



Article

The Noachian Flood: Universal or Local?

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The biblical and scientific evidence pertaining to the subject of a universal versus local Noachian Flood are discussed in this paper. From a biblical perspective, a universal flood model (and its corollary models: flood geology and the canopy theory) is based primarily on: (1) the universal language of Gen. 6–8, (2) Gen 2:5–6, and (3) the presumed landing of Noah's ark on the summit of Mount Ararat (Gen. 8:4). It is argued that the "universal" language of Gen. 6–8 was meant to cover the whole known world of that time (third millennium BC), not the entire planet Earth, and that this interpretation also applies to Gen. 2:5–6—the verses on which the canopy theory is based. It is also argued that the "fifteen cubits upward" flood depth mentioned in Gen. 7:20 favors a local rather than a universal flood.

From a scientific perspective, a universal flood, flood geology, and canopy theory are entirely without support. The geology of the Mount Ararat region precludes the premise of flood geologists that all of the sedimentary rock on Earth formed during the time of Noah's Flood. The most likely landing place of the ark is considered to have been in the vicinity of Jabel Judi (the "mountains of Ararat" near Cizre, Turkey) within the northern boundary of the Mesopotamian hydrologic basin, rather than on 17,000-foot-high Mount Ararat in northeastern Turkey. Since it would have been logically impossible for all animal species on Earth to be gathered by Noah and contained in the ark, it is concluded that the animals of the ark were those that lived within the Mesopotamian region. The archaeological record outside of Mesopotamia also does not support a universal flood model. All of the evidence, both biblical and scientific, leads to the conclusion that the Noachian deluge was a local, rather than universal, flood.

The Noachian Flood has been one of the sharpest centers of controversy in the long history of warfare between biblical theology and science.¹ It also has been one of the main stumbling blocks to faith, especially for scientists. Was this a universal flood responsible for all fossils and sedimentary rock on the face of the Earth, as some biblical literalists maintain, or was it a local flood confined to the limits of Mesopotamia?

This paper takes a "realistic approach" to Bible interpretation, as was done in two

earlier articles: "The Garden of Eden, a Modern Landscape"² and "A Time and a Place for Noah."³ In the latter paper, an attempt was made to establish Noah as a real, non-mythical person who lived in Mesopotamia around 2900 BC, in what archaeologists refer to as the Jemdet Nasr Period (Table 1). In this paper, Noah also is placed in Mesopotamia around 2900 BC.

In the following discussion, two assumptions are made using the "realistic approach" to Bible interpretation:

1. The Bible can be taken at face value; that is, the biblical writer was accurately recording historical events of ancient times, viewed within the culture of those times. By taking the Bible at "face value," nothing is to be read into the Bible that is not explicitly stated in its original (autograph) text.

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- The scientific disciplines of geology, geography, archaeology, biology, and physics can also accurately be applied to the events of ancient times.

Biblical Evidence

One of the basic tenants of many biblical literalists (*creation scientists*) is that Noah's Flood was a universal phenomenon—that is, flood waters covered the entire planet Earth up to at least the height of Mount Ararat, which is ~17,000 feet (5000 m) in elevation. Corollary to this view is the position held by *flood geologists*—that most of the Earth's sedimentary rocks and fossils were deposited during the deluge of Noah as described in Genesis 6–8. To explain this universal flood, flood geologists usually invoke the *canopy theory*, which hypothesizes that water was held in an immense atmospheric canopy and subterranean deep between the time of Creation and Noah's Flood. Then, at the time of the Flood, both of these water sources were suddenly released in a deluge of gigantic, Earth-covering proportions. Along with this catastrophic hydrologic activity, there was a major geologic change in the crust of the Earth: modern mountain ranges rose, sea bottoms split open, and continents drifted apart and canyons were cut with amazing speed. All animals and plants died and became encased in flood sediments, and then these fossil-bearing sediments became compacted into sedimentary rock. There are modifications of the canopy scheme, such as the "ice-lens," "greenhouse," "invisible," and "visible" canopies,⁴ but essentially the canopy theory claims that waters released during Noah's Flood caused all (or most) of the sedimentary and geomorphic features we see today on planet Earth.

Where do creation scientists get their ideas of a planetary geology completely at odds with the principles and findings of modern geology? A universal flood model is primarily based on: (1) the universal language of Gen. 6–8; (2) Gen. 2:5–6; and (3) the presumed landing of Noah's ark on the summit of Ararat (Gen. 8:4), a mountain in northeastern Turkey (Fig. 1). These three topics will be discussed in this paper, as well as other factors that relate to a universal versus local model for the Noachian Flood.

Universal Language of Gen. 6–8

The best argument, biblically speaking, for a worldwide flood is the "universal" language used in Gen. 6–8, and this is no doubt the main reason why people in centuries past have believed that Genesis was talking about the planet Earth, and why this traditional interpretation has continued to the present day. In Gen. 6–8, "earth" (*eretz* or *adâmâh*) is used forty-two times, "all" (*kôl* or *kowl*) is used twenty times, "every" (also *kowl* in Hebrew) is used twenty-three times, and "under heaven" (literally, "under the sky")⁵ is used two times.

Earth. The Hebrew for "earth" used in Gen. 6–8 (and in Gen. 2:5–6) is *eretz* ('erets) or *adâmâh*, both of which terms literally mean "earth, ground, land, dirt, soil, or country."⁶ In no way can "earth" be taken to mean the planet Earth, as in Noah's time and place, people (including the Genesis writer?) had no concept of Earth as a planet and thus had no word for it. Their "world" mainly (but not entirely) encompassed the land of Mesopotamia—a flat alluvial plain enclosed by the mountains and high ground of Iran, Turkey, Syria, and Saudi Arabia (Fig. 1); i.e., the lands drained by the four rivers of Eden (Gen. 2:10–14).⁸ The biblical account must be interpreted within the narrow limit of what was known about the world in *that* time,⁹ not what is known about the world today.

Biblical context also makes it clear that "earth" does not necessarily mean the whole Earth. For example, the *face of the ground*, as used in Gen. 7:23 and Gen. 8:8 in place of "earth," does not imply the planet Earth. "Land" is a better translation than "earth" for the Hebrew *eretz* because it extends to the "face of the ground" we can see around us; that is, what is within our horizon.¹⁰ It also can refer to a specific stretch of land in a local geographic or political sense. For example, when Zech. 5:6 says "*all the earth*," it is literally talking about Palestine—a tract of land or country, not the whole planet Earth. Similarly, in Mesopotamia, the concept of "the land" (*kalam* in Sumerian) seems to have included the entire alluvial plain.¹¹ This is most likely the correct interpretation of the term "the earth," which is used over and over again in Gen. 6–8: the entire alluvial plain of Mesopotamia was inundated with water. The clincher to the word "earth" meaning ground or land (and not the planet Earth) is Gen. 1:10: *God called the dry land earth (eretz)*. If God defined "earth" as "dry land," then so should we.¹²

All, Every, Under Heaven. While these terms also seem to impart a universality to the Flood event, all three are used elsewhere in the Bible for local events, and so—like the term "earth"—do not necessarily have an all-inclusive or universal meaning. For example, Acts 2:5 states: "And there were

