THE GREAT GLOBAL FLOOD - PART 1

THE HISTORICITY OF IT

- Many inside and outside of Christian circles claim the story of a global flood is simply a myth or allegory
- Many have tried to explain the flood as simply a figurative story, a legend, or religious superstition
- Many people doubt the story of the flood because they don't think that there is any evidence
- Most today claim that uniformitarianism is responsible for canyons, fossils, mountains, and rock layers
- Uniformitarianism is the belief that these were all created gradually, over long periods of time by erosion, wind, and water flow
- The assumption is that all geological features that we see today (i.e. Grand Canyon, the Himalayas) came about by the same processes, at basically the same rate over millions of years
- It is the conviction that everything in the universe is stable, fixed, closed and governed by the principles and patterns of this world...and that nothing catastrophic has happened in the past

Biblical Evidence

• Jesus and the biblical writers all understood the flood as an actual, literal, historical event

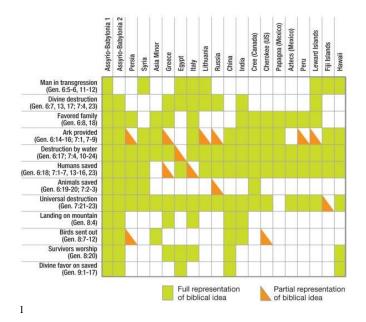
Matthew 24:37-39 ~ For the coming of the Son of Man will be just like the days of Noah. For as in those days before the flood they were eating and drinking, marrying and giving in marriage, until the day that Noah entered the ark, and they did not understand until the flood came and took them all away; so will the coming of the Son of Man be.

Hebrews 11:7 ~ By faith Noah, being warned by God about things not yet seen, in reverence prepared an ark for the salvation of his household...

- 1 Peter 3:20 ~ who once were disobedient, when the patience of God kept waiting in the days of Noah, during the construction of the ark, in which a few, that is, eight persons, were brought safely through the water.
- 2 Peter 2:4-5 ~ For if God did not spare angels when they sinned, but cast them into hell and committed them to pits of darkness, reserved for judgment; 5 and did not spare the ancient world, but preserved Noah, a preacher of righteousness, with seven others, when He brought a flood upon the world of the ungodly
- 2 Peter 3:5-6 ~ For when they maintain this, it escapes their notice that...the world at that time was destroyed, being flooded with water.
- Clearly, the assumption of Scripture is that the flood was a real event, one that Moses devotes an entire 3 chapters to

Cultural Evidence

- There are more than 270 stories from different cultures in the world about a catastrophic flood
- Why do diverse cultures, many landlocked, share a strikingly similar story?
- Such stories all contain similarities to the actual flood of Noah's day...similarities that point to a common source



- One of the most well-known flood legends is the Babylonian *Epic of Gilgamesh*
- In 1853, British archaeologists excavated the ancient library of the Assyrian king Ashurbanipal in Nineveh
- They found a series of 12 tablets of a great epic
- The tablets dated from 650 BC but the poem is believed to have been written in the 18th century BC, about 200 years before Moses' birth
- "The warrior-king Gilgamesh has a series of adventures on his quest to find eternal life. At the end of tablet 10 and all of tablet 11, he goes to a faraway land to meet with Utnapishtim and his wife, who had long before built a boat to survive a global flood that had killed all of humanity except for the small remnant on the vessel."
- "In the story...Gilgamesh meets a sort of Babylonian Noah, Utnapishtim, who also built an Ark to survive a global flood. The council of the gods decided to flood the whole earth to destroy mankind. But Ea, the god who made man, warned Utnapishtim, from Shuruppak, a city on the banks of the Euphrates, and told him to build an enormous boat."
- Which came first? Is the Genesis flood just another myth, perhaps plagiarized from this Babylonian account?

