

Comparing Assumptions for the Age of the Earth and Deep Time

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We all know how dangerous bad assumptions can be. I remember assuming that another car would stop at a stoplight and finding out that this assumption was wrong. Fortunately that time, my van wasn't really hurt. Their car wasn't so lucky. Everyone brings assumptions into their beliefs, including those involving science and faith. Often, we don't ever stop to think about what they are. The question is not are there assumptions, but are those assumptions valid and defensible? If the assumptions fail, then it is like a *house of cards* that collapses

Perhaps a different terminology should be used. Should the word be assumptions or presumptions? According to Merriam-Webster, "Assume and presume both mean "to take something for granted" or "to take something as true." The difference between the words lies in the degree of confidence held by the speaker or writer. If he or she is making an informed guess based on reasonable evidence, presume is the word to use; if a guess is made based on little or no evidence, assume is usually used."

Young Earth Creationists (YEC) often claim that those who present the Earth's history as spanning millions of years or "deep-time" to be actually starting with deep time as one of their assumptions. It is quite true that most scientific literature assumes the reality of deep time, just as scientific papers do not start out by defending that the Earth is not flat. To use a Christian example, we don't start every Bible study by seeking to prove that Jesus was resurrected. We tend to take such issues as having been settled.

Probably both YEC and those who accept deep time would view the other's ideas as assumptions, while their own are presumptions.

What if the question to be addressed is: ***Was the Earth created over deep time?*** How would we go about that without begging the question, or assuming what we are trying to prove? How we phrase the question can serve to make the question testable and thus worth addressing.

Notice that I have specifically not included in this question, whether the Earth was created or formed by purely naturalistic forces. Naturalism assumes that everything arises from natural properties and causes, and supernatural or spiritual explanations are excluded or discounted. That is an important assumption that certainly can be debated. Christians by definition reject this assumption and I, for one, believe that the evidence does not support this assumption. Recognize, also that the geological claim that the Earth is ancient, much older than YEC proposals, was developed in the 1700's and early 1800's, before Charles Darwin proposed that natural selection was the key to life's variety. Whether or not evolution is true does not impact the geological understanding of deep time.

Notice also that I did not ask: was the Earth created 4.59 billion years ago? YEC hold their view of the age of the Earth on the basis of their theological views and specifically based on their chosen interpretation of Genesis 1-3. There is really no theological difference between the Earth being 4.59 billion years old vs. 200 million years old vs. 50,000 years old. If the Earth is any of these ages, then the YEC interpretation of the age of the Earth is invalid. This would not mean that Genesis is false, but it would mean that their interpretation of Genesis does not reflect reality. If the Earth is not 6,000 to 15,000 years old, then their interpretation just does not work. That means the general question can be stated this way: ***Is the Earth less than 15,000 years old (or perhaps 20,000 years old to give a little cushion)?***

Basic tenets of Young Earth Creationism with geologic implications

Today, those who publish YEC views typically present the view that God's creation can be interpreted scientifically consistent with their view. They are not saying that creation appeared complete 6,000 years ago with all of the sedimentary and igneous rocks as we see them today. This means that we can look at their claims and see if this view holds up.

The basis for the YEC view of creation is their interpretation of the Bible. YEC positions are based on the presumption that the Bible is the inerrant Word of God. That is not unique. Many other Christians agree, I included. YEC interpretations of the Bible with respect to creation result in distinct tenets or testable claims. There are variations between YEC interpretations, but we will consider eight common points that have geologic implications. There are other tenets that

Young Earth Tenets with Geologic Impacts

1. Creation took place over six twenty-four-hour days.
2. Earth created mature and complete.
3. Life created on day 3 for plants and day 5 for animals. (No life prior to that.)
4. No death prior to Adam's sin (the Fall)
5. Animal life was created vegetarian and began to eat meat as a result of the fall.
6. No rain before the flood
7. Noah's flood was global
8. The date of creation is indicated by the genealogies of the Old Testament.