Table 1. Archaeological Periods in Mesopotamia

~5500–3800 BC	Ubaid
~3800–3100 BC	Uruk
~3100–2900 BC	Jemdet Nasr
~2900–2750 BC	Early Dynastic I
~2750–2600 BC	Early Dynastic II
~2600–2350 BC	Early Dynastic III
~2350–2150 BC	Dynasty of Akkad
~2150–2000 BC	3rd Dynasty of Ur
~2000–1600 BC	Old Babylonian



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An excellent example of how a universal “Bible-speak” is used in Genesis to describe a non-universal, regional event is Gen. 41:46: “And the famine was over all the face of the earth.”... The same principle of a limited universality in Gen. 41:46 also applies to the story of the Noachian Flood.

dwelling at Jerusalem Jews, devout men out of every nation under heaven.” Does this passage mean every nation under the whole sky of the planet Earth or only the nations that Luke, the writer of Acts, knew about? Certainly it did not include North America, South America, or Australia, which were unknown in the first century AD. Such “universal” language is simply the way people expressed themselves in those days to emphasize a level of inclusiveness—a type of “Bible-speak” that is not supposed to be taken absolutely literally, but in the context of what the biblical author was trying to emphasize. This passage in Acts simply means that devout men (Jews) of many nations from some extended region of the then-known world were present at Jerusalem. The Apostle Paul uses similar hyperbolic language in Col. 1:6:

An excellent example of how a universal “Bible-speak” is used in Genesis to describe a non-universal, regional event is Gen. 41:46: “*And the famine was over all the face of the earth.*” This is the exact same language as used in Gen. 6:7, 7:3, 7:4, 8:9 and elsewhere when describing the Genesis Flood. “All (*kowl*) the face of the earth” has the same meaning as the “face of the whole (also *kowl*) earth.” So was Moses claiming that the whole planet Earth (North America, Australia, etc.) was experiencing famine? No, the universality of this verse applied only to the lands of the Near East (Egypt, Palestine, Mesopotamia), and perhaps even the Mediterranean area; i.e., the whole *known* world at that time.

The same principle of a limited universality in Gen. 41:46 also applies to the story of the Noachian Flood. The “earth” was the land (ground) as Noah *knew* (tilled) it and *saw* it “under heaven”—that is, the land under the sky in the visible horizon,¹³ and “all flesh” were those people and animals who had died or were perishing around the ark in the land of Mesopotamia. The language used in the scriptural narrative is thus simply that which would be natural to an eyewitness (Noah). Woolley aptly described the situation this way: “It was not a universal deluge; it was a vast flood in the valley of the Tigris and Euphrates which drowned the whole of the habitable land ... for the people who lived there that *was all the world* (italics mine).”¹⁴

Canopy Theory (Gen. 2:5–6)

A universal deluge—and specifically the canopy theory—is also based on Gen. 2:5–6: “*And every plant of the field before it was in the earth, and every herb of the field before it grew; for the Lord God had not caused it to rain upon the earth, and there was not a man to till the ground.*

“*But there went up a mist from the earth, and watered the whole face of the ground.*”

Rain. The misuse of the term *eretz* to mean planet Earth rather than a specific geographic piece of land also leads to a misinterpretation of Gen. 2:5: “*for the Lord God had not caused it to rain upon the earth.*” Does this verse mean that it had never rained over the entire planet Earth before Noah’s Flood, as claimed by flood geologists? No, it simply means that it had not rained over a specific parcel of land in Mesopotamia—in this case, the area known as Eden, located at the confluence of the four rivers in the vicinity of the Persian Gulf.¹⁵ This area is one of the driest places on Earth, with an average annual rainfall of less than four inches.¹⁶ Also, the creation of the plants is not alluded to in Gen. 2:5—that was done in Gen. 1:11–12—this verse simply refers to the planting of the Garden of Eden.¹⁷

Mist. A local interpretation of “earth” (*eretz*) also applies to Gen. 2:6: “*But there went up a mist from the earth (land or ground around Eden) and watered the whole face of the earth (ground surface).*” The key word of this passage—and the one on which the canopy theory hangs—is “mist” (*‘ed*). This word has been assumed by flood geologists to imply a thick vapor canopy; yet, meanings other than “mist” and “vapor” have been suggested based on Akkadian and Sumerian cuneiform texts, which were not available to the translators of the King James Version of the Bible. The Akkadian *edū*, from which ‘ed is derived, can refer to the annual inundation of southern Mesopotamia (as well as to irrigation); thus, ‘ed may refer to Eden being watered by floods rather than by a mist.¹⁸ Or, as preferred by Speiser and Cassuto,¹⁹ “mist” in the King James Version is better translated as “flow” in the sense of an underground swell or spring, i.e., the Garden of Eden was watered by a spring. This spring interpretation also fits with Gen. 2:10, which Speiser says should be translated: “*A river (spring) rises in Eden.*”

Depth of the Flood (Gen. 7:20)

Another verse in the Genesis account that is key to whether the Noachian Flood should be interpreted as being universal or local is Gen. 7:20: "Fifteen cubits upward did the waters prevail; and the mountains were covered." Flood geologists take this passage to mean that the floodwater rose at least fifteen cubits above Mount Ararat, their presumed landing place for the ark. But there are difficulties with this interpretation.

One difficulty involves the translation of the Hebrew word *har* for "mountain" in Gen. 7:20 of the King James Version. This word can also be translated as "a range of hills" or "hill country," implying with Gen. 7:19 that it was "all the high hills" (also *har*) that were covered rather than high mountains. To make matters more complicated, the Sumerians considered their temples (ziggurats) to be "mountains," calling them "*E. kur*," which in Sumerian means "house of the mountain" or "mountain house."²⁰