- "It is common to make legends out of historical events, but not history from legends...So the best explanation is that all these people groups have a common tradition based on the real event in Scripture. In general, the tradition became more garbled as they moved further in time and place from the real event."²
- There is an obvious reason for the existence of many flood legends: Noah's descendants stayed together for about 100 years until Babel occurred
- As people were scattered from Babel, their offspring took the account of the flood into their language and nation and thus preserved it in their cultural history

	Genesis	Gilgamesh	
Extent of flood	Global	Global	
Cause	Man's wickedness	Man's sins	
Intended for whom?	All mankind	One city & all mankind	
Sender	Yahweh Assembly of "gods"		
Name of hero	Noah	Utnapishtim	
Hero's character	Righteous	Righteous	
Means of announcement	Direct from God	In a dream	
Ordered to build boat?	Yes	Yes	
Did hero complain?	No	Yes	
Height of boat	Three stories	Seven stories	
Compartments inside?	Many	Many	
Doors	One .	One	
Windows	At least one	At least one	
Outside coating .	Pitch	Pitch	
Shape of boat	Oblong box	.Cube	
Human passengers	Family members only	Family and few others	
Other passengers	All kinds of land animals (vertebrates)	All kinds of land animals	
Means of flood	Underground water & heavy rain	Heavy rain	
Duration of flood	Long (40 days & nights of rain, 110 more days of waters 'prevailing')	Short (6 days & nights)	
Test to find land	Release of birds	Release of birds	
Types of birds	Raven & three doves	Dove, swallow, raven	
Ark landing spot	Mountains—of Ararat	Mountains—Mt Nisir	
Sacrifice after flood?	Yes, by Noah	Yes, by Utnapishtim	
Blessing after flood?	Yes	Yes	

¹ https://answersingenesis.org/the-flood/flood-legends/flood-legends/

² Jonathan Sarfati, *The Genesis Account*, 506, 510.

³ https://answersingenesis.org/the-flood/flood-legends/the-genesis-flood-not-just-another-legend/

⁴ Sarfati, Genesis Account, 505.

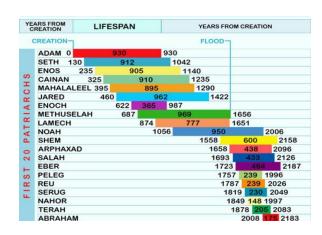
- "The widespread nature of flood traditions throughout the entire human race is excellent evidence for the existence of a great flood from a legal/historical point of view. Dating of the oldest fragments of the Gilgamesh account originally indicated that it was older than the assumed dating of Genesis. However, the probability exists that the Biblical account had been preserved either as an oral tradition, or in written form handed down from Noah, through the patriarchs and eventually to Moses, thereby making it actually older than the Sumerian accounts which were restatements (with alterations) to the original...The divine inspiration of the Bible would demand that the Genesis account is the correct version. Indeed the Hebrews were known for handing down their records and tradition. The Book of Genesis is viewed for the most part as an historical work, even by many liberal scholars, while the Epic of Gilgamesh is viewed as mythological. The One-source Theory must, therefore, lead back to the historical event of the Flood and Noah's Ark. To those who believe in the inspiration and infallibility of the Bible, it should not be a surprise that God would preserve the true account of the Flood in the traditions of His people. The Genesis account was kept pure and accurate throughout the centuries by the providence of God until it was finally compiled, edited, and written down by Moses. The Epic of Gilgamesh, then, contains the corrupted account as preserved and embellished by peoples who did not follow the God of the Hebrews."
- Thus, the existence of flood traditions all over the world argues for the historicity of the Genesis account

THE HISTORICAL DETAILS

Entry Onto the Ark

Genesis 7:1-5 ~ Then the LORD said to Noah, "Enter the ark, you and all your household, for you alone I have seen to be righteous before Me in this time. 2 You shall take with you of every clean animal by sevens, a male and his female; and of the animals that are not clean two, a male and his female; 3 also of the birds of the sky, by sevens, male and female, to keep offspring alive on the face of all the earth. 4 For after seven more days, I will send rain on the earth forty days and forty nights; and I will blot out from the face of the land every living thing that I have made." 5 Noah did according to all that the LORD had commanded him.