impact different sciences, but they are discussed elsewhere. For instance, a geologist cannot “prove” when light first appeared or when man began to wear clothes, though the Bible does address these questions and the YE position is clear about them. These are not for the geologist. The geologist can see if the tenets or fundamental beliefs listed here are consistent with what we find in God’s creation on Earth:

1. Creation took place over six twenty-four-hour days.

The YEC interpretation of the length of the creation days is based on a simple direct reading of Genesis 1. There is no denying that the text is easily read in this fashion, though the validity of this interpretation has long been debated. Augustine of Hippo (354–430) believed that Earth and the whole universe were created by God instantly, but the days were God’s explanation for man. The geologic implication of creation over 144 hours (six days) is that the creation week would appear instantaneously in the rock record. It would not be testable because we could not for instance separate day 2 versus day 6 over any significant area in a geologically consistent manner. No scientific dating tool has that type of resolution. Perhaps there would have been sudden changes, but it would be hard to know what to look for, especially given the second tenet below.

2. Earth created mature and complete.

Many Christians point out that if God spoke the universe into existence, then it could have just appeared as a finished product. Just as Adam was apparently created instantly as an adult with an implied childhood, so the world could have been created mature. Thus, there would be a difference between maturity and actual age. Many, if not all, YECs consider the apparent maturity of pre-fossiliferous rocks not to be an issue. A “mature” earth might appear to have had many of the same processes active that are active today. Early scriptural geologist, Granville Penn 1761–1844 put it this way:

Primitive formations were made “in correspondence with the laws which [God] was then about to establish” anticipation of effects and appearances which were thenceforward to be produced only by the operations of those laws. (summarized from “A Comparative Estimate of the Mineral and Mosaical Geologies,” 1822; (Young 1995))

Examples that are given include volcanic activity and stream activity. Such a hypothesis, of course cannot be proven or disproven using scientific means.

3. Life created on day 3 for plants and day 5 for animals. (No life prior to that.)

4. No death prior to Adam’s sin (the Fall)

These two tenets indicate that all strata with fossils must be considered to have been deposited after Adam’s sin in the Garden of Eden. All fossiliferous rocks were thus formed after creation week and are not part of the “created mature” story. Although we are not told how old Adam was when he sinned, the text states that he was 130 years old when Seth was born, so the time span was not too large. That leaves very little time for rock deposition after creation week, before fossils could have been deposited. This is really important because it means that we can recognize rocks that the YEC must ascribe to have formed after Adam sinned and well after creation week as they understand it.

While it is not useful to think in terms of the passage of time for rocks that might have been “created mature,” we should expect that those after the appearance of life developed over actual time. It then becomes useful to think about how much time was involved, depending on the processes that were active.

It is important to note that the Bible never says that animal death began with the fall of man. This is an interpretation that is not required by scripture. It is no doubt possible to build an internally consistent theological position that includes this, but that does not make it correct. References like Romans 5:12-14 and 1 Corinthians 15:20–22 refer specifically to the death of humans as a result of sin. 2 Peter 2:5 tells us that Noah’s flood was a judgement specifically on the world of the ungodly.

5. Animal life was created vegetarian and began to eat meat as a result of the fall.

This means that any rock with fossils had to have been laid down after Adam’s fall. Together with animal “no death before the fall”, this meant that in order to eat, all the animals would have been herbivores. This means that all adaptations that are clearly for carnivores or predatory forms or even those adapted for eating insects must have developed as a result of the Fall. Some YEC do not extend the lack of death to insects or lower lifeforms but it is unclear what the basis for this would be, given their demands from the biblical text. When we see fossils of carnivores, those animals would have lived, not just after Adam’s sin, but after animals evolved from that initial state into genetically and physically different beasts. The evolution rate for the plant-eating animals becoming carnivores must have been incredible. Imagine all the adaptations that would have been involved to end up with a shark or tiger after the flood. Joel Duff – *Naturalis Historia* identified key problems here: Where is Noah’s Flood in the Geological Column?

