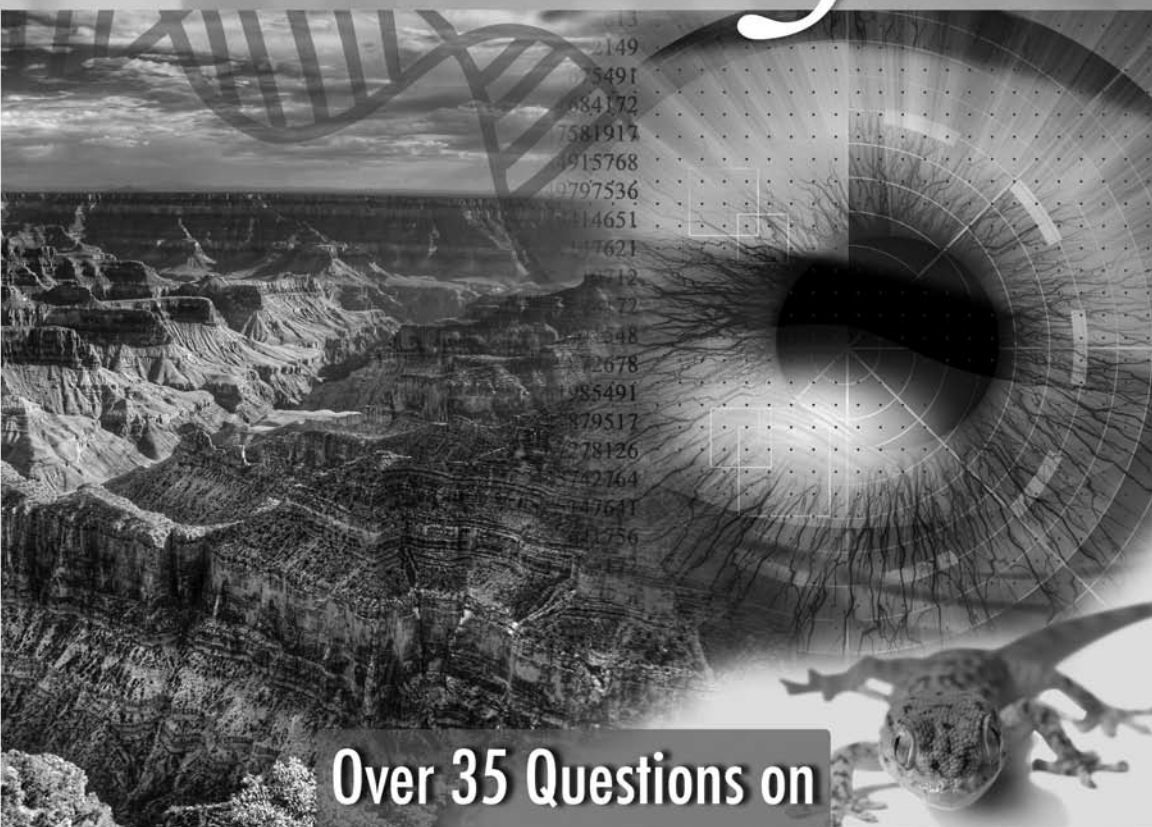


# The New **Answers** Book 3



**Over 35 Questions on**  
**Creation/Evolution** and the Bible

**Ken Ham** General Editor

First printing: February 2010

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## INTRODUCTION

# Evolving Tactics

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KEN HAM

Over the past 30 years of my personal, intimate experience in the biblical creation ministry, I have observed “evolving” (in the sense of “changing”) tactics used by prominent secularists to respond to arguments from creationist scholars and researchers. Based on my experience, I would divide the interactions of biblical creationists and outspoken secularists into four basic eras.

### The Debate Era of the 1970s

When I first became aware of the U.S. creation movement in the 1970s (while I was a teacher in Australia), I learned that Duane Gish (Ph.D. in biochemistry from the University of California, Berkeley) of the Institute for Creation Research was actively debating evolutionary scientists from various academic institutions.

At that time, creationist arguments against evolution consisted of arguments against so-called ape-men, and arguments that the Cambrian Explosion and lack of transitional forms illustrated that Darwinian evolution did not happen.

Evolutionists argued back with supposed counters to these arguments. For instance, they claimed that *Archaeopteryx* was a transitional form between reptiles and birds (since refuted), that the “mammal-like reptiles” were transitional forms, and so on. However, in the long run, such “evidences” were just interpreted differently by both sides according to their starting points — creation or evolution!



Evolutionists still use this fossil to support the transition of one kind of animal to another. Creationists interpret the same evidence in light of the Bible and come to different conclusions.

### The Rise of Creationist Media in the Early 1980s

Although secular educational institutions and secular journals, by and large, taught evolution as fact, I noticed more deliberate attempts to increase public indoctrination about evolution and earth history occurring



over millions of years. For this reason, I might also call this the *Intensified Evolutionary Indoctrination* era.

At the same time, evolutionists increasingly refused to debate creationists. In today's world (early 21st century), such debates are rare.

Nonetheless, the biblical creation movement began publishing more and more books, videos, and other materials; and the “creation versus evolution” issue rose to greater prominence in the culture and secular media. Secularist opposition to the creation movement intensified, with many articles in print. Although they included some ridicule, many articles tried to outline the supposed scientific reasons why creationists were wrong.

## The Public School Controversies of the 1980s and 1990s

Frustrated by how evolutionary teaching had taken over much of the secular education system, and seeing that creation was basically outlawed from the classroom, many Christians tried (unsuccessfully) in the courts to force public school teachers to teach creation in their classes, or at least to allow critiques of evolution.