- After the ark was complete, it was time for boarding
- 70 years has passed since Noah began building the ark and during that time he was a "preacher of righteousness" (2 Peter 2:5)
- Although we do not know the exact content of his preaching, Noah no doubt urged his generation to turn from their wicked ways in the facing of impeding judgment
- Furthermore, in addition to his proclamations to the unbelieving world of his day, his construction of the ark constituted "wordless preaching" where every board cut and every hammer blow was a call to repentance and a declaration that judgment was coming....the time for warning had come to an end
- God affirmed that "you alone I have seen to be righteous before Me in this time"
- This likely included his family as well since they chose to follow him on the ark, which suggests that they shared his trust in the Lord
- Noah's righteous ancestors had already passed away, his father Lamech 5 years before and his grandfather Methuselah just prior to the flood
- Only Noah would connect the old world with the new world



⁵ https://www.icr.org/article/noah-flood-gilgamesh/

- Some Hebrew scholars believe that the name *Methuselah* means "when he dies it is sent," referring to the flood
- Some Jews believed that God gave Noah time to mourn the death of Methuselah, whom they believe died a week before the Flood began (Gen 7:4)
- Interestingly, the biblical math backs up the notion that Methuselah died the same year the Flood occurred
- Methuselah fathered Lamech when he was 187 years old (Gen 5:25)
- Lamech fathered Noah when he was 182 years old (Gen 5:28)
- The Flood occurred when Noah was 600 years old (Gen 7:6)
- Doing the math...187 + 182 + 600 = 969, which is the age Methuselah was when he died (Gen 5:27)
- Regardless, Noah and his family were the only righteous people on the earth with a likely population in the billions
- Although Noah had been told previously to take a male and female of all land vertebrate kinds (6:19-20), here he is told to take extra "clean" animals and extra flying creatures
- The distinction between "clean" and "unclean" animals became a major point of the Mosaic Law (cf. Lev 11:2-23)
- Clearly, the "clean" animals would be used for sacrifices and food

Genesis $8:20 \sim$ Then Noah built an altar to the LORD, and took of every clean animal and of every clean bird and offered burnt offerings on the altar.

Genesis 9:3 ~ Every moving thing that is alive shall be food for you; I give all to you, as I gave the green plant.

- Additionally, perhaps the "clean" animals would have been used for domestic needs after the flood
- Also, the extra flying creatures could have been brought on board to assist with preparing the post-flood environment since they can spread out faster than animals and disperse seeds through their waste
- Regarding the number of "clean" animals on the ark, did Noah bring seven individuals or seven pairs of each clean animal and flying creature?
- The Hebrew phrase "sevens, male and female" is literally "sevens sevens male and his female"
- Some have suggested that this means seven individuals (i.e. 3 pairs plus one extra for a sacrifice)
- This is a possibility in light of Genesis 8:20 which indicates that some of the clean animals and birds were offered as a sacrifice after the flood
- So if Noah brought seven aboard, then he could have sacrificed one of each kind, leaving six (three pairs) of each clean animal and bird to multiply and fill the earth
- However, Genesis 8:20 doesn't indicate that he only sacrificed one of each clean animal/bird...he could have sacrificed a male and female from each pair
- Additionally, if there were just seven of each kind of clean animal, then each male would not have a mate
- Thus, the "seven pairs" view seems more probable, especially in light of the fact that the Hebrew text literally states that Noah would bring "seven seven" and that they would be a male and his female
- Further, the Hebrew text clearly states that Noah was to take seven pairs of all "birds of the sky," (i.e. flying creatures)
- Noah was supposed to take seven pairs of every kind of flying creature, including bats and flying reptiles
- Presumably, this would also mean that flightless birds, such as ostriches and cassowaries, were only represented by a single pair on the Ark, assuming their kinds were originally flightless

