any interpretation involving his creation.

This also means one would wish that Christians who feel they need to explain everything by natural means would take a step back and consider just how *supernatural* God's work in our world has been from the very beginning. God's work of creation itself, creation simply by saying "Let there be," creation of human life both physical and spiritual, creation and direction of the angels, a virgin giving birth to a baby boy, that baby boy being both God and man, the sins of all people of all time being placed upon and paid for by that God-man, that God-man coming back to life three days after dying, and even the promise and miraculous nature of that God-man's Second Coming on the Last Day are far more supernatural than the simple bringing forth of water and reshaping the earth by means of a global flood.

This is no way meant to say that all observation of the natural world is flawed and untrustworthy. The issue is not science versus religion and, quite frankly, never should be. This is and will always be an issue of sin versus grace. God in his grace has given mankind a beautiful blessing in science, providing and caring for mankind by natural means through the work of intelligent men and women he has gifted to do such work. However, sin has and always will until the Last Day pollute, distort, oppose, and turn people away from the grace of God proclaimed in God's Word. This is no different in the realm of science than it is in any other area of life on this earth. Therefore, just as a soldier needs to use the proper weapon and a carpenter needs to use the proper tool, Christians need to arm and equip themselves with the one thing that can properly address sinful, anti-scriptural sentiments. One does not use scientific argument to convince sinful attitudes and preconceptions out of someone's heart and mind. One uses God's Word in law and gospel, with all efforts pointed toward the gospel.

For this reason, it is difficult to say who is more correct among Christians: those who see creation science as useful or those who say it is not useful. Albeit an oversimplification, the former are appreciating and defending the truth of God's creation and his revealed account of the Flood, and the latter are appreciating and focused on the truth of God's gospel and the faith of God's people. Does the Great Commission tip the balance in favor of the latter? The essayist believes it does. After all, the reason Christians are still alive on this earth is to share and build each other up with the gospel. The earth in its present form is decaying and will pass away. Understanding its physical properties and processes is fascinating to study—just ask the essayist—but with sinful human tendencies and the mercies our Lord offers in his Word, one is far better off focusing on the gospel than anything else in this world.

On the other hand, saying creation science isn't useful at all would be going too far in that direction. There is some usefulness in it; it just needs to be anchored in the gospel and the Great Commission and approached with caution concerning possible misuses and overemphasis of its importance, especially in this science-heavy day and age. It is the pastor's duty and the Christian's responsibility to study and recognize these dangers if they desire to study and use it with others and with themselves.

May the God who so graciously preserved his promise of a Savior by the waters of the Flood guard your heart until "the present heavens and earth" are destroyed and our Savior is revealed to all the earth. May he guide your study of his Word and of his creation so that you can see just how much he has done—and will do—for you. As you wrestle with his unreasonable power and unreasonable love, and as you endure any scorn because of your faith, may he remember you as he remembered Noah and bring you safely to the "new heavens" and the "new earth" he has promised through Jesus.

Appendix A

Brief Commentary on Genesis 6:1-8

¹ *When human beings began to increase in number on the earth and daughters were born to them, ² the sons of God saw that the daughters of humans were beautiful, and they married any of them they chose.*

At the beginning of chapter 5 we are already given the point of comparison between "of God" and "of man," where it is understood that the "image of God" refers to God's holiness and the "image of man" refers to man's sinfulness (Ge 5:1-3; see also Ge 1:27, Col 3:9-10, Eph 4:22-24). Some have interpreted the phrase "sons of God" as referring to angels, similar to its usage in Job (Job 1:6,2:1) and Daniel (Da 3:25). However, due to the fact that angels are spiritual beings and the "sons of God" in Genesis 6:2-4 speaks of sexual relations between them and the "daughters of man," it is easy to dismiss the notion that this is a reference to angels (see also Mt 22:30).

Within the context of what has happened in chapters 1 through 5 and what will happen in chapters 6 through 9, "sons of God" seems to be referring to believers, as Scripture does in a number of places (see Dt 32:5; Isa 1:2; Hos 1:10; Gal 3:26-4:7). These sons of God are the "offspring" of Eve (Ge 3:15) and seemingly the descendants of Seth (Ge 4:26), while the "daughters of man" are unbelievers, those who are the "offspring" of Satan (Ge 3:15) and seemingly the descendants of Cain (Ge 4:17-24). Therefore, verse 1 is speaking of mankind in general, while verse 2 is showing the divide that had already been evident within mankind where there are believers and unbelievers, specifically there are "sons of God" (male believers) and "daughters of man" (female unbelievers). In order to describe the continued downward spiral of sinful mankind, Moses is telling us the believing men were more and more abandoning godly, spiritual criteria in looking for women to marry and instead were focusing more and more on earthly, physical criteria. As Moses states, "The sons of God saw that the daughters of humans were beautiful, and they married any of them they chose" (Ge 6:2). The degradation of even those who believed was evident in that they simply chose as wives any women they thought were physically beautiful instead of spiritually beautiful.¹⁵¹

³ *Then the LORD said, "My Spirit will not contend with humans forever, for they are mortal; their days will be a hundred and twenty years."*

Even though believers were following their sinful desires more and more, God still fought for his beloved mankind. His Spirit was "contending" for them. He was fighting for them through the words of the patriarchs mentioned in chapter 5 and through Noah (2 Pt 2:5).