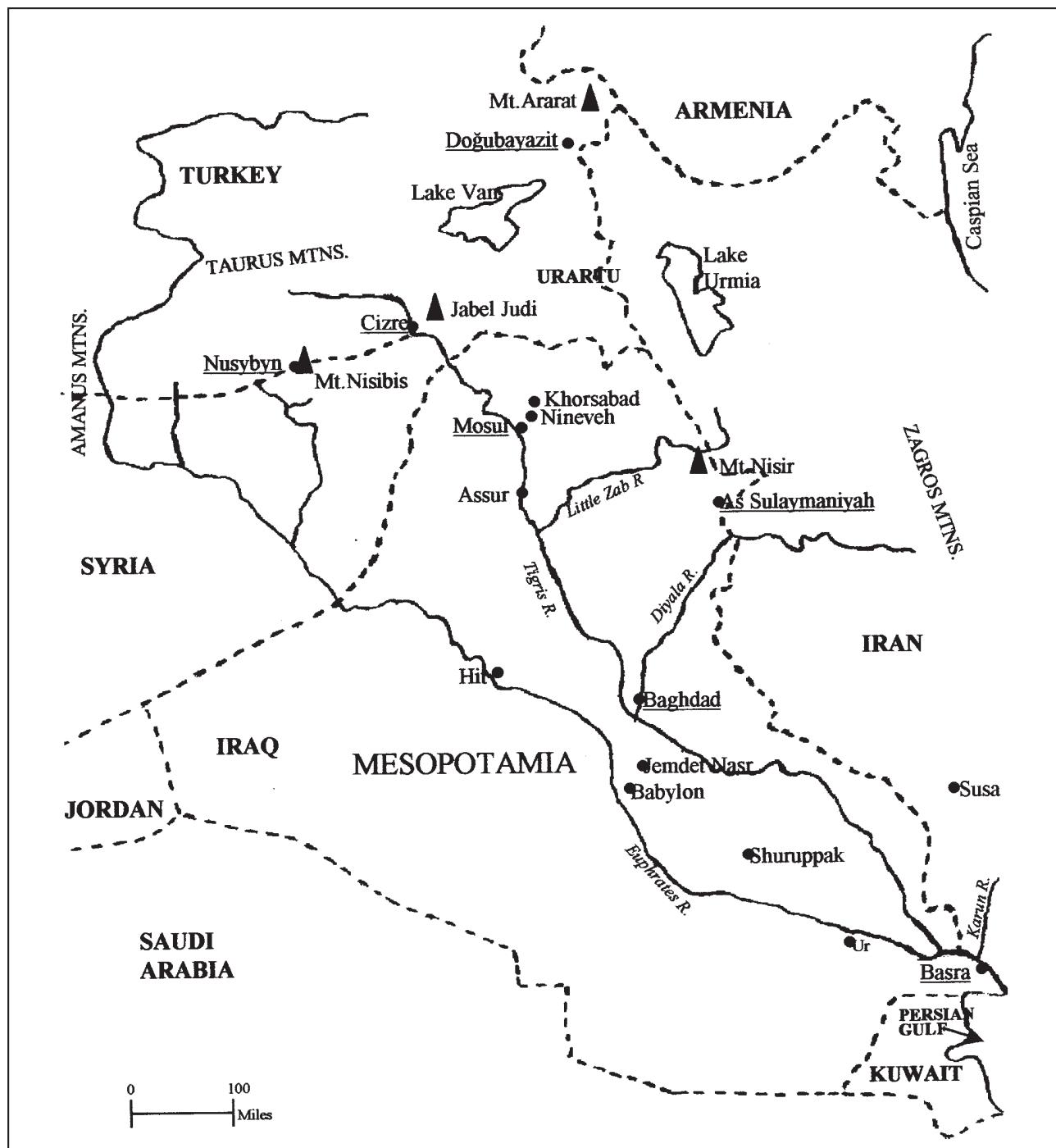


Figure 1. General geography of the Mesopotamia and Urartu regions, including names of locations mentioned in the text.



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Also, the specific Mesopotamian word for “mountain” (*šadû*) is derived from “mounds,” and may indicate that the Mesopotamians thought of their high temple mounds on the very flat alluvial plain as mountains.²¹ So, to which of these scenarios was the biblical writer referring in Gen. 7:20? Were the flood waters fifteen cubits above the highest mountains of planet Earth; were they fifteen cubits above the “hill country” of Mesopotamia (located in the northern, Assyrian part); were they fifteen cubits above the tops of ziggurat temple mounds (“mountains”) in southern Mesopotamia, thus dooming all the people who ran to the high temples for safety; or were they only fifteen cubits above the Mesopotamian alluvial plain? Or, as suggested by Ramm, does the “fifteen cubits upward” refer to the draft (draught) of the ark; i.e., how deep its 30 cubit depth (Gen. 6:15) was submerged in the water when the ark was loaded?²²

Another difficulty with Gen. 7:20 is: How did Noah measure the depth of the flood at fifteen cubits? In riverboats of that day, people used rods or poles to measure water depth.²³ Upon a tempestuous global ocean, where mountains were supposedly rising and continents were rapidly moving apart, how could Noah have taken a pole measurement on top of a mountain like Ararat? The biblical account (Gen. 7:14) seems to suggest that the waters increased continuously until the ark was gently lifted up above the earth (land), and in this situation, one can imagine Noah measuring the depth of water either to the alluvial plain or to the tops of “mountains” (ziggurats) to see how deep the flood waters were rising. In any case, the phrase “fifteen cubits upward” does not necessarily imply a universal flood; if anything, it favors a local flood where the depth to the ground surface could be easily measured.

Scientific Evidence

Geologic Evidence

No geologic evidence whatsoever exists for a universal flood, flood geology, or the canopy theory. Modern geologists, hydrologists, paleontologists, and geophysicists know exactly how the different types of sedimentary rock form, how fossils form and what they represent, and how fast the continents are moving apart (their rates can be measured by satel-

lite). They also know how flood deposits form and the geomorphic consequences of flooding.²⁴

Flood Geology. In addition to a lack of any real geological evidence for flood geology, there are also no biblical verses that support this hypothesis. The whole construct of flood geology is based on the *original assumption* that the Noachian Flood was universal and covered the whole Earth. Since the Flood was supposedly worldwide, then there must be evidence in the geologic record left by it. Since the only massive sediments on Earth are those tied up in sedimentary rocks, and because these rocks often contain fossils, this must be the “all flesh” (Gen. 7:21) record left by Noah’s Flood. And since sedimentary rock can be found on some of the highest peaks in the world (including Everest, the highest), then these mountains must have formed during and after the Flood. The “leaps of logic” build one on top of another until finally, as the result of this cataclysmic event, almost all of the geomorphic and tectonic features present on the planet Earth (e.g., canyons, caves, mountains, continents) are attributed by flood geologists to the Noachian Flood.

Does the Bible actually say anything about mountains rising during the Flood? No, but it does say that mountains and hills were in place *before* the Flood (Gen. 7:19, 8:4). Does the Bible say anything about sedimentary rock, fossils, or drifting continents? Not one word. All of these things are read *into* the Bible from a centuries-past interpretation of it. Most important from a literalist perspective, it can be shown from the Bible (Gen. 2:10–14; Gen. 6:14) that the four rivers of Eden flowed over, and cut into, sedimentary rock strata; that the pre-Flood landscape was a modern one (similar to the present-day landscape; that is, overlying sedimentary rock); and that the bitumen (pitch) used by Noah to caulk the ark was derived from hydrocarbon-rich sedimentary rock.²⁵ Therefore, sedimentary rock *must* have existed before the Flood. The Bible itself never claims that all of the sedimentary rock on Earth formed at the time of the Noachian Flood – only flood geologists make this claim.

Vapor Canopy. Why is a vapor canopy invoked by many biblical literalists (creation scientists) as the proper interpretation of Gen. 2:5–6? Because some kind of extra water

source is needed to make the Noachian Flood universal (the original assumption). There simply is not enough water in Earth's atmosphere today to supply more than about 40 feet of water to the ground worldwide,²⁶ nor is there any evidence of vast reservoirs of subterranean water (past or present) that could have supplied this water. Therefore, a vast reservoir of water that deluged the entire Earth must somehow be "manufactured" in order for Mount Ararat (17,000 feet high) to have been covered by the Flood.

Scientific (and biblical) problems abound with trying to supply the extra water demanded by the canopy theory.

Scientific (and biblical) problems abound with trying to supply the extra water demanded by the canopy theory. A few of the more major problems are:

1. The so-called "vapor canopy" was envisioned by Morris as a vast blanket of invisible water vapor, translucent to the light from the stars but producing a marvelous "greenhouse effect" that gave the entire antediluvian world a relatively mild and uniform climate.²⁷ However, if this atmospheric canopy once held enough water to cover Mount Ararat, it must have been so thick that it would have been hard for even sunlight (let alone starlight) to penetrate it so as to produce the plants of Gen. 1:11 and the trees in the Garden of Eden (Gen. 2:9). And surely an atmosphere holding all of this moisture would have been susceptible to thermal cells generated by the sun, and thus would have experienced storms and precipitation.
2. If only one-third of the water in modern oceans were part of the Earth's atmosphere in the form of a vapor canopy, the atmospheric pressure at the Earth's surface would have been greater than that of Venus' ~90 atmospheres.²⁸ This pressure, combined with warm temperatures envisioned for the "greenhouse effect" phenomena, would not have created a benevolent environment, but would have produced a "runaway greenhouse effect," such as has occurred on the planet Venus. Under these adverse conditions, how could the plants and animals of Gen. 1 have survived on Earth?
3. If there was only a vapor canopy before the Flood, and no rain, then how did the four rivers of Eden (Gen. 2:11-14) get their water? Would not rain and snow have fed these rivers as they do today?
4. Where did all of the 17,000+ feet of global water go after the Flood? Did it miraculously escape into space? The "fountains of the deep" (springs) would have been

completely saturated with water if there had been a worldwide flood, so the water could not have drained away back into the "deep." Also, how could the wind (Gen. 8:1) have evaporated water 3-6 miles deep in less than a year (Gen. 8:13)?