Extinct Groups	Kinds (est.)	Per Kind	Total Animals (est.)
Amphibians	54	2	108
Reptiles	219	Flying: 24 x 14 = 336 Flightless: 195 x 2 = 390	726
Non-Mammalian Synapsids	78	2	156
Mammals	332	Clean/Flying: 15 x 14 = 210 Unclean: 317 x 2 = 634	844
Birds	89	Flying: 69 x 14 = 966 Flightless: 20 x 2 = 40	1,006
Living Groups	Kinds (est.)	Per Kind	Total Animals (est.)
Living Groups Amphibians	Kinds (est.) 194		Total Animals (est.)
	•	Per Kind	
Amphibians	194	Per Kind 2	388
Amphibians Reptiles	194 101	Per Kind 2 2 Clean/Flying: 31 x 14 = 434	388

- In v. 4, God allows just seven more days for people to repent...but God's patience does not last forever
- God promises that at the end of those seven days, rain would begin to fall from heaven, a rain that last nearly six weeks
- The result would be complete and utter destruction of every living thing
- Moses once again affirmed Noah's complete obedience in v. 5, which serves as another reminder of his righteousness
- His full faith in God was evidenced by his complete obedience to God, despite not truly understanding all that God had asked him to do

The Chronology of the Flood

Genesis 7:6-9 ~ Now Noah was six hundred years old when the flood of water came upon the earth. 7 Then Noah and his sons and his wife and his sons' wives with him entered the ark because of the water of the flood. 8 Of clean animals and animals that are not clean and birds and everything that creeps on the ground, 9 there went into the ark to Noah by twos, male and female, as God had commanded Noah.

- The flood came when Noah was 600 years old
- Specifically, v. 11 tells us that it came in the 600th year, in the second month, on the seventeenth day

Year (Noah)	Month Day Event		Duration (days)	Genesis ref.	
600	2	10	Noah entered the ark		7:7,10,11
600	2	17	Heavens and earth opened	7?	7:11
600	3	27	Rain stopped, and presumably also the fountains of the deep. So water began receding.	40	7:12
600	7	17	Ark rested on Ararat mountains (since Flood prevailed for 150 days, this number must be 150-40)	110	8:3-4
600	10	1	Tops of mountains seen	74	8:5
600	11	10	Raven—did not return	40	8:6-7
600	11	18	Dove-returned	7	8:8
600	11	25	Dove—returned with leaf	7	8:10-11
600	12	2	Dove—did not return	7	8:12
601	1	1	Covering removed—ground dry	29	8:13
601	2	27	Everyone disembarked	56	8:14-16
			Total Duration of the Flood	370	***********

⁶ https://answersingenesis.org/noahs-ark/how-could-all-animals-fit-ark/

⁷ Sarfati, Genesis Account, 556.

- The clear, specific numbers and dates that provide a chronology of the flood are indicative of the fact that this was no figurative event
- Moses wants the reader to know that there is no symbolism or allegory here...it took place in real time as an actual historical event
- The precision and details argue for its historicity

Water Sources

Genesis 7:10-12 ~ It came about after the seven days, that the water of the flood came upon the earth. 11 In the six hundredth year of Noah's life, in the second month, on the seventeenth day of the month, on the same day all the fountains of the great deep burst open, and the floodgates of the sky were opened. 12 The rain fell upon the earth for forty days and forty nights.

• There were two main sources of water for the flood: 1) fountains of the deep below the earth; 2) rain above the earth

Fountains of the Great Deep

- The "fountains of the deep" (cf. 8:2) probably refer to great subterranean pools or fountains of fresh water
- These subterranean waters came from deep inside the earth to form the seas and rivers that were part of the original creation (cf. Gen 1:10; 2:10–14)
- These bodies of water were probably not produced by rainfall but rather by deep fountains in the earth that were gathered when God made the dry land appear on day three of creation
- Some of that water from the original creation was stored underground
- The fact that the fountains of the great deep are mentioned before the rains in both 7:11 and 8:2 suggests that the fountains were the primary source of water that flooded the earth
- These broke open at the start of the flood when the earth's crust was shattered by earthquakes, volcanoes, and geysers of molten lava
- The Hebrew word "burst open" is used of other geologic events in the OT

Numbers 16:31 ~ As he finished speaking all these words, the ground that was under them split open

Judges 15:19 ~ But God split the hollow place that is in Lehi so that water came out of it. When he drank, his strength returned and he revived. Therefore he named it En-hakkore, which is in Lehi to this day.