¹⁵¹ "The corruption of mankind reached its highest point when even the difference between Sethites and Cainites became obliterated by intermarriages." Alfred Edersheim, as quoted in Lawren and Jeske. *Genesis 1-11*. 230.

However, as mankind continued their rejection of him and their corruption deepened, God determined that there would come a day when he would stop striving to help them, and that day would come in 120 years from his pronouncement of coming judgment in verse 3 with the beginning of the Flood.

⁴ The Nephilim were on the earth in those days—and also afterward—when the sons of God went to the daughters of humans and had children by them. They were the heroes of old, men of renown.

To further explain the corruption of mankind, Moses draws our attention to the types of people who were looked up to and considered "heroes" and "men of renown" (Ge 6:4). The men whom everyone looked up to were "tyrants,"¹⁵² those who had the power to exert their will forcefully upon other people, not the godly men who preached righteousness and held on to the promise of salvation.

⁵ The LORD saw how great the wickedness of the human race had become on the earth, and that every inclination of the thoughts of the human heart was only evil all the time. ⁶ The LORD regretted that he had made human beings on the earth, and his heart was deeply troubled. ⁷ So the LORD said, "I will wipe from the face of the earth the human race I have created—and with them the animals, the birds and the creatures that move along the ground—for I regret that I have made them. ⁸ But Noah found favor in the eyes of the Lord.

In five verses, Moses shows the extent and acceptance of wickedness that had developed in fallen mankind, which led to God's sadness and ultimately his righteous decree of judgment. In these verses, God declares that all humans—and all birds and land animals with them—will be wiped from the face of the earth, that is, except for the only keepers of the promise left and the animals God chooses to preserve.

¹⁵² "The simplest way to define the otherwise unknown term נְפִלִים is to derive it from the verb נָפַל, to fall upon, attack. Luther translates '[tyrants, so called] because of their tyranny and oppression...they fall upon and oppress those who are beneath them...pursue only their own desires and rely on their own power and strength.' At the time the Sethites intermarried with the Cainites, there were ruthless tyrants on the earth, and those ill-advised marriages produced more of them. And—perhaps not surprisingly—the people whose specialty was power, control, pressure, and violence were the men of renown in that broken world." Lawrenz and Jeske. *Genesis 1-11*. 233.

Appendix B

A Chronology of the Flood

**(Based on a table appearing in E. F. Kevan's commentary on
Genesis in *The New Bible Commentary*)**

The Flood begins on 02/17/600 of Noah's Life (Figuring 30 day months)

40 – There were forty days during which the rain fell.

110 – Throughout another 110 days the waters remained at maximum depth, making 150 days for their “prevailing.” At the end of this time the ark comes to rest on Mt. Ararat.

74 – The waters occupied 74 days in their “going and decreasing.” This was from the 17th day of the seventh month to the 1st day of the tenth month (Ge 8:5). There being 30 days to a month, the figures in days are 13 plus 30 plus 30 plus 1.

40 – Forty days elapsed before Noah sent out the raven (Ge 8:6-7).

7 – Seven days elapsed before Noah sent out the dove for the first time (Ge 8:8). This period is necessary for reaching the total and is given by implication from the phrase “another seven days” (Ge 8:10).

7 – Seven days passed before sending out the dove for the second time (Ge 8:10).

7 – Seven more days passed before the third sending of the dove (Ge 8:12).

29 – Up to this point 285 days are accounted for, but the next episode is dated the 1st of the first month in the 601st year. From the date in Genesis 7:11 to this point in 8:13 is a period of 314 days, therefore an interval of 29 days elapses. (01/01/601)

57 – From the removal of the covering of the ark to the very end of the experience was a further 57 days (Ge 8:14). (02/27/601)

371 – The total days of the Flood

Appendix C

Genesis Genealogical Charts

Genealogical Chart from Adam to Noah (Ge 5:1-24)

	Age at birth of first-born	Rest of life	Whole life	Year of birth, from creation	Year of death, from creation
Adam	130	800	930	1	930
Seth	105	807	912	130	1042
Enosh	90	815	905	235	1140
Kenan	70	840	910	325	1235
Mahalalel	65	830	895	395	1290
Jared	162	800	962	460	1422
Enoch	65	300	365	622	987 (taken to heaven: Ge 5:24)
Methuselah	187	782	969	687	1656
Lamech	182	595	777	874	1651
Noah	500	450	950	1056	2006

Genealogical Chart from Noah to Abram (Ge 11:10-26)