Landing Place of the Ark

The landing place of the ark has been one of the most controversial of all the aspects of Noah's Flood, with flood geologists insisting that the Bible identifies the site as Mount Ararat—the huge volcanic construct, Agri Dag, in northeastern Turkey (Fig. 1). What is generally not realized is that placement of the ark on Mount Ararat is a relatively "late" phenomenon. Only in the eleventh and twelfth centuries AD did the focus of investigators begin to shift toward Mount Ararat as the ark's final resting place,²⁹ and only by the end of the fourteenth century AD does it seem to have become a fairly well established tradition.³⁰ Before this, both Islamic and Christian tradition held that the landing place of the ark was on Jabel Judi, a mountain located about 30 miles (48 km) northeast of the Tigris River near Cizre, Turkey (Fig. 1).

The ark has been assigned to at least eight different landing places over the centuries³¹—including Saudi Arabia,³² India,³³ and even the mythical Atlantis.³⁴ One reason for this ambiguity is that the Bible does not actually pinpoint the exact place where the ark landed, it merely alludes to a region or range of mountains where the ark came to rest: *the mountains of Ararat* (Gen. 8:4). Ararat is the biblical name for Urartu (Isa. 37:38) as this area was known to the ancient Assyrians.³⁵ This mountainous area, geographically centered around Lake Van and between Lake Van and Lake Urmia (Fig. 1), was part of the ancient region of "Armenia" (not limited to the country of Armenia today). "Mountain" in Gen. 8:4 is plural; therefore, the Bible does not specify that the ark landed on the highest peak of the region (Mount Ararat), only that the ark landed somewhere on the mountains or highlands of Armenia (both "Ararat" and "Urartu" can be translated as "highlands").³⁶ In biblical times, "Ararat" was actually the name of a province (not a mountain), as can be seen from its usage in 2 Kings 19:37: "... some escaped into the land of Ararat" and Jer. 51:27: "... call together against her (Israel) the kingdoms of Ararat, Minni, and Askkenaz ..."

Even though many sites have been proposed for the landing place of the ark, only four appear to meet the requirement of being located within the boundaries of ancient Armenia: Mount Nisir, Mount Nisibis, Mount Ararat, and Jabel Judi (Fig. 1). The Sumerian Gilgamesh Epic states that the boat came to rest on Mount Nisir, which is located not far from the Little Zab River, in the modern As Sulaymaniyah region of the Zagros Mountains.³⁷ Mount Nisibis is located near modern-day Nusybyn, near the border of Turkey and Syria.³⁸ While these two locations have been identified as possible landing places of the ark, the



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most cited and most likely contenders for that distinction are Mount Ararat and Jabel Judi.

Mount Ararat. A universal model for the Noachian Flood hinges on Mount Ararat being the landing place of the ark, because if the ark had landed on this mountain, it would imply that the water level would have had to have been at an elevation of at least 17,000 feet; thus, the Noachian Flood would have been a universal, planet-wide flood. Yet, as just discussed, the Bible (Gen. 8:4) does not specify Mount Ararat as the site. It simply refers to the “highlands in the province of Urartu” within the ancient kingdom of Armenia. The tradition of Mount Ararat being the landing site of the ark is a wrongful interpretation of the Hebrew text.³⁹

Furthermore, it is not clear if in Noah’s time (~2900 BC) the Mount Ararat region was even part of what was later to be called “Urartu.”⁴⁰ In its “heyday” (eighth–seventh centuries BC), the kingdom of Urartu stretched from the eastern bank of the upper Euphrates River to the western shore of Lake Urmia, and from the mountain passes of northern Iraq to the Caucasus Mountains (thus including Mount Ararat in what is now the region of the Republic of Armenia) (Fig. 1). However, this northern, Armenian section was added in the eighth century BC during a time of major Urartian expansion.⁴¹ It was not until the reign of Menua (810–786 BC) that the area of Mount Ararat became a part of Urartu.⁴² By contrast, it is known that the Urartian language was present in the northern fringes of Mesopotamia at least sometime by the third millennium BC. Even later in time (after the eighth–seventh centuries BC), the name “Urartu” faded from view and was transformed into “Ararat” by later vocalizations imposed on the Hebrew Bible.⁴³

Search for Noah’s Ark on Mount Ararat. If Mount Ararat is not the landing site of Noah’s ark, then what about all of the books, movies, and TV shows that have claimed that the ark has actually been found on Mount Ararat (Agri Dag)? None of these popular “ark fever” accounts have been verified: some have been shown to be actual hoaxes, and all have been shown to be scientifically unfounded. Since the early 1800s, there have

been more than a dozen expeditions to Mount Ararat to find the ark,⁴⁴ none of which have proved successful.

The first popularized modern search for Noah’s ark on Mount Ararat was by Fernand Navarra in 1955 and then again in 1969.⁴⁵ On the northwest side of Mount Ararat, Navarra collected sections of worked timber from beneath a glacier at ~14,000 feet elevation. These specimens were identified as *Quercus* (oak), and have been radiocarbon dated by six different dating labs at 720–790 AD (for the wood collected by Navarra in 1955) and 620–640 AD (for the wood collected in 1969).⁴⁶ These dates suggest that the wood may have been part of a Byzantine or Armenian shrine commemorating what was believed by the people of that region to have been the landing site of the ark.⁴⁷

In 1993, CBS aired a two-hour television special entitled “The Incredible Discovery of Noah’s Ark,” which was reportedly seen by an estimated twenty million viewers.⁴⁸ In this case, an actual hoax was involved in that a piece of modern pine wood was made to look ancient and was claimed to be a piece of the ark. Another hoax, where a Texas group claimed to have seen and photographed the ark from Mount Ararat, showed that their photo of the ark had been retouched.⁴⁹

Noah’s ark was again reported by the popular press in the early 1990s to have been found near Doğubayazit, Turkey, ~12 miles (20 km) southwest of Mount Ararat (Fig. 1). Supposedly a “boat” having the dimensions of the ark had been found—a boat made out of petrified gopher wood and containing ribs, iron rivets, and stone anchors.⁵⁰ In reality, the “boat” turned out to be a natural volcanic (ophiolitic basalt) rock formation, 110–120 million years old, which mimicked the shape of a boat due to the rock being steeply inclined along the limbs of a doubly plunging anticline.⁵¹ The supposed fossilized “gopher wood bark” was crinkle-folded metamorphosed rock, the “iron rivets” were naturally-occurring concentrations of limonite and magnetite; and the “anchor stones” were pieces of local andesite (another volcanic rock type), not (as supposed) derived from Mesopotamia. In short, the scientific evidence demonstrated that the “boat” found near Doğubayazit is a completely natural rock formation—a “phantom ark.”⁵²