6. No rain before the flood

Rain prints and evidence of rainfall are common in the rock record. Many YEC demand that all of these were deposited during or after the flood. The pre-flood earth is viewed as not having the marvelous water cycle that we have today. Presumably rock deposited before fossils entered the scene could include rain prints because of the “mature” creation. Apparently, if rain was not part of the original plan for the earth, then God anticipated it as a part of what the mature earth would be like. Scheven points out that the lack of rain implies little erosion compared to today (Scheven 1990) and that is another potential impact. This YEC interpretation of globally no rain before the flood is not the only option. Another possible interpretation of Genesis 2:5-6 is that the land referenced is the Garden of Eden, rather than the global earth. Thus, rain just didn’t fall in the Garden until later. This garden is portrayed as a very special place. Extrapolating the conditions there to the entire globe is a bridge too far.

7. Noah’s flood was global

How should Christians deal with all of the animal death evident in the rock record? As early natural philosophers (what early scientists were called) began to describe the rocks on the planet in the 1600s and 1700s, they recognized that many sedimentary rocks were riddled with fossils. If these were from actual animals that died, that implied a lot of death. How could they reconcile this with

their understanding of scripture? Some decided that these fossiliferous rocks had to have been the result of Noah's flood.

Over the years, many rock formations and characteristics have been attributed to Noah's flood. A global flood means that the resulting deposits would all be stratigraphically related. There should be a synchronous surface below the flood deposits though the waters might have eroded into older sediments of other ages. Geologists refer to such a surface as an unconformity. This unconformity would always have sediments and rocks from before the flood below it and rocks from the flood or younger above it. The rocks deposited by the flood should be consistent with having been laid down very quickly by water. Some claim that the flood period had dramatic volcanism, but surely the dominant process would have been deposition from water. The top of the flood deposits should be of a uniform age, except where they were eroded later. Some interpret different processes for different parts of the flood, but there does not seem to be a consensus about this.

8. The date of creation is indicated by the genealogies of the Old Testament.

Bishop Ussher, a scholar and head of the church in Ireland, declared in 1650 that creation took place Sunday, 23 October 4004 BC and this date is accepted, at least approximately by most YEC authors (Clarey 2020; Humphreys et al. 2011; Vardiman 1996; MacArthur 2005; Morris and Whitcomb 1961; McIntosh 1997; Rosevear 1986; Huse 1997). Some YEC authors have noted variations in generations given in the Bible and consider that gaps are possible in the genealogies (MacArthur 2001; Whitcomb and Morris 1961).

An important example is found in Whitcomb and Morris's appendix on "Genesis 11 and the Date of the Flood" in the classic YEC book, "The Genesis Flood", John Whitcomb and Henry Morris recognized that the genealogies are not necessarily providing a specific date for the flood. Here are a few quotes from this appendix:

"Since, therefore, so many pedagogical purposes are evident in these two genealogies that have nothing to do with the actual length of the overall period, it is unnecessary to press them into a rigid chronological system."

"The strict-chronology interpretation of Genesis 11 has been shown to be unnecessary for various reasons. Thus, it seems Biblically possible, or even probable, that the Flood occurred several millennia before Abraham."

"On the basis of the analogy of Biblical chronology, therefore, we maintain that it is very hazardous to assume a period of 100,000 years between the Flood and Abraham."

Typically, the oldest dates considered acceptable would place creation no older than 10,000 to 15,000 BC. This is critical to their interpretation of much scientific data. Noah's flood would have been interpreted not long thereafter. Any data that suggests a significantly older date must be explained as errant or misinterpreted.

Basic geological assumptions

Just as the YEC position comes from assumptions, there are assumptions a geologist must make to address the key questions that I gave: ***Is the Earth less than 15,000 to 20,000 years old?***

For the moment, setting aside the theological arguments, we should try to answer the question: is the geological rock record consistent with the YEC tenets above and the consequences that come from them? The majority of YEC and flood geology proponents claim that the scientific data support their interpretation of scripture. That is testable.

It comes down to simple questions, such as: could most of the sedimentary rocks have been deposited during a single global flood? What about the metamorphic and igneous rocks? The assumptions used to test such proposals need to be simple and supportable. Science claims to start with and hold to simple presumptions.