Zechariah 14:4 ~ In that day His feet will stand on the Mount of Olives, which is in front of Jerusalem on the east; and the Mount of Olives will be **split** in its middle from east to west by a very large valley, so that half of the mountain will move toward the north and the other half toward the south.

- "In indicates that in the prevailing phase of floodwaters there was massive tectonic activity in the crust of the earth. These earthquakes would have caused volcanoes and tsunamis (as earthquakes do today) on a global scale, with incredible destructive power."8
- This would have caused a violent, explosive upheaval that squeezed scalding water out of the earth's crust and unleashed a torrent of water
- This water came out with extreme force and intensity such that it would peal back much of the surface of the earth
- It is possible that these fountains did not stop until 150 days into the flood (cf. 8:2-3)

⁸ William Barrick, "Noah's Flood and Its Geological Implications" in *Coming to Grips With Genesis*, 268.



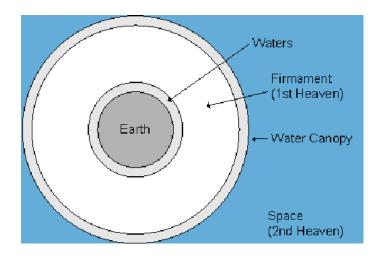
Floodgates of the Sky

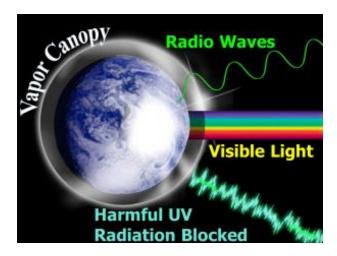
- Also, rain would have dumped tons of water from the "floodgates of the sky" (8:2), literally "the windows of the heavens," a phrase that means "a great pouring out"
- Although most assume from 7:4 and 7:12 that the rain fell only for 40 days and nights, it seems that the pouring of water from the heavens took place over 150 days as the rising water is mentioned no less than 3 times in 7:11-24
 - o On day 1, torrential rain and flooding caused the water level to increase and rise
 - On day 40, the water level was sufficient to lift the ark off the ground (7:17)
 - o After this, the waters increased greatly so that the ark floated freely on the water surface (7:18)
 - o Then the waters continued to rise and all the pre-flood mountains were covered (7:19-20)
 - After the highest regions were submerged (and where there were likely still animals), all flesh died (7:21-23)
- "The significance of the first 40 days (7:12, 17) is with raising the ark off the ground surface, not when the rain stopped and not when the land creatures died. Based on a misunderstanding of 7:4, it is a common misconception that rain (and the whole Flood for that matter) ceased after 40 days. In reality the detailed account of the Flood in 7:11-24 is an expansion of the generalized prophetic announcement of 7:4. It is sequential also: that all life would be destroyed at some point after the 40th day as clearly revealed in 7:11-24. Neither the single verse (7:4) nor the detailed expansion (7:11-24) claim that rain would case after 40 days."
- It not likely that, under the current hydrological cycle, there would be enough water in the atmosphere for there to be a worldwide rain for 150 days and nights
- However, a torrential rain of that magnitude could be easily explained by the presence of the water canopy around the earth
- One of the primary theories is that the "waters above" consisted of a transparent, suspended canopy made up of water vapor or ice crystals that surrounded the entire earth forming its atmosphere
- This understanding has been carefully described by John Whitcomb and Henry Morris in *The Genesis Flood*
- "Whitcomb and Morris suggest that on the second day God suspended a vast body of water in vapor form over the earth, protecting it from the destructive rays of the sun. This might explain the longevity described in Genesis 5, and it provides a water source for the great, universal flood described in Genesis 6-9."
- If this were the case, then the water canopy would have distributed heat evenly around the earth, keeping the earth in a kind of hothouse environment and making all regions of the earth at least semitropical

⁹ Ibid., 269.