Geology of Mount Ararat Region. Mount Ararat (Agri Dag) is an almost 17,000-foot-high volcano that is still intermittently active (last eruption was reportedly on July 2, 1840).⁵³ The mountain rises above the high (~6000 ft) plateau of eastern Turkey, which is crossed by a broad east-west belt of folded mountains formed by the Armenian Taurus and Zagros systems that separate the plateau from the Mesopotamian depression.⁵⁴ As shown on the geologic map of Turkey,⁵⁵ the Ararat construct (including the two strato-volcanoes Great Ararat and Little Ararat) cuts across Devonian, Permo-Carboniferous, Cretaceous, Eocene, and Miocene sedimentary rock. The volcanoes have erupted along a southwest-northeast trending lineament, which became established at the beginning of the Miocene (~20 million years ago). Andesitic lava is typical for the main crater of both volcanoes, but flank eruptions are basaltic. Vast lava flows, from Miocene time to the present, cover many of the older sedimentary rocks of the region.

Why is all of this information on the geology of the Ararat region important to the discussion of flood geology and a universal-versus-local flood model? The claim of flood geologists is that all (or almost all) of the sedimentary rock on Earth formed at the time of Noah's Flood, and this includes the sedimentary rock of the Ararat region. But Mount Ararat itself *cuts across* sedimentary rock, and so must be *younger* than this rock.⁵⁶ The flood-geology scenario that is implied, according to the actual stratigraphic relationships present in the Mount Ararat region, is thus: (1) sediments (and dead animals) were deposited out of the flood waters; (2) then these sediments were compacted into fossil-rich sedimentary rock; (3) next volcanic lava erupted, intruding into and flowing over this sedimentary rock; (4) then the entire huge volcanic Ararat construct cooled; so that (5) finally, Noah's ark could land on Mount Ararat—*all in the space of one year's time!* Not only does this scenario propose a series of physical impossibilities, furthermore the *Bible claims none of this!* It simply states that the ark landed “on the mountains of Ararat”; that is, on mountains that existed in the already-known (to the Sumerians of Noah's time) land of “Urartu,” or what is now the area of southeastern Turkey (Fig. 1).

Jabel Judi. Located just east of Cizre, Turkey, near the border of Iraq and just within the northern boundary of Mesopotamia (Fig. 1), Jabel Judi has been another favored landing place for the ark, being the most widely accepted site among Christians, Jews, and Muslims during the latter centuries of the first millennium AD. This area has alternatively been called “Cudi Dag” (sometimes spelled Dagh), “Mount Judi,” Mount Cardu,” “Mount Quardu,” “the Gordyene or Gordyenean Mountains,” “the Carducian Mountains,” “the Corcyraean Mountains,” “the mountains of the Kurds,” “Mount Nipur” by the Assyrians, and the “the mountains of the Korduaians of Armenia” by Berossus (~280 BC).⁵⁷ The Arab geographer al-Masudi (~956 AD) stated that the ark “stood on el-Judi … a mountain in the

country of Masur … eight farsangs (about 30 miles) from the Tigris River.”⁵⁸ In its principal reference to the Flood, the Koran (Houd 11:44) states that the ark eventually came to rest on Mount Djudi (Jabel Judi), and even into the twentieth century, there were reports of “dervishes” keeping a light burning there in honor of Noah and the ark.⁵⁹

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Jabel Judi (Cudi Dag) is a mountain range partly composed of the Cudi Limestone of Jurassic-Cretaceous age that rises above the Cizre Plain. This plain at about 500 m elevation is surrounded by low hills in the north, gently sloping ridges in the south, hilly land in the west, the Jabel Judi mountains in the east, and alluvial valleys that become shallow southward away from the foothills.⁶⁰ All of the streams within the plain are tributaries to the Tigris River.

Vineyards, Olive Trees, Doves. Not only is Jabel Judi the earliest accepted landing site of the ark, it also corresponds to where vineyards and olive trees are known to have been grown in antiquity.

“And the dove came into him in the evening; and lo, in her mouth was an olive leaf plucked off: so Noah knew that the waters were abated from off the earth” (Gen. 8:11).

“And Noah began to be a farmer (husbandman) and he planted a vineyard” (Gen. 9:20).

Vineyards. The wine grape of antiquity, *Vitis vinifera*, is what is referred to in both the Old and New Testaments of the Bible.⁶¹ *Vitis vinifera* has been cultivated for thousands of years, probably originating as a wild plant in the Transcaucus area, then being domesticated in the area between the Black and Caspian Seas, eastern Turkey, and the Zagros range, sometime before 4000 BC.⁶² It is certain that viti-culture was practiced and wine was made in (northern) Mesopotamia sometime before 3000 BC and exported to Egypt.⁶³ Therefore, it is unlikely that Noah (~2900 BC) was the “first” person to ever drink wine and become drunk (Gen. 9:20-21), as is the view held by some Christians. The unlikelihood of this is also supported by Matt. 24:38: *“For as in the days that were before the flood they were eating, drinking, marrying and giving in marriage, until the day that Noah entered the ark.”* What were they drinking? At least barley beer (the “national drink” of Mesopotamia), and for some elite, probably wine.⁶⁴ However, Gen. 9:21 implies that



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Noah was taken by surprise and was overwhelmed by the drink, so perhaps it was Noah's first experience with wine.

The importance of Noah's vineyard to the landing place of the ark is that *Vitis vinifera* can be cultivated only where the average temperature is at least 16–17°C (60–63°F) in the warmest summer months (for the fruit to ripen), where the winters are not too severe (frost can kill young grapevines), where the elevation is not too high, and where the climate is not too hot and dry (grapevines need at least a moderate rainfall).⁶⁵ Thus, in terms of where Noah could have grown his vineyard (Gen. 9:20), he could not have landed anywhere in southern Mesopotamia because it is too hot and dry there for viticulture to flourish, nor could he have landed in the high mountain regions because the severe winters would have killed his vineyard, making it impossible for him to grow the grapes to make his wine (Gen. 9:21).

The region of Mesopotamia where grapevines flourished in ancient times (and even still today) was Assyria (now northern Iraq), which has a moderate rainfall (500–600 mm per year) that extends through April, and abundant streams which irrigate orchards and vineyards.⁶⁶ The area north and east of Nineveh (Fig. 1)—in the foothills of the Taurus and Zagros Mountains, where temperatures are cooler and elevations are higher than in southern Mesopotamia—was especially renowned in antiquity for its wine, corn, and olive oil.⁶⁷ Thus, King Sennacherib boasts of Assyria in 2 Kings 18:36: "... a land of grain (corn) and wine, a land of bread and vineyards, a land of olive oil and honey ..."