	Age at birth of first-born	Rest of life	Whole life	Year of birth, from creation	Year of death, from creation
Shem	100	500	600	1556	2156
Arphaxad	35	403	438	1656	2094
Shelah	30	403	433	1691	2124
Eber	34	430	464	1721	2185
Peleg	30	209	239	1755	1994
Reu	32	207	239	1785	2024
Serug	30	200	230	1817	2047
Nahor	29	119	148	1847	1995
Terah	70	135	205	1876	2081
Abram	85 (Ge 16:3-4)	90 (Ge 25:7-8)	175 (Ge 25:7-8)	1946	2121

Appendix D

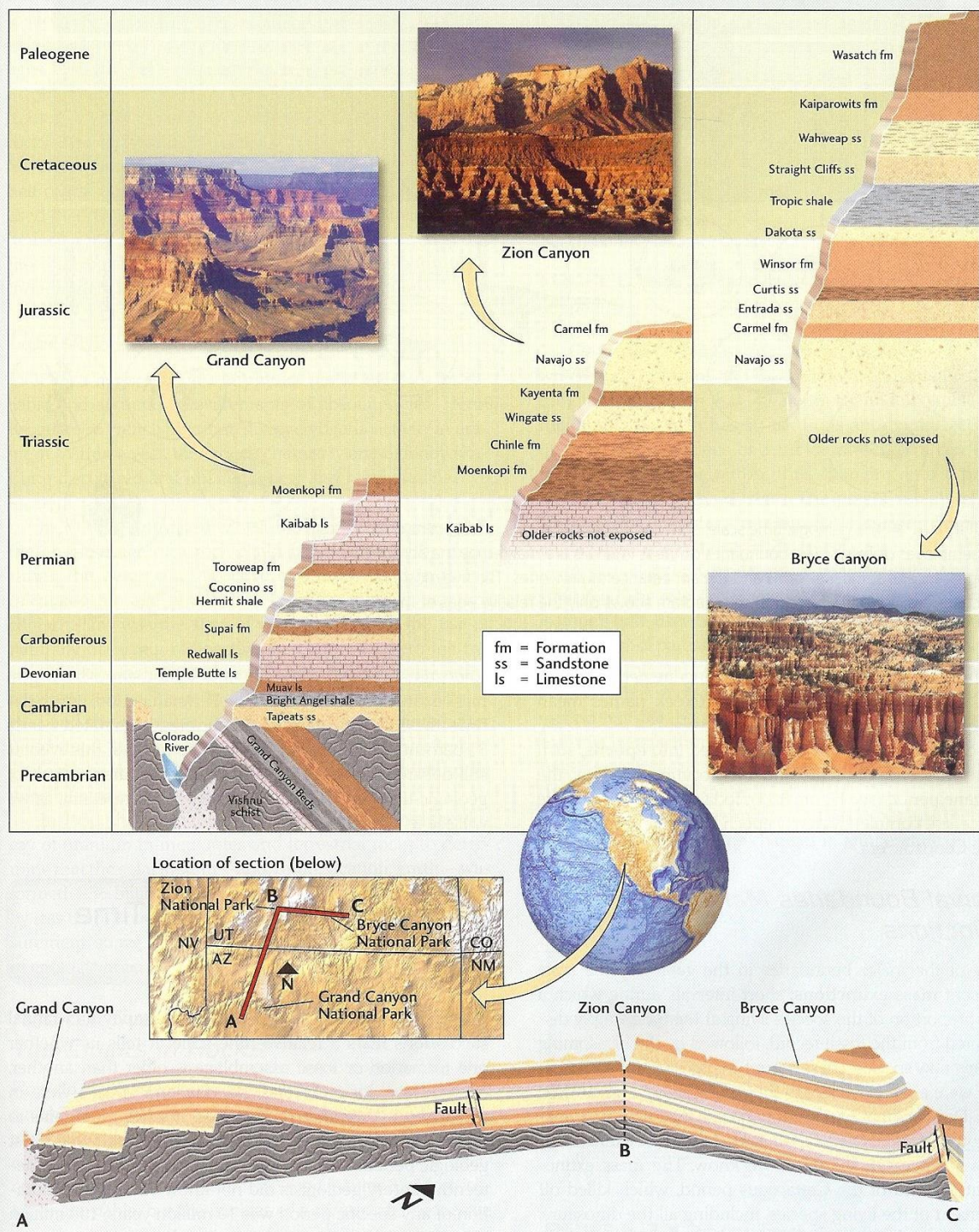


Figure 1. The Sedimentary Strata Sequence of the Colorado Plateau

From Grotzinger, John P., and Thomas H. Jordan. *Understanding Earth*. 6th ed. New York: W.H. Freeman, 2010. 201.