¹⁰ John J. Davis, Paradise to Prison: Studies in Genesis, 60-61.

- "An atmospheric vapor wrap gave a place for the waters 'above the firmament.' This canopy's greenhouse effect might have made the whole pre-Flood world tropical and helped people live for hundreds of years." 11
- Organisms would have grown larger than their modern counterparts and could also have lived longer
- It would also explain the dramatic drop-off in longevity after the flood
- It would also explain the absence of rain in the pre-flood world and the absence of the normal hydrological cycle we know today (Gen 2:5-6)





- This would also explain the "window of heaven/floodgates of the sky" that opened when the Flood began
- Despite the arguments for this theory, many creation scientists have abandoned the water vapor canopy model
- The primary problem associated with this view is that the "greenhouse effect" caused by a large water canopy would have caused the surface of the earth to become intolerably hot
- The latent heat of condensation would have boiled the atmosphere
- "Atmospheric physicist Larry Vardiman used climate modeling software to construct a virtual vapor canopy. When he input enough water vapor for the first 40 days of rain during the Flood year, he found that Earth's temperatures would have soared due to an intense greenhouse effect. His results required the sun to emit only 25 percent of its current intensity to keep Earth's inhabitants from basically boiling." ¹²
- If it was the vapor canopy around the earth that came crashing down during the flood, it would have resulted in the new hydrological cycle that we are familiar with today

Job 26:8 ~ "He wraps up the waters in His clouds, And the cloud does not burst under them.

Ecclesiastes 1:7 ~ All the rivers flow into the sea, Yet the sea is not full. To the place where the rivers flow, There they flow again

Isaiah 55:10 ~ For as the rain and the snow come down from heaven, And do not return there without watering the earth And making it bear and sprout, And furnishing seed to the sower and bread to the eater;

- Furthermore, the sequence of water sources in v. 11 may indicate how the water canopy came down
- The breaking up of the earth's crust first (with earthquakes, volcanoes, and spewing of magma and ash into the atmosphere) may have penetrated the water canopy and resulted in its collapse
- This was a catastrophic event that our minds cannot even comprehend

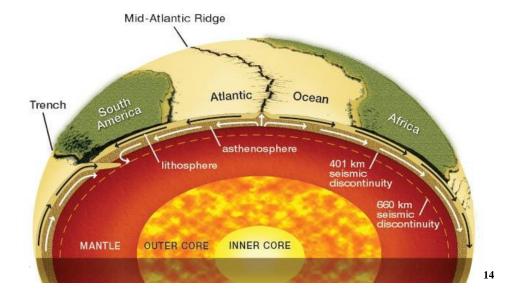
¹¹ https://www.icr.org/article/9296

¹² Ibid.

FLOOD GEOLOGY

Secular Plate Tectonics Theory

- An investigation of the earth's crust reveals that it is made up of a number of rigid blocks called "plates"
- Examining these plates indicates that these plates have moved large distances in relation to one another and continue to move very slowly today
- The word "tectonics" refers to such earth movements and the study of the interactions between these plates is called "plate tectonics"
- Plate tectonics is a way to interpret how these plates moved in the past
- The prevailing secular theory, based on uniformitarian assumptions, is that these plates have moved slowly and gradually over eons of time
- "If today's measured rates of plate drift—about 0.5–6 in (2–15 cm) per year—are extrapolated into the past, it would require about 100 million years for the Atlantic Ocean to form." 13



- "The general principles of plate tectonics theory may be stated as follows: deformation occurs at the edges of the plates by three types of horizontal motion—extension (rifting or moving apart), transform faulting (horizontal shearing along a large fault line), and compression, mostly by subduction (one plate plunging beneath another)." 15
 - Extension (or "seafloor spreading") occurs where the two oceanic plates move away from each other horizontally with new magma from the mantle rising between them to form new oceanic crust
 - o Transform faulting occurs where one plate slides horizontally past another one, like the San Andreas fault in California
 - Compression occurs where two plates move toward one another; if one is an oceanic plate, it is
 cooler than a continental plate so its density is higher and therefor has the ability to sink under the
 continental plate via subduction; if both plates are continental plates, then the deformation resulting
 from the collision results in a mountain range