Olive trees. Olive trees (*Olea europaea*) are even more "choosy" than grapevines about their growth conditions, olives being less hardy than grapes in that they cannot tolerate hot and cold extremes (young plants or shoots especially cannot tolerate frost). Olive trees are not mentioned in Sumerian cuneiform texts as having been grown in southern Mesopotamia in antiquity. This is not only because the climate of southern Mesopotamia is too hot (good for dates but not for olives), but because a country so subject to inundation is not at all favorable to the cultivation or even growing of the olive.⁶⁸ The rarity of olives in the Sumerian record speaks unequivocally for the import of both

olive wood and olive oil into southern Mesopotamia.⁶⁹ However, olive fruit is recorded in northern Mesopotamia (Assyria), occurring in the Assur Temple offering lists back into the third millennium BC. Even in recent times, the villages at the foot of the Jabel Maqlub, just east of Khorsabad (~20 miles northeast of Mosul), are renowned in Iraq for their olives (especially Fadhiliya and Ba'shiqa, see Fig. 1).⁷⁰

Most important to this discussion, olive trees need an elevated, well-drained soil to survive—in a waterlogged soil, they drown.⁷¹ This fact makes the mention of an olive leaf in Gen. 8:11 supportive of a local flood rather than a universal one, because if the Flood had covered the entire planet Earth to 17,000+ ft. with seawater for a whole year, how could an olive tree (or even its seeds) possibly have survived such a severe inundation? Rather, the return of the olive leaf by the dove suggests the survival of relatively unharmed trees outside the flood area.⁷²

Doves. Doves were well known to Mesopotamians—in fact, they were part of the Mesopotamians' diet.⁷³ Noah's dove was probably a rock dove (*Columba livia*), which is native to the Middle East and which is the ancestor to all of the various pigeon breeds we have today (including the common pigeon seen in cities worldwide).⁷⁴ Pigeons have a long history of domestication and interaction with humans. The birds feed mainly on seeds of cereals (such as barley, the staple food of ancient Mesopotamia), and commonly nest on human-made structures. The Akkadians, Armenians, Arabs, and Egyptians all felt a veneration for doves, and have kept them for millennia.⁷⁵ That the pigeon was already at least partially domesticated in Mesopotamia by Noah's time comes from al'Ubaid, where a row of sitting pigeons is pictured on the limestone frieze of a temple façade dating from ca 3000 BC.⁷⁶

The pigeon's homing instinct to return to its nest from considerable distances also must have been recognized and exploited since earliest times.⁷⁷ Noah evidently had knowledge of this homing instinct when he sent forth a female dove from the ark (Gen. 8:8–12), and Noah's action in Gen 8:9 affirms that his dove was most likely a domesticated pigeon: "*Noah put forth his hand, and took her, and pulled her into him into the ark.*"

*Olive trees need an elevated, well-drained soil to survive—in a waterlogged soil, they drown. ...
The return of the olive leaf by the dove suggests the survival of relatively unharmed trees outside the flood area.*

Exactly how far an ancient breed of dove like Noah's could have flown from the ark to search for dry land is not known, but it was probably less than 100 miles total.⁷⁸ Noah sent out his dove (presumably in the morning), and it came back to him in the evening (Gen. 8:2). Thus, within a one-day's flight from and back to the ark (Gen. 8:11), the dove found an olive tree or sprout growing, picked off a leaf, and returned again to the ark. This means that wherever the ark landed, it had to be less than about 50 miles from a region where it was suitable for olive trees to grow. That is, it could not have been high in the Taurus or Zagros mountains where temperatures get below freezing, and it could not have been in southern Mesopotamia where temperatures get too hot and where the land floods on an annual basis.

The Jabel Judi (Cudi Dag) region has the following advantages for being the landing place of Noah's ark:

1. Jabel Judi is located within the borders of ancient Armenia (Urartu).⁷⁹
2. Jabel Judi is located within the foothills of the Taurus Mountains where the average low temperature (for Cizre) is 35°C,⁸⁰ where the average precipitation is 500–600 mm/yr,⁸¹ and where the altitude is ~500 m⁸²—all optimal conditions for the growing of both grapevines and olives. Grapevines and fruit trees are typical of this region, and even in recent times numerous vineyards are grown along the Tigris River valley in the Cizre area.⁸³ If Noah had landed in the Jabel Judi area, he would have found perfect growing conditions for his vineyard.
3. Jabel Judi is only ~80 miles from Nineveh (Fig. 1), a region that was renowned in ancient times for both its grapevines and olive trees.⁸⁴ Since the northern part of this region is within a 50-mile distance from Jabel Judi (Fig. 1), it is possible that a dove could have flown to this area and back to the ark with an olive leaf in one day, as required by the Genesis account.
4. The Cizre area was already known to the Sumerians by Jemdet Nasr time (Table 1), as many Uruk-age trading colonies and routes had been well established in this region by or before 3100 BC.⁸⁵ It is possible that Noah, as the "King" of Shuruppak,⁸⁶ would have known about the mountains of Urartu, and that he may even have headed toward this high ground to escape the flooding of the Mesopotamian lowlands.
5. If the ark did land in the Cizre area, then it means that the Flood stayed within the (northern) boundary of the Mesopotamian hydrologic basin. This in turn implies a local flood because if the flood was universal, why would the ark not have floated to somewhere outside the boundaries of Mesopotamia—some place like Europe or Asia?⁸⁷

Geographical Evidence: Animals of the Ark

If the Genesis Flood is taken to be universal, then another major scientific problem arises regarding the capacity of the ark to carry all of the animal species on Earth (the "all flesh" of Gen. 6:19). Even the early church fathers like Augustine (354–430 AD) recognized this difficulty and struggled with the apologetics of such a scenario.⁸⁸ Then, with the discovery of the New World and its multitude of new species, the problem became even more acute. It is now estimated that the number of animal species on Earth falls somewhere between 1.5–6 million,⁸⁹ and if "all flesh" also includes extinct animals and insects, this is multiplied into many more millions. Even a ship the size of an aircraft carrier could not carry all of these animals!

Other (among many) problems that arise with an "all animal species on planet Earth" universal interpretation of Genesis 6–8 are:

1. How did animals migrate to the Old World from the New World and from places like Australia? Or, how did they get from Mount Ararat to places like Australia without crossing oceans and without leaving descendants in the Old World?
2. How did the ark carry food for all of these animals for one year's duration (Gen. 6:21)?
3. How did only eight people—Noah, his wife, three sons, and three daughter-in-laws (Gen. 7:13)—care for at least two of all of the animal species on Earth?
4. How did large animals like the dinosaurs fit on the ark, if "all flesh" included extinct animals as well as non-extinct ones?
5. How could marine life have survived the Flood? Would it not have been crushed by tremendous water pressure and dilution of ocean water with fresh water?
6. How did all of the various kinds of animals descend the steep side of Mount Ararat, which is even difficult for humans to climb in modern times?