“Understanding Science 101” reports that “science operates on the assumptions that natural causes explain natural phenomena, that evidence from the natural world can inform us about those causes, and that these causes are consistent”

(Understanding Science, n.d.). Science normally does not try to defend the presumption of using only natural causes, but it is important to understand that it is there. Appealing to only natural explanations as a working method is called methodological naturalism (Scott 2009). It works well for most questions and certainly in day-to-day geology. It allows for the type of rigorous investigation that has worked well in science and is tested daily in practical fields, such as in petroleum geology. I do not know any scientist, Christian or not, who considers proposing a miracle as an explanation in their daily work. Some scientists do go beyond this to “philosophical naturalism”, the atheistic view that natural explanations really are all that exist. Somehow, they have enough faith to trust that these are adequate to explain the universe and life. If one starts with naturalism as an assumption, then of course YEC “flood geology” fails but that really proves nothing. Such an assumption is not really adequate for ultimate questions about origins. In any discussion of ultimate origins, philosophical naturalism would be starting with the conclusion as one of the assumptions. Testing the key question must use a few simple defensible presumptions but not ones that already assume the result. It cannot rule out miracles but expects that miracles would not masquerade as totally non-miraculous events.

Here is a list of basic geological presumptions from a Christian perspective and a brief basis for each.

Geological Presumptions

1. The earth's rocks were not created in a form designed to deliberately deceive us.
2. Basic order of sediment deposition is real and can be discerned
3. Fossils represent dead plants and animals (not fakes).
4. We can identify the processes by which sedimentary rocks were deposited.
5. There are some limits to the rates that are reasonable for deposition and other geologic processes.

1. The earth's rocks were not created in a form designed to deliberately deceive us.

One reason modern science flourished in the western world is because of a Christian heritage that believed that God created a good universe. Its order and reason are derived from its Creator. Just as

He is truth, Christians trust His revelation of Himself in creation to be true. As a geologist, here is one of my favorite passages: **“For the Lord is a great God, and a great King above all gods. In his hand are the depths of the earth; the heights of the mountains are his also. The sea is his, for he made it, and his hands formed the dry land”** (Ps. 95:3–5).

Geology is His creation. It reflects Him. Certainly, many societies have worked on different assumptions, with capricious gods that were not trustworthy. The scientific assumption that natural causes explain natural phenomena is not the only possibility but, in this case, when founded on the character of God, it makes scientific endeavor potentially worthwhile. The God of Truth (Isa. 65:16) is the maker of heaven and earth and He is faithful forever (Ps. 146:6). God does not create things mature in order to deceive man. If our interpretation makes God deceptive, then it is wrong.

2. The basic order of sediment deposition is real and can be discerned

This is a core task for the branch of geology called stratigraphy, the study of sedimentary rock layers and how they formed. Geologists are all taught the “law of superposition” that basically states that sedimentary rocks are laid down as horizontal or sub-horizontal layers referred to as “beds” with the oldest on the bottom. Geologists are not the only ones to use this “stratigraphic filing system” to locate things. Just go into a teenager’s room. Where are the oldest papers? However, the teenager may suddenly go into the room and disrupt the stratigraphy in a frantic search for a missing paper. Similarly, geologists recognize that later events such as faulting and folding may disrupt the order of sediments as well. In some cases, it can even make it difficult to recognize which side of the strata was up originally, but geologists have identified many means to work this out. Fortunately, it is normally possible to go to areas where the rocks have not been deformed and work out the basic stratigraphic order. This order is commonly referred to as the “stratigraphic framework” because it gives the basic timeline for understanding the order in which sediment deposition and other events took place. Once the basic stratigraphic framework is developed in the simpler areas, it can be carried into more complex areas. This is really important. If we can work out the order of deposition, then we can have meaningful discussions about the processes and time involved. This assumption does not claim particular rates at which rocks were formed, so this does not in any way assume deep time. If the order were just random or so complex that it cannot be discerned, such work would be fruitless. (Price 1913; Morris and Whitcomb 1961), and several other early authors did not accept geologist’s ability to discern this order of rock formation. More recently, several major YEC authors (Clarey 2020; Garner 2011; Garton 1991; Scheven 1993; Snelling 2009) have written publications accepting the basic global stratigraphic order recognized by geologists, even though they don’t agree with the absolute ages involved. Even now, others, typically those with little time spent understanding geology, write as though the geologic framework were useless. Some will accept the order where it fits their model for the flood and then conveniently reject it when it does not conform.