Appendix E

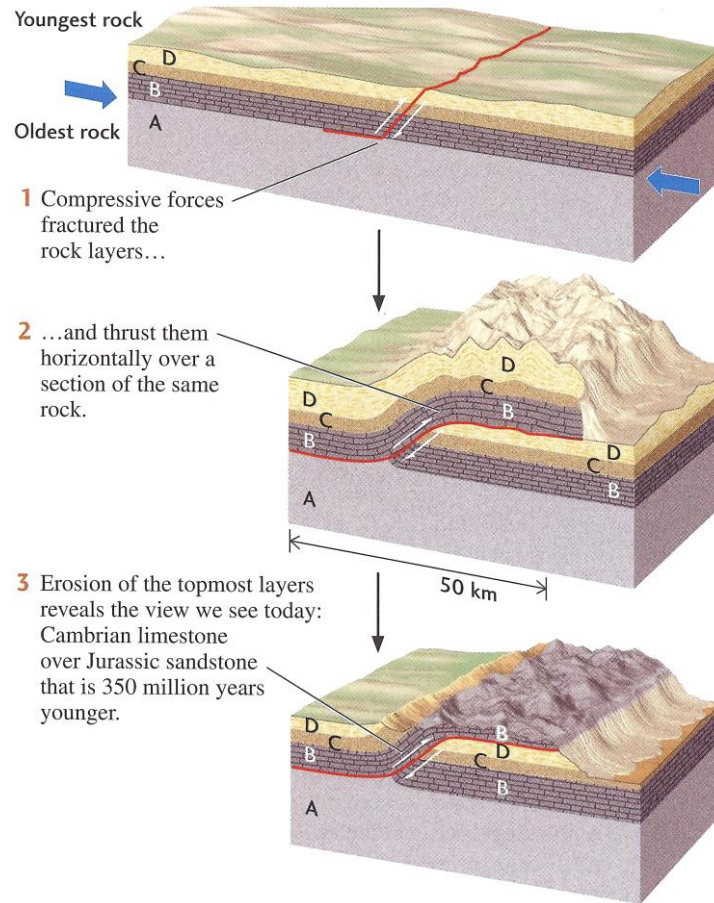
Geologic column					Life	
Eon	Era	Period	Epoch	Age MYBP*	Life-forms/ geologic events	
Phanerozoic	Cenozoic	Quaternary	Holocene	1.8 5.2 23.8 33.5 55.5 65 98.9 144 160 180 206 228 251 290 354 409 439 495 543	Earliest <i>Homo</i> First apes First whales First horses } Asteroid impact? Extinction of dinosaurs	
			Pleistocene			
		Tertiary	Neocene			Pliocene
						Miocene
		Paleocene	Oligocene			
			Eocene			
			Paleocene			
			Mesozoic			Cretaceous
		Early				
		Jurassic				Late
	Middle					
	Early					
	Triassic	Late				
		Middle				
		Scythian				
	Paleozoic	Permian	251	Permian mass extinction		
		Carboniferous	Pennsylvanian	290	First mammal-like reptiles	
			Mississippian			
		Devonian	354	First reptiles First amphibians		
		Silurian	409	First insects First land plants		
		Ordovician	439	First fish with jaws		
		Cambrian	495	First shelled organisms "Cambrian explosion"		
	Proterozoic		543	First multi-celled organisms		
	Archaean	Precambrian		2500	First bacteria	
	Hadean			3800	Origin of life? Oldest rocks	
				4800	Formation of earth	

*MYBP: Millions of years before present

Figure 2. The geologic timescale is depicted under "Geologic column" and the first appearance in the fossil record of specific organisms under "Life."

From Fowler, Thomas B., and Daniel Kuebler. *The Evolution Controversy: A Survey of Competing Theories*. Grand Rapids, Mich.: Baker Academic, 2007. 85.

Appendix F



Keystone thrust fault, southern Nevada

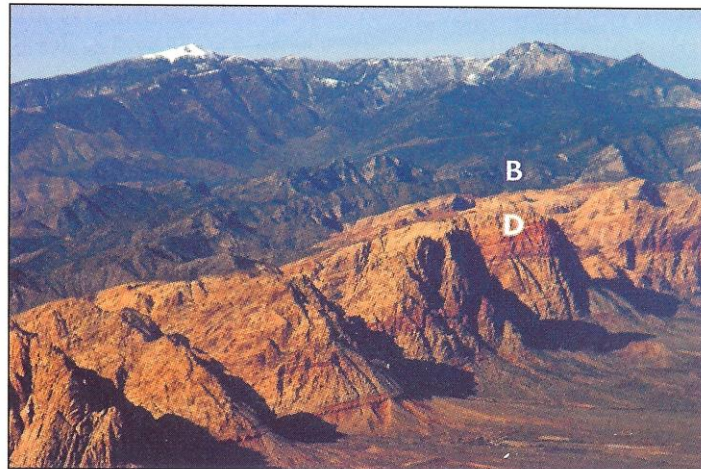


Figure 3. The Keystone thrust fault of southern Nevada is a large-scale overthrust structure of a kind formed during episodes of continental compression. Compressive forces have detached a sheet of rock layers (D, C, B) and thrust it a great distance horizontally over a section of the same rock layers (D, C, B, A).