Universal flood advocates counter these concerns by heaping up miracles. God miraculously caused the animals to migrate to (and from) the Middle East. Or, angels picked up all of the animals and carried them to the ark.⁹⁰ God miraculously caused the animals on the ark to hibernate for a whole year, thus limiting their need for food and care.⁹¹ Only taxonomic families (not individual species) were taken on the ark, and present-day species have somehow descended from these families within the last 5,000 years or so. The difficulty with these (and other) invoked miracles is not that God could not do every one of them if he wanted to—it is that the Bible does not claim a single one of them! The only mention the Bible makes of God's role in



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No miracles regarding the animals are mentioned [in the Bible], and if the Bible is to be taken at face value, it must be assumed that Noah went out and gathered the animals himself.

the Flood is that he miraculously intervened to impose a great flood upon the earth (land) (Gen. 6:17), and that he protected Noah in that flood (Gen. 7:16, 8:1). God commanded Noah to do all of the rest: to build the ark (Gen. 6:14); to bring the animals alive into the ark (Gen 6:19–20); and to gather food for himself, his family, and the animals (Gen. 6:21), to be eaten while on the ark (a command that does not seem to favor hibernation). “*And Noah did all that the Lord commanded him*” (Gen. 6:22). No miracles regarding the animals are mentioned, and if the Bible is to be taken at face value, it must be assumed that Noah went out and gathered the animals himself. This factor alone limits the geographic region of the Flood to Mesopotamia, because it is hardly conceivable (nor logically possible) to envision Noah collecting animals from places like New Zealand, Australia, North America, or South America.⁹²

What animals does the Bible specify were gathered by Noah? It names “cattle” (Gen. 7:14); “fowls” (Gen. 6:20), specifically doves (Gen. 8:8) and ravens (Gen. 8:7); “creeping things” (*remes*) meaning reptiles or other animals that creep (Gen. 7:14); and “creeping things” (*sherets*) meaning an active mass of minute animals that creep (insects?) (Gen. 7:21). All of these animals are native to Mesopotamia and could have been gathered by Noah. Two other words for animals are used in the Genesis account: *hayyâ* (or *chay*), meaning a “wild beast” (Gen. 7:14),⁹³ and *behemâh*, meaning a “dumb beast” (Gen. 7:2)—especially large quadrupeds such as cattle.

In Gen. 6:19, the Bible calls for two of each kind; then more explicitly in Gen. 7:2, it calls for Noah to gather “clean” animals by “sevens,” the male and female (fourteen in all), and those that are “unclean” by “twos,” one male and one female. It also instructs Noah to do the same with birds (Gen. 6:20; 7:3). Assuming that “clean” and “unclean” were approximately the same dietary designations in Noah’s time as later in Moses’ time (Lev. 11), “clean” animals like sheep, cattle, and goats were taken by “sevens” into the ark (where some of them could have provided food for Noah and his family over the one-year period of the Flood),⁹⁴ whereas “unclean” animals like pigs, camels, badgers, and gazelles were taken by “twos” into the ark, but were not eaten. Similarly, birds

like doves (which were eaten by Mesopotamians)⁹⁵ were loaded into the ark by “sevens,” whereas birds like eagles, hawks, and ravens were loaded by “twos.” Aquatic creatures like native fish were not included in the Genesis list of animals because they would have been able to survive a local flood (but not necessarily a tempestuous, universal, sea-water flood).

All told, the animals taken into the ark may have numbered in the hundreds, but probably did not exceed a few thousand.⁹⁶ The ark—even a boat typical of ca 3000 BC—would have been adequate to house these animals and their food supply, and eight people could have cared for them, as well as for themselves, for many months. The animals destroyed by the Flood may thus be taken as limited to those within the immediate geographic region (of Mesopotamia), and the animals preserved on the ark may be taken also to mean those representative of that region.⁹⁷

Archaeological Evidence

There is also no archaeological evidence for a universal flood. No flood deposits correlative with those in Mesopotamia have been found in Egypt, Syria, or Palestine, let alone in other parts of the world more distant from the Middle East. Archaeological mounds in Syria and Palestine (such as Jericho), which exhibit fairly continuous occupation since at least 4500 BC, show no signs of a great flood.⁹⁸ That the Flood did not extend even to the land of Israel is alluded to in Ezek. 22:24: “*a land [Israel] ... nor rained upon in the day of indignation [day of God’s judgment by the Flood]*.⁹⁹

The Bible is not the only place where Noah’s Flood is recorded. The story of the great deluge has also been found on cuneiform tablets collected from archaeological sites in Babylonia, Assyria, and lands surrounding Mesopotamia, the earliest of these being a Sumerian inscription found at Nippur and belonging to the close of the third millennium BC.¹⁰⁰ While these non-biblical texts have a definite mythological component to them, they still have a historical base that attests to an unusual environmental catastrophe that happened in the land of Mesopotamia at about the beginning of the third millennium. The Sumerian King

List divides the early history of Mesopotamia into (1) the reign of the pre-flood (antediluvian) kings (starting at Eridu), and (2) the reign of the post-flood kings (starting at Kish).¹⁰¹ The ancient compilers of the King List regarded the Noachian Flood as an event that made a breach in the continuity of Mesopotamian history; certain cities suddenly being made desolate, while other cities were rebuilt on the ruins of the flood.¹⁰² There is both epigraphical and archaeological grounds for believing that Ziusudra (the Sumerian name for Noah) was a real prehistoric ruler of a well-known city, the site of which (Shuruppak, or the modern-day mound of Fara) has been archaeologically identified.¹⁰³ Flood texts found in Mesopotamia and lands bordering it refer to a flood within Mesopotamia and to a righteous Mesopotamian man who survived the flood in a ship. The archaeological record thus definitely points to a flood within the confines of Mesopotamia, but not to a universal flood of planet-wide proportions. Flood legends from around the world exist simply because flooding has occurred in most parts of the Earth at one time or another. All of these flood stories—except for those from within and surrounding Mesopotamia—are essentially different from the biblical narrative and have only a few indeterminate elements in common with it.¹⁰⁴

Conclusions

From this information, we can draw the following conclusions:

1. Biblical evidence for a universal Noachian Flood is the “universal” language of Gen. 6–8—words like “earth,” “all,” “every,” and “under heaven.” However, these words are used in other places in the Bible to describe local or regional events and, therefore, cannot necessarily be taken as all-inclusive over the entire planet Earth.
2. Likewise, the terms “rain” and “mist” in Gen. 2:5–6 cannot be taken to support a canopy theory or universal deluge, because “earth” in these verses does not mean the planet Earth but only the “earth” or “ground” in the area of the Garden of Eden.
3. Absolutely no geologic evidence exists for the canopy theory, flood geology, or a universal flood.
4. The actual geology of the Mount Ararat region, where Mount Ararat cuts across sedimentary rock, precludes the Noachian Flood from being responsible for all of the sedimentary rock in the world, as claimed by flood geologists.
5. The most likely landing place for the ark is considered to have been Jabel Judi in the Cizre, Turkey region. This site meets all of the Bible’s requirements, including “the mountains of Ararat,” Noah’s vineyard, and the dove’s plucking off the olive leaf and bringing it back to the ark. It is also the earliest traditional site for the landing

place of the ark. A landing site in the Cizre region is compatible with a local flood model, as this region lies within the boundaries of the Mesopotamian hydrologic basin.