The geologist’s stratigraphic filing system provides a “relative time scale.” It is relative, in that we can tell what is older and younger, but it does not tell us by itself how much older in years. That requires something else, some sort of clock or calendar to provide absolute ages. If you ask a geologist how old a rock is in years, the age you get will be based on radiometric dating. Radiometric dating was invented in 1905 by Rutherford (USGS, n.d.), long after the major geologic ages were defined and in world-wide use. Most geologists seldom actually date rocks radiometrically. We are typically far

more concerned about their relative age and are satisfied with dates worked out globally for the age of various units. The International Commission on Stratigraphy works very hard to define the absolute age of units in years and there are often small adjustments as better data becomes available (International Commission on Stratigraphy 2013). The dates that they have developed are consistent with the rates of geologic activity that we see today. It is an almost universal YEC position that radiometric dates are flawed. Measurements of ages in millions of years do not fit well with a creation ten thousand years ago or less. Many articles have been written questioning the presumptions that support the methodology, but it is clear that the YEC objections are driven by their belief in the YEC tenet 8 from above, not from the scientific demands. If radiometric dating were to somehow be proven completely untrustworthy, that would hardly prove the Earth is young. Geologists recognized the antiquity of the Earth before Rutherford's work.

For the purposes of addressing the questions in this article, it is not necessary to use radiometric dating as the basis for the age of rock units. The idea that the earth is more than 20,000 years old was well established before radiometric dating was invented. That is not to say that I do not accept radiometric dating. I am quite comfortable using radiometric dates where good data is available. This technique is quite independent of other geologic methods and provides independent support for the antiquity of the earth. The physics behind radiometric dating is very solid, the technology is robust when used appropriately. Any real explanation for what we find in creation needs to explain the observation of tremendous amounts of radiometric decay that correlates with the relative stratigraphic age demonstrated in the rocks by superposition. More information here: [Radiometric Dating](#)

3. Fossils represent dead plants and animals (not fakes).

This follows from the first assumption but in early days, some did not believe it. When fossils began to be found of creatures that were clearly different than those living today, some rejected them as artifacts, not remains of things once living. Assuming that they do represent evidence of ancient life is key in assessing YEC tenets 2–5. If God created a “mature” universe that included fossils that really were never alive, it would, for instance, mean that the dinosaurs never really lived, but were created as fossils. This is not a scientific question, but a theological and philosophical issue. God could just as well have created the universe last week, along with all of our collective memories (known as last Thursdayism). No scientific study could address this possibility. It would be within God's might to do so, but it would really be deceptive and that would be against His character. God does not lie! (Titus 1:2, Deut. 32:4)

4. We can identify the processes by which sedimentary rocks were deposited.

The presumption here is that it is possible by systematically studying rocks in their setting to learn about how they were formed. Many of my age of the earth articles provide examples that directly involve this. It is worth noting that all flood geologists assume the same thing. In some instances, both YEC and other geologists agree about the processes, if not the timeframe. This presumption does not start with deep time but challenges flood geology and the YEC timeline.