From Grotzinger, John P., and Thomas H. Jordan. *Understanding Earth*. 6th ed. New York: W.H. Freeman, 2010. 183.

Appendix G



Figure 4. Geological formation at Siccar Point showing Hutton's Unconformity.

From "Pages 040-043 A20 Hutton Principles Applied." Accessed December 11, 2014. http://geowords.com/h_/a22/a22.htm.

Appendix H

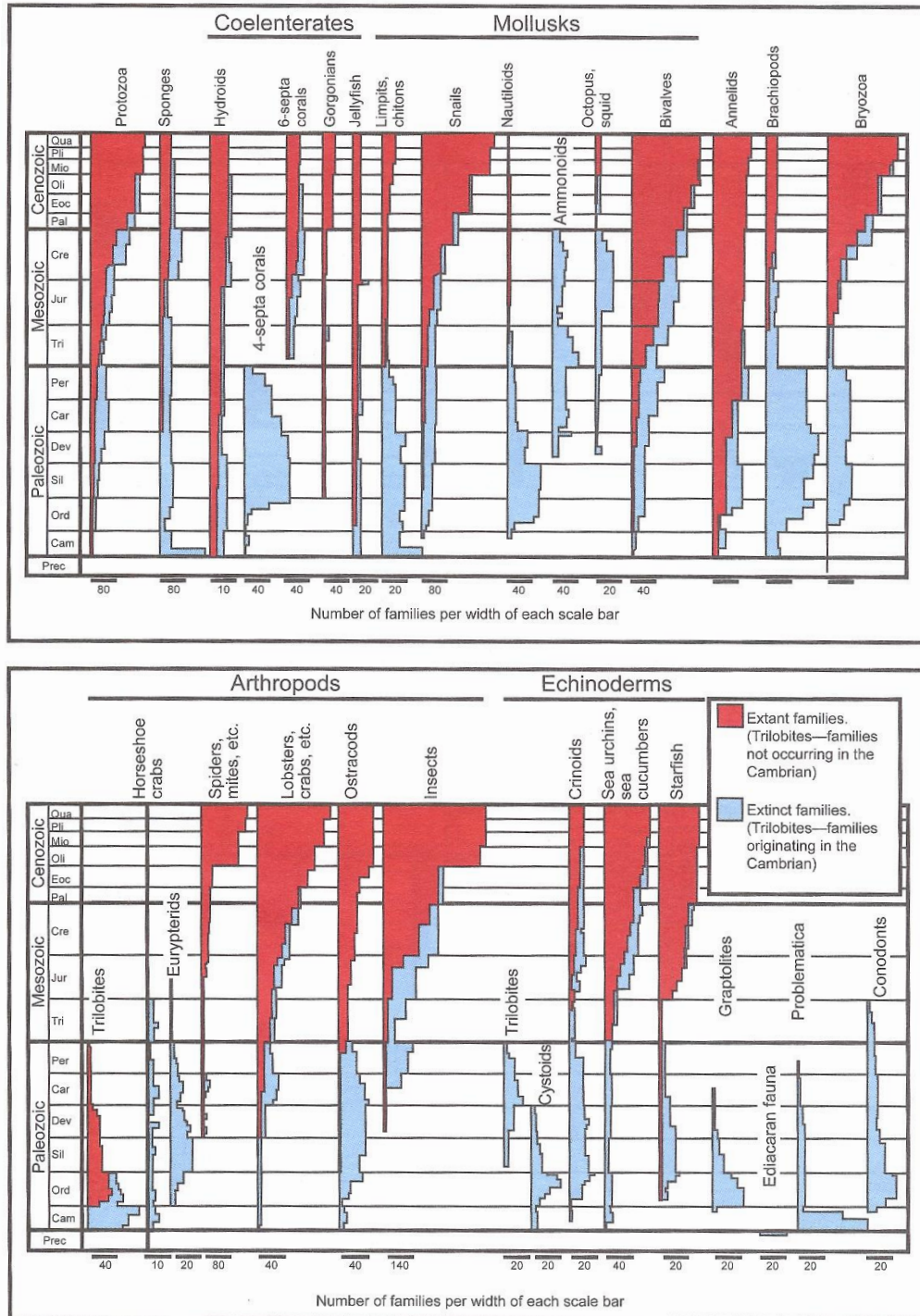


Figure 5. Stratigraphic distribution of major groups of invertebrate animals in the fossil record, showing the distribution of extant and extinct forms.

From Snelling, Andrew. *Earth's Catastrophic Past: Geology, Creation, & the Flood*. Dallas, Tex.: Institute for Creation Research, 2009. 449.