6. The problems concerned with putting all of the animal species on Earth into the ark, as per a universal flood model, are insurmountable barring miracles that the Bible never claims happened. The Bible indicates that Noah collected the animals and brought them to the ark, and this implies a local, not universal, flood.
7. There is no archaeological evidence for a universal flood. Even regions close to or surrounding Mesopotamia do not contain correlative flood deposits.
8. The picture that emerges from all of the biblical and nonbiblical evidence is that Noah’s Flood was confined to Mesopotamia, extending over a vast alluvial plain as far as the eye could see, from horizon to horizon (under the “whole heaven” or sky). The top of all the hills (ziggurats?) were covered by this flood, and all people and animals were drowned except for Noah, his family, and the animals on the ark. The flood was a real, historical event that covered—not the whole world—but the whole of Noah’s world.
9. The idea that the Noachian Flood was a universal flood stems from a centuries-old interpretation of the Bible not warranted by either the biblical or scientific evidence. The King James Version, written in the seventeenth century, reflects the very limited view that people had then of the planet Earth and its geology, and it is this centuries-old, traditional view that has been passed down to generations of Christians ever since. The Bible should always be interpreted within the framework of the culture in which it was *originally* written—in this case, the Mesopotamian culture of the third millennium BC, *not* the European culture of the seventeenth century AD. It is only by considering the culture and world view in which Gen. 6–8 was written that the Noachian Flood can really be understood. *

Notes

- ¹B. Ramm, *The Christian View of Science and Scripture* (Grand Rapids: Eerdmans, 1974), 158.
- ²C. A. Hill, “The Garden of Eden: A Modern Landscape,” *Perspectives on Science and Christian Faith* 52, no. 1 (2000): 31–46.
- ³_____, “A Time and a Place for Noah,” *Perspectives on Science and Christian Faith* 53, no. 1 (2001): 24–40.
- ⁴Ramm, *The Christian View*, 160–1; T. Key, “Does the Canopy Theory Hold Water?” *Journal of the American Scientific Affiliation* 37, no. 4 (1985): 224–5.
- ⁵E. A. Speiser, *Genesis: Anchor Bible Commentary*, v. 1 (Garden City: Doubleday, 1981), 52.
- ⁶J. Strong, *Strong’s Exhaustive Concordance of the Bible* (Nashville: Thomas Nelson, 1980), 1425 p. All subsequent translations of Hebrew words in this paper are from Strong’s Concordance.
- ⁷The earliest the first chapters of Genesis could have been written down by Mesopotamian scribes was ~2500 BC, or some 400 years

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after Noah lived (Hill, "A Time and Place for Noah," 35). That the early chapters of Genesis derive from Mesopotamia cannot be denied, as "old" words, names, and places in Genesis are undoubtedly of Mesopotamian origin (U. Cassuto, *A Commentary on the Book of Genesis* part 2, trans. Israel Abrahams, [Jerusalem: Magnes Press, 1972] 252). This appears to conflict with the view of conservative Jews and Christians that the author of Genesis was Moses, who wrote the book either in the fifteenth or thirteenth century BC. However, there is no conflict if one assumes that Moses was the *historian* author of Genesis. According to this scenario, the early chapters of Genesis were first written down by Mesopotamian scribes sometime after ~2500 BC, and then these stories were conveyed by Abraham (either orally or in written form) to Canaan and handed down to his descendants until the time that Moses compiled them into a single book sometime between the fifteenth or thirteenth century BC.

⁸Hill, "A Time and Place for Noah," 28.

⁹J. H. Sailhammer, *Genesis Unbound – A Provocative New Look at the Creation Account* (Sisters, OR: Multnomah, 1996), 45.

¹⁰Ibid., 49–50.

¹¹J. N. Postgate, *Early Mesopotamia – Society and Economy at the Dawn of History* (London: Routledge, 1992), 34.

¹²D. Fischer, *The Origins Solution* (Lima, OH: Fairway Press, 1996), 172.

¹³D. Young, *The Biblical Flood – A Case Study of the Church's Response to Extrabiblical Evidence* (Grand Rapids, MI: Eerdmans, 1995), 163.

¹⁴L. Woolley, *Excavations at Ur* (London: Ernest Benn, 1955), 36.

¹⁵Sailhammer, *Genesis Unbound*, 51; and Hill, "The Garden of Eden," 31–42.

¹⁶K. Takahashi and H. Arakawa, eds., *Climates of Southern and Western Asia* 9 (New York: Elsevier, 1981), 221.

¹⁷C. F. Keil and F. Delitzsch, *Commentary on the Old Testament: the Pentateuch* 1 (Grand Rapids, MI: Eerdmans, 1975), 77; U. Cassuto, *A Commentary on the Book of Genesis* part 1 (Jerusalem: Magnes Press, 1972), translated from the Hebrew by Israel Abraham, 104.

¹⁸R. L. Alden, "Ed," *Theological Wordbook of the Old Testament*, ed. R. L. Harris (Chicago: Moody Press, 1980), 17.

¹⁹Speiser, *Genesis*, 16.

²⁰M. A. Beek, *Atlas of Mesopotamia* (London: Nelson, 1962), map 8; M. Roaf, "Palaces and Temples in Ancient Mesopotamia," in *Civilizations of the Ancient Near East*, ed. J. M. Sasson (New York: Charles Scribners, 1995), 425.

²¹H. Frankfort, *The Art and Architecture of the Ancient Orient, Part I: Mesopotamia* (Harmondsworth: Penguin, 1954), 6; and R. J. Forbes, *Studies in Ancient Technology* 2 (Leiden: Brill, 1965), 20.

²²Ramm, *The Christian View of Science and Scripture*, 164.

²³G. F. Bass, "The Earliest Seafarers in the Mediterranean and the Near East," in *A History of Seafaring Based on Underwater Archaeology*, ed. G. F. Bass (New York: Walker, 1972), 12.

²⁴Numerous references on floods and flood deposits exist in the hydrologic literature. Refer to V. R. Baker, R. C. Kochel, and P. C. Patton, *Flood Geomorphology* (New York: John Wiley, 1988), for a general text on this subject.

²⁵Hill, "The Garden of Eden," 31–46.

²⁶R. S. Dietz, "Ark-Ecology: A Frightening Example of Pseudoscience," *Geotimes* 38, no. 9 (1993): 4.

²⁷H. Morris, *Scientific Creationism* (El Cajon: Master Books, 1985), 210–1.

²⁸D. F. Siemens, "More Problems with Flood Geology," *Perspectives on Science and Christian Faith* 44, no. 4 (1992): 231.

²⁹Young, *The Biblical Flood*, 34.

³⁰B. Crouse, "Noah's Ark: Its Final Berth," *Archaeology and Biblical Research* 5, no. 3 (1992), 67.

³¹L. R. Bailey, "Wood from 'Mount Ararat': Noah's Ark," *Biblical Archaeologist* 40, no. 4 (1977): 137.

³²Crouse, "Noah's Ark," 74.

³³J. Hurley, *The Tree, the Olive, the Oil in the Old and New World* (Albany: John Hurley, 1919), 3.

³⁴H. Johnson, *The Story of Wine* (London: Mitchell Beazley, 1989), 22.

³⁵W. H. Stiebling, "A Futile Quest: the Search for Noah's Ark," *Biblical Archaeology Review* 2, no. 2 (1976): 16.

³⁶R. E. Taylor and R. Berger, "The Date of 'Noah's Ark,'" *Antiquity* 54 (1980): 34.

³⁷Speiser, *Genesis*, 42.

³⁸Crouse, "Noah's Ark," 74.

³⁹Cassuto, *A Commentary on the Book of Genesis* part 2, 105.

⁴⁰E. M. Yamauchi, "Urartians and Manneans," chap. 2 in *Foes from the Northern Frontier – Invading Hordes from the Russian Steppes* (Grand Rapids, MI: Baker Book House, 1982), 31.

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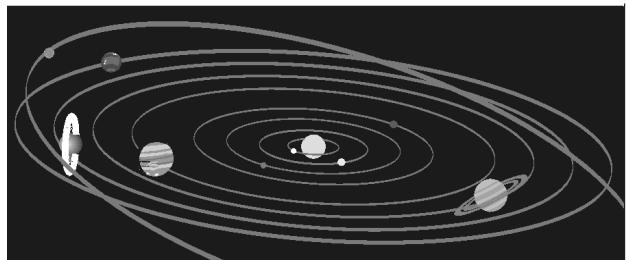
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