The geologic branch of sedimentology involves the detailed study of the processes by which sedimentary rocks were deposited. Depositional processes that are active today have been studied extensively. Why do we care how sediments are laid down today? James Hutton (1726–1797) is

credited with explaining the logic by saying “*the present is the key to the past.*” (principle of uniformitarianism) Today we might modify this slightly to say: “*the present is a key to the past.*” We recognize that some processes that were active in the past just cannot be observed today. Until we have another asteroid impact, we will not be able to physically observe all of the processes involved. That said, the processes related to asteroid impact would be expected to be physical processes, many of which are just like those we see every day. They would just be working at different rates and scales than normal processes. The same would be expected for much of what would have happened during a global catastrophic flood. For example, one would expect fast moving water to cause erosion and slow water to allow sediment to settle. The types of bedforms and sedimentary structures that develop with massive floods and high velocity water flow are documented.

Can geologists actually be confident that they have correctly identified the processes that caused particular rocks to be formed? In order to build the case for this assumption, I will begin by pointing out some that are pretty unambiguous. The evidence used comes at all scales, from microscopic to packages that cover large areas. First, some individual features are diagnostic such as coal beds with tree roots still in place, reefs with the reef forming animals still in place, algal mats (stromatolites), carbonate banks comprised of grains known as ooids that formed by rolling around on a beach.

5. There are some limits to the rates that are reasonable for deposition and other geologic processes.

In the movies, a person can appear as a baby and then a few frames later appear as a grown man. We also are often amazed at how quickly children grow up but in the real world, people do not grow up in seconds. People grow at different rates, but there are limits there. Unless one hypothesizes that something is miraculously created as mature, then plants and fossils did not grow to full size during a one-year period of time. As it happens, that is exactly the logical consequence of the flood geology interpretation of some rocks: [Dinosaur tracks and coal](#)

Notice that I am not asserting that we can quantify how fast or slowly every rock was formed. Even if we believe that we know the age of the rocks above and below a unit, we cannot simply divide the thickness of the unit by the age difference and calculate a specific rate of deposition for the rock between. This can place some limits, but geologists recognize that individual beds can be deposited very quickly. For example, we recognize deposits in deepwater environments where thick deposits known as turbidites can be laid down in a matter of minutes to hours. Deposits in Spain described as “megaturbidites” can be up to 656 feet (200 m) thick (Seguret et al. 1984). These are interpreted to have been caused by seismic events (earthquakes) that happened sporadically there. Many non-geologists see fossils that demonstrate abrupt deposition and believe that as proof of Noah’s flood. Sudden erosional and deposition events took place many times in the geologic record.

We also see depositional packages that imply much longer time frames. It is difficult to quantify how much time has passed without some sort of clock. Even radiometric dating would not answer the absolute rate question. When we find the same processes and environments in rocks that we see taking place today, it often then becomes difficult to make a case for extremely different rates.

When we see a package of sediment with characteristics such as 1. They are comprised of smaller packets that demonstrate waning and waxing flow in repetitive cycles of deposition and 2. These smaller packets show a cyclicity of about 28 days with thinner and thicker cycles, then I am happy to interpret these as tidal deposits representing months of tidal deposition. [Tidal Clocks and Flood](#)

[Geology](#) We find cycles that represent a few years of deposits. It is not reasonable to assume that they formed during a one-year long flood event. They give us limits on the rate of deposition for the packages.

As we look at the sedimentary layers and the processes by which they were formed, we can think about what things would have needed to be like for vastly different rates to have taken place and whether there is any reason to believe that the world was really like that. Think about sediment deposition along rivers and in deltas. We know and have documented recent rates of river sedimentation. We have measured how fast deltas form for various river types. If we were to postulate that these same processes deposited sediment vastly faster, that would dictate that the rivers were much, much larger. Such rivers ought to be recognizable in the sediments. The interpretation of large amounts of rock as being the result of a single flood that took place over one year demands extremely high rates of deposition. We should be able to recognize processes that would deposit sediment so rapidly. We know what types of sedimentary structures develop in fast water currents and what sand grains look like after such cases. Perhaps deltas did form more quickly than today, but surely there can be rates that would be unreasonable.

Documented examples of rocks with ancient depositional processes that do not fit with flood geology or a young earth.