Appendix I

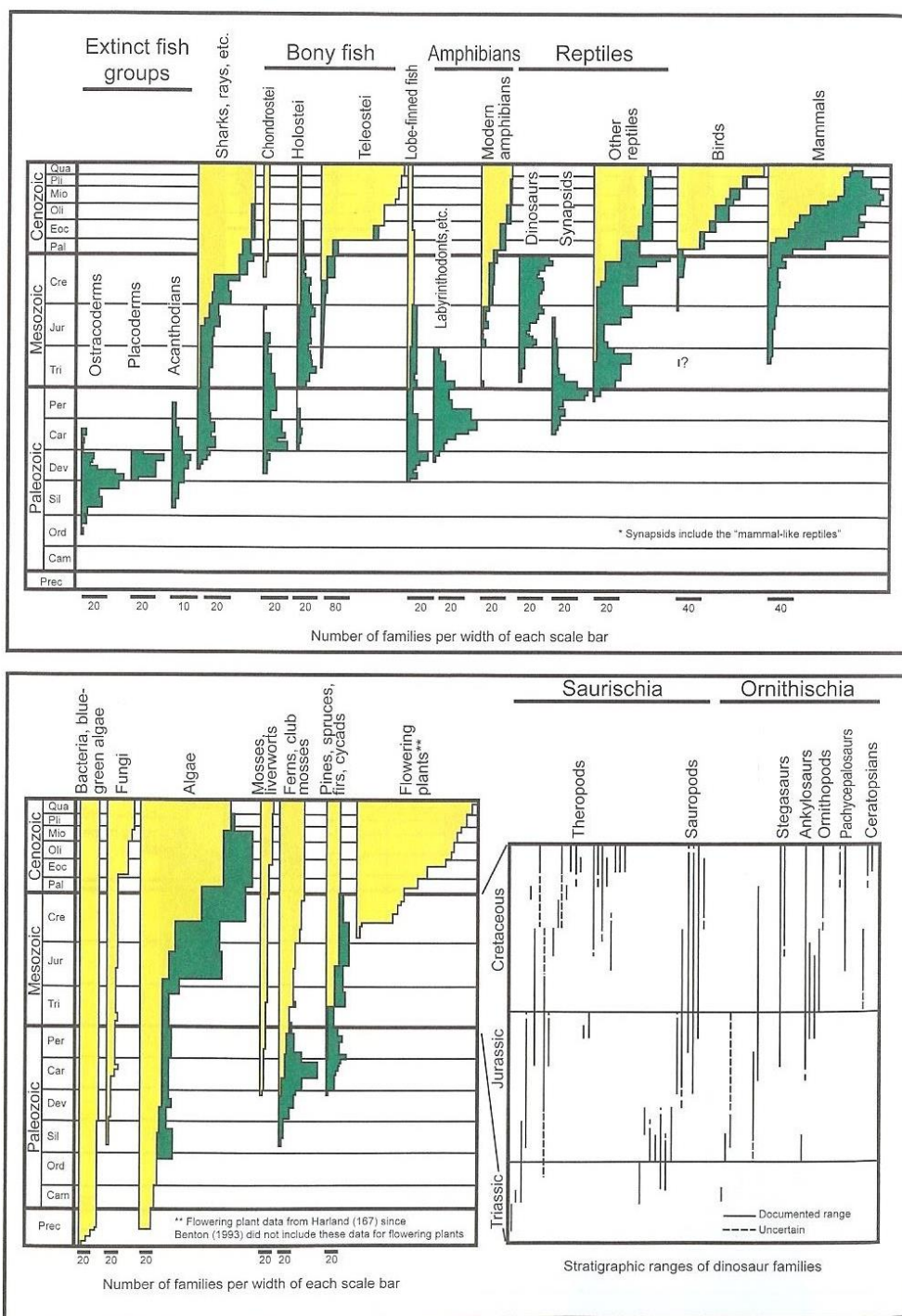


Figure 6. Stratigraphic distribution of major groups of vertebrates and plants in the fossil record, showing the distribution of extant and extinct forms, and the stratigraphic ranges of dinosaur families.

From Snelling, Andrew. *Earth's Catastrophic Past: Geology, Creation, & the Flood*. Dallas, Tex.: Institute for Creation Research, 2009. 450.