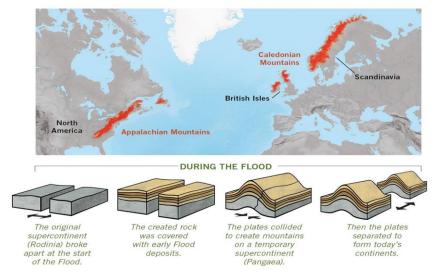
¹³ https://answersingenesis.org/geology/plate-tectonics/a-catastrophic-breakup/

¹⁴ Ibid.

¹⁵ Ibid.

Catastrophic Plate Tectonics

- Better than the "slow and gradual" theory of plate tectonics is the model of catastrophic plate tectonics where the plate movement occurred rapidly
- There have been many attempts to explain what the world of Noah's day (prior to the flood) looked like
- One of the most common ideas early on was that the modern continents were probably at one time attached together forming a supercontinent known as Pangea
- In 1859, a creation geologist, Antonio Snider-Pellegrini, noticed the jigsaw puzzle fit of North and South America with Europe and Africa if the Atlantic Ocean were not there
- He believed that the supercontinent broke apart during the Flood and that "upwelling molten rock from the underlying mantle then helped to propel the continental fragments across the globe, opening up new ocean basins and colliding to produce today's mountains." ¹⁶
- Thus, the belief was that Pangea was Noah's lost world
- However, recently creation scientists believe that Pangea could not have been the pre-Flood supercontinent
- "When we remove the Atlantic Ocean and put the pieces back together again, we find a long mountain chain that ran from North America through Europe. The problem is that this chain, known as the Appalachian-Caledonian mountains, is made out of fossil-bearing sediments that were deposited earlier during the Flood. The only known way to form a mountain chain like this is for one continent to collide with another continent. This means that the Flood had to deposit fossil-bearing layers in North America and Europe before they crashed into each other to form Pangaea. Thus Pangaea cannot have been the pre-Flood supercontinent that Noah lived on. It could only have been a temporary merger of continental fragments during the Flood, lasting no more than a few weeks. Pangaea was a supercontinent during the Flood, but it was completely underwater."
- "Today's continents were once joined together because some mountain chains, such as the Appalachians (US) and Caledonians (UK and Scandinavia), are now separated by thousands of miles. But these mountains were not on the original supercontinent because they are made out of Flood deposits. The only way such mountain chains could form is for the original supercontinent to break apart, the plates get covered by layers containing dead animals, and then crash together temporarily. As these plates moved again, they took with them pieces of the mountain chain formed by the collision, one piece in the US and one piece in the UK and Scandinavia." ¹⁸



¹⁶ https://answersingenesis.org/geology/plate-tectonics/noahs-lost-world/

¹⁷ Ibid.

¹⁸ Ibid.

- Thus, the belief that Pangea could not have been the supercontinent that existed prior to the Flood stems from the fact that they are made out of Flood deposits
- Therefore, many creation geologists believe that another supercontinent existed prior to the Flood...the one described in Genesis 1:9-10
- This earlier supercontinent was likely Noah's lost world
- It has been named Rodinia (from the Russian word *rodina*, meaning "The Motherland")
- "What then did Rodinia look like? Geologists are fairly certain about the basic configuration of the core cratons, but they are still unsettled about many of the details. There are multiple ways to fit together the fragmentary continental pieces of the puzzle...But we do have a reasonable picture of what happened at the catastrophic initiation of the Flood. Huge plumes of molten rock blasted the underside of the earth's crust like massive blow-torches. Eventually the crust was ripped apart, and steam and molten rock burst forth. The supercontinent collapsed, with slivers of land sliding into the ocean at the margins. It must have been horrific."



see today.

19 Ibid

²⁰ Ibid.