- [Issue #1: Ancient and Modern Reefs](#)
- [Issue 5. Dinosaur tracks and coal](#)
- [Issue #6: Stromatolites](#)
- [Issue #8: Paleosols](#)
- [Dinosaur Tracks in Sand Dunes ... Under the Sea?](#)
- [Tonto Depositional Processes and Rates](#)
- [Tidal Clocks and Flood Geology](#)
- [‘I have been working on the Railroad’ Dike and thinking about Deep Time](#)
- [Paleosols in a Global flood?](#)
- [Gypsum deposits in New Mexico and West Texas](#)
- [Dinosaur Eggs during the Flood – really?](#)
- [Llano Estacado in New Mexico and Texas Vs. YEC and Flood Geology](#)
- [New Discoveries about Stonehenge vs. Flood Geology](#)

Figure 1. List of articles showing conflicts with flood geology and YEC Interpretations

Example from West Texas.

How do these presumptions work with actual data? Let's look at a real case. In this example, we will consider an area in West Texas and eastern New Mexico where many geologists, including myself, have examined the sediments and concluded that they were deposited in dry arid environments similar to those found today around the Arabian Sea (or Persian Gulf). **(Figure 2 (Sherman 1966; Kendall, 1984; Akili 2004))** This is consistent with a host of characteristics. The lithologies include dolomites, anhydrite, gypsum, halite (rock salt) and fine sandstones, just like in modern salt flats (sabkhas). The detailed depositional and post-depositional processes shown by the sediments fit for sabkha settings and are radically than those of different moving water deposits.