Appendix J

Eon	Eras	Periods	Characteristic ecosystem	
Phanerozoic	Cenozoic	Quaternary	<p>This ecosystem is most characterized by the following types of life: human beings, most mammals, and flowering plants/grasses (angiosperms) in great profusion. It is the ecosystem wherein humans can thrive and characterizes what is biblically called "[Garden of] Eden." It now dominates the earth, whereas in the early earth it was only one of various ecosystems. Today it contains remnants of the earlier ecosystems in many life-forms termed "living fossils" because in old-earth evolutionary theories they have remained the same for long ages. The CCC model explains their continued existence as survivors from other created ecosystems, which in the early earth covered large areas.</p>	
		Tertiary		Neogene
				Paleogene
	Mesozoic	Cretaceous Jurassic Triassic	<p>This ecosystem is best known for the dinosaurs, the marine reptiles, and the flying reptiles. For most of the time, the dominant plant life consisted of cycads, conifers, ferns and other coarse herbage, and succulent water vegetation that supplied food for reptiles. In the Cretaceous strata, there is a noticeable change in vegetation from cycads, conifers, ferns, and so on to angiosperms. The CCC model interprets this change of vegetation as an indication that the surrounding Cenozoic ecosystem was expanding and beginning to invade the Mesozoic ecosystem. The result was a decline of the dinosaurs due to limited food supply and changing environmental conditions caused by geologic events of the pre-flood curse. Except for possible representatives from Noah's ark, the reptile pre-flood world may have been largely extinguished before the Genesis flood event.</p>	
	Paleozoic	Permian Pennsylvanian Mississippian Devonian Silurian Ordovician Cambrian	<p>The Paleozoic ecosystem consists of many periods. Much Paleozoic strata is marine in origin. Much of the sea life characterized by this ecosystem is now extinct or thought to be extinct. The trilobites that especially characterize the Cambrian period are one obvious example. All of these life-forms were created during Creation Week, but some forms dominated the early earth and later died out or greatly diminished in the ecosystem as the food chain matured. Biblically, this is the result of life heeding God's command to "fill the earth." In the pre-flood earth, as the various ecosystems changed due to geologic events, pressure from surrounding ecosystems, and changes within the Genesis "kinds," and so on, the ecologic successions were preserved in the geologic record and interpreted as immense time periods by early geologists using uniformitarian theory.</p>	
Precambrian Eon			<p>Life-forms are relatively few and simple (algae, fungi, worms, etc.). Probably represents Creation Week/earliest postcreation/curse events.</p>	

Figure 7. The Creation/Curse/Catastrophe Model interpretation of the geologic column.

From Fowler, Thomas B., and Daniel Kuebler. *The Evolution Controversy: A Survey of Competing Theories*. Grand Rapids, Mich.: Baker Academic, 2007. 224.

Appendix K

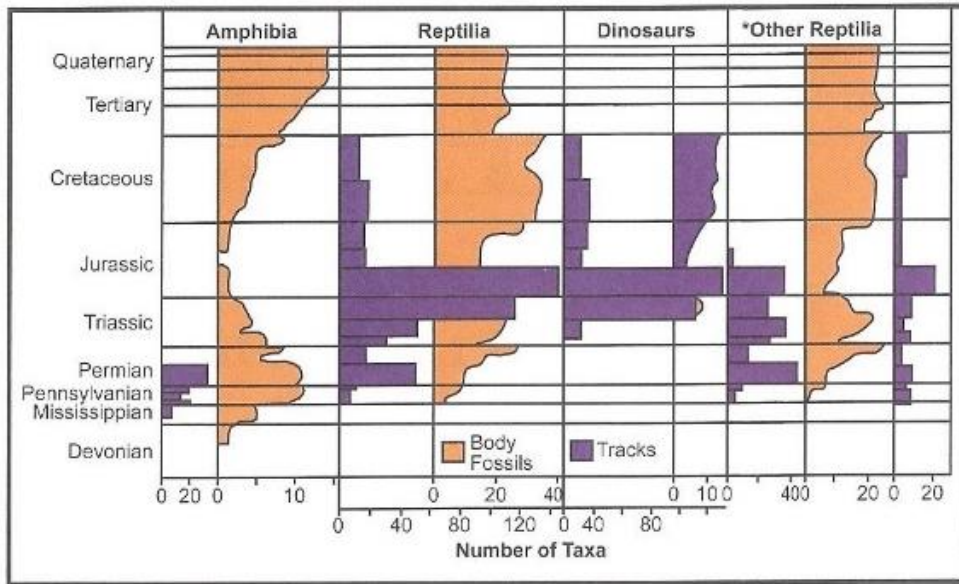


Figure 8a. Stratigraphic distribution of fossil amphibian and reptile tracks and body fossils.

From Snelling, Andrew. *Earth's Catastrophic Past: Geology, Creation, & the Flood*. Dallas, Tex.: Institute for Creation Research, 2009. 451.

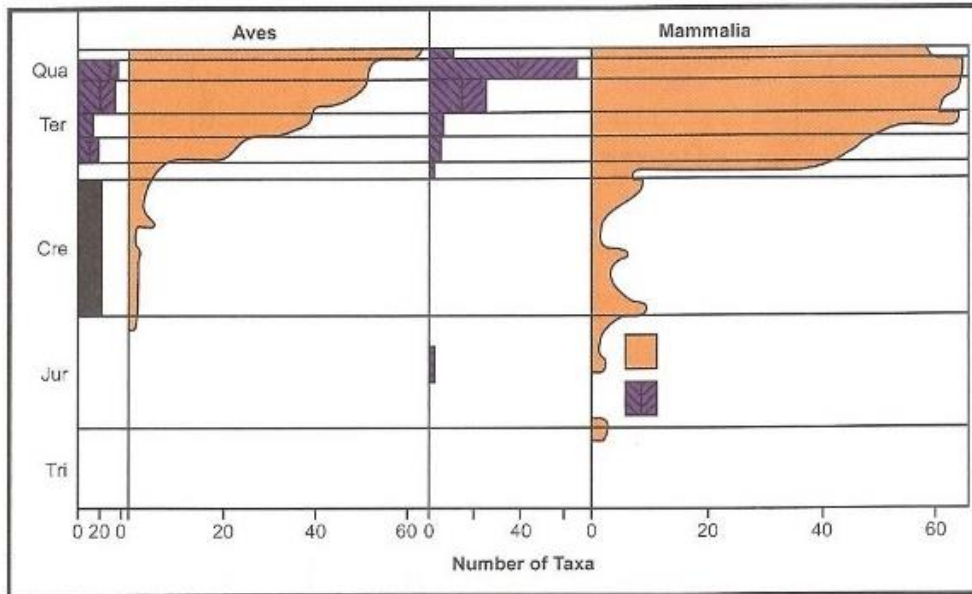


Figure 8b. Stratigraphic distribution of fossil bird and mammal tracks and body fossils.

From Snelling, Andrew. *Earth's Catastrophic Past: Geology, Creation, & the Flood*. Dallas, Tex.: Institute for Creation Research, 2009. 451.

Appendix L

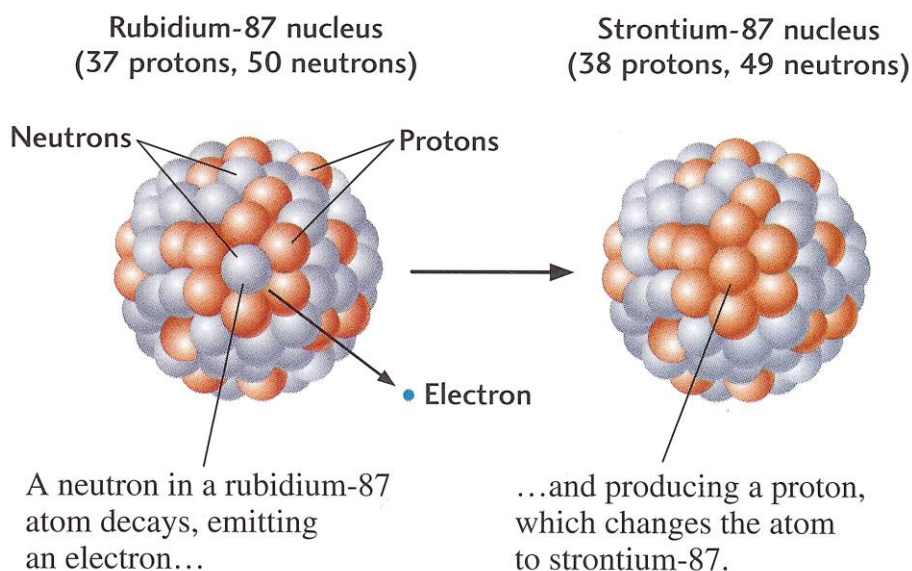


Figure 9. The radioactive decay of rubidium to strontium.

From Grotzinger, John P., and Thomas H. Jordan. *Understanding Earth*. 6th ed. New York: W.H. Freeman, 2010. 203.

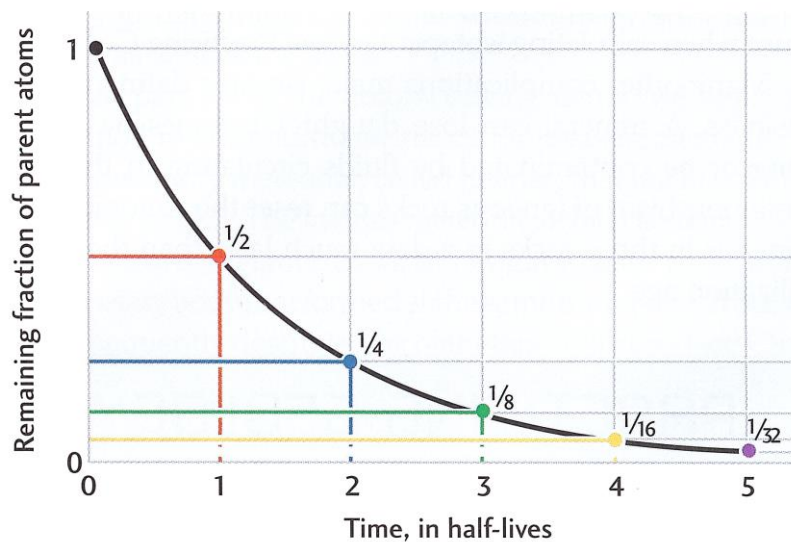


Figure 10. The fraction of atoms of a radioactive isotope in any mineral declines at a constant rate over time. This rate of decay is measured by the half-life of the isotope.

From Grotzinger, John P., and Thomas H. Jordan. *Understanding Earth*. 6th ed. New York: W.H. Freeman, 2010. 203.

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