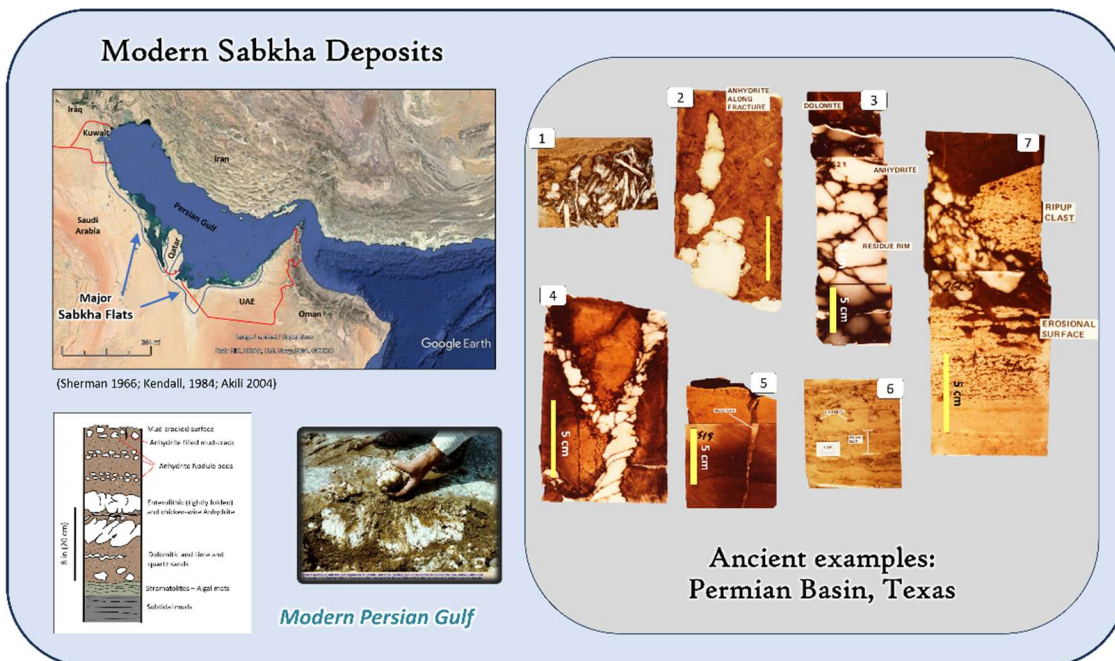


Figure 2. Many ancient deposits share characteristics with sabkha salt flats in the modern Persian Gulf. Gypsum and anhydrite are deposited in characteristic forms along with dolomite and algal stromatolites. (left side of the figure) Shown on the right side of the figure are a series of cores from the Permian Clearfork formation in Mitchell County, Texas, showing many of the evaporites found commonly in sabkha settings. 1) Crystal laths formed of gypsum in dolomite but now replaced by anhydrite; 2) Anhydrite nodules in dolomite; 3) large “spiderweb” anhydrite bed; 4) Anhydrite formed along early fracture; 5) Fine-grained dolomite with desiccation fracture that was filled with anhydrite and then covered with a layer of black shale that folded into the fracture; 6.) Algal stromatolites that formed in the tidal zone. “Birdseye” pockets formed as fresh water leached the stromatolites and then these were filled with anhydrite. 7) Algal stromatolites with an erosional surface. Lime muds washed into the holes. Rip-up clasts of the stromatolites are mixed with the muds, ripped up by a storm. Anhydrite nodules then formed in the mud that has now been dolomitized. These cores, along with many other characteristics, identify that these rocks were originally deposited on an ancient salt flat that was at times flooded by tidal deposits.

Comparing to Assumptions

Next we can systematically compare what we see in these deposits and how the YEC tenets fit them.

1. Creation took place over six twenty-four-hour days.

2. The Earth was created mature and complete.

3. Life created on day 3 for plants and day 5 for animals. (No life prior to that.)

4. No death prior to Adam's sin (the Fall)

The fossils in the units tell us that the YEC would not ascribe them to have been created as is. We also know that the YEC interpretation would have them formed after the fall, for the same reason. All YEC authors who make claims about what sediments were deposited during Noah's flood place these in their flood interval. Look at the Permian section in these YEC stratigraphic columns: [Flood Geology and the Stratigraphic Record](#)

5. Animal life was created vegetarian and began to eat meat as a result of the fall.

Predator fossils would be unusual in samples from such environments. Not tested here.

6. No rain before the flood

Given the arid environments found here, it is not surprising that rainprints have not been identified. Several local storm deposits were recognized. It would at least make sense that this included rain.

7. Noah's flood was global

These contradict a global flood interpretation in at least two ways. First, arid sabkha deposits could not have been formed during a catastrophic flood. Secondly, units like the stromatolites and the six cycles of deposition demonstrate that more than one year of deposition was involved.

8. The date of creation is indicated by the genealogies of the Old Testament.

What if the unit were considered to have been deposited after the flood? If the Earth is 6,000 to 15,000 years old, then one has to account for tremendous amounts of sediment and numbers of geological events between even the earliest date of the flood and the time of Abraham in the late Holocene. This would imply tremendous numbers of miracles for which there is no Biblical or other support.

This example shows that using just five presumptions, it is possible to make flood geology and a young Earth untenable. The arid deposits in West Texas tell us that these were not laid down during a massive flood, unlike the predictions of flood geologists. A thick deposit from arid sabkhas just cannot be part of a flood deposit. That means that the flood explanation for the vast thicknesses of sediments does not work. Without calling on ad hoc miracles not reflected in the Bible, the rock record should reflect normal, non-miraculous processes. However, these will not produce the sediments that we see in the Permian Basin, or other major sediment accumulations in the timeframe allowed by the YEC interpretation. When a card is removed, the house of cards falls down.

This example and the geological assumptions discussion have focused on depositional processes and sedimentary rocks. These same presumptions can be used to evaluate the YEC proposal for the age of the Earth and flood geology using metamorphic and igneous rocks and the deformation of sediments. It is not necessary to assume deep time in order to evaluate the claim that the Earth is 6,000 to 15,000 years old. If there is no theological difference between an earth that is 20,000 years vs. one that is 4.6 billion years old, I see no reason not to accept the ages that scientists have worked out with thousands of man-years of research. The naturalist problem is also still just as real. He must explain how it came to be without a designer or a purpose. Geology is of no help to him. Many scientific studies do not conclusively prove which proposal being considered is correct, but do demonstrate that some alternatives are not viable. Similarly, geology does not tell us how to interpret Genesis, but it does help to tell one interpretation that is invalid.

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