This era eventually sparked the rise of the non-Christian “intelligent design” movement<sup>1</sup> —which many Christians thought might be the answer to the education problem — but soon found it was not.

Secularists fought hard to falsely accuse creationists of being anti-science. They typically labeled belief in the Genesis account of history — or even the simple belief that God created — as just a “religious” view, while belief in Darwinian evolution was a “scientific” view.

## The Name-Calling Era of the Early 21st Century

Some secularists have reverted to name-calling in a desperate attempt to discredit biblical creationists. In the early part of the 21st century, articles against the creation movement became more scathing, sarcastic, and mocking, with increasing name-calling. Rather than attempting to use logical arguments to dissuade people, evolutionists mocked not just the Genesis account of creation but also belief in any unnamed intelligence behind the universe.

No longer satisfied to argue that creationists could not be real scientists and that belief in creation is anti-scientific, secularists began accusing creationists

---

1. The intelligent design movement does not claim to be Christian. It is a movement (with both Christians and non-Christians) that is against naturalism, teaching that an unnamed intelligence is behind the universe.

of being anti-technology. I began to see the argument appear that people who believe in creation are inconsistent if they use modern technology, such as computers and airplanes, which are products of man's scientific ingenuity.

Increased name-calling against creationists, in an attempt to defame their integrity, began to appear, not just in newspaper articles but in various evolutionist books and reputable science magazines. Biblical creationists were equated with terrorists, as secular writers used words like *fundamentalists* to describe both Christians and terrorists. All of this name-calling by unscrupulous secularists is part of a deliberate attempt to smear Christians and use fear tactics to brainwash people into a false understanding of what Christians believe.

This era also saw the rise of the "New Atheists," who began overtly attacking Christianity and preaching atheism around the world. This radical atheist movement is spearheaded by Dr. Richard Dawkins of Oxford University, summed up in a quote from his best-selling book *The God Delusion*, in which he vehemently attacks the Christian God:

The God of the Old Testament is arguably the most unpleasant character in all fiction: jealous and proud of it; a petty, unjust, unforgiving control-freak; a vindictive, bloodthirsty ethnic cleanser; a misogynistic, homophobic, racist, infanticidal, genocidal, filicidal, pestilential, megalomaniacal, sadomasochistic, capriciously malevolent bully. Those of us schooled from infancy in his ways can become desensitized to their horror.<sup>2</sup>

In June of 2008, Paul Myers, associate professor of biology at the University of Minnesota–Morris, decided to oppose me on his blog by beginning a name-calling exercise.

Millions of people, including some of the most knowledgeable biologists in the world, think just about every day that you are . . . [and then he launched into a long list of names, from airhead to birdbrain, blockhead, bonehead, and bozo to sap, scam artist, sham, simpleton, a snake oil salesman, wacko] and much, much worse. You're a clueless schmuck who knows nothing about science and has arrogantly built a big fat fake museum to promote medieval [expletive] — you should not be surprised to learn that you are held in very low esteem by the community of scholars and scientists, and by the even larger community of lay people who have

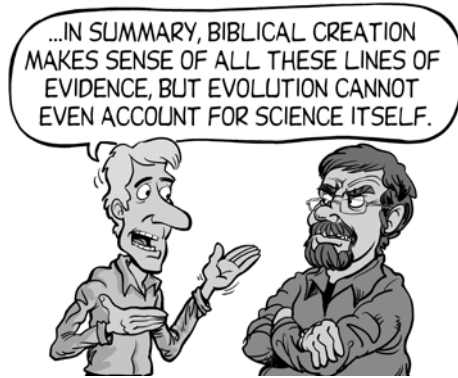
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2. Richard Dawkins, *The God Delusion* (Boston, MA: Houghton Mifflin Co., 2006), p. 31.

made the effort to learn more about science than you have (admittedly, though, you have set the bar very, very low on that, and there are 5 year old children who have a better grasp of the principles of science as well as more mastery of details of evolution than you do).<sup>3</sup>

More troublesome is the accusation, which I now observe from different sources, that creationists and Christians are “child abusers.” Such an emotionally charged term is really meant to marginalize Christians in the culture. If the secular elite had total control of the culture, they could prosecute this in the courts.

Richard Dawkins agrees that this term is appropriate for Christians who teach about the doctrine of hell: “I am persuaded that the phrase ‘child abuse’ is no exaggeration when used to describe what teachers and priests are doing to children whom they encourage to believe in something like the punishment of unshriven mortal sins in an eternal hell.”<sup>4</sup>



3. Posted on blog of P.Z. Myers on 6/21/2008.

4. Dawkins, *The God Delusion*, p. 318.

In chapter 16 of the best-selling book *God Is Not Great*, entitled “Is Religion Child Abuse?” another New Atheist, Christopher Hitchens, answers the chapter title in the affirmative, claiming that all related customs, such as circumcision, are child abuse. He even equates teaching children about religion to indoctrination and child abuse.

When the Creation Museum opened near the Cincinnati International Airport on Memorial Day weekend 2007, secular scientists and an atheist group demonstrated outside the museum with signs simply mocking my name, such as “Behold, the curse of Ham,” rather than using logical scientific arguments to argue their case.

Resorting to such name-calling not only shows that this issue strikes at deep spiritual problems, but that those who can’t prove their position by logic or science are driven by emotion. We can expect such name-calling to increase as secularists become more frustrated in not being able to refute the powerful truth that the Creator is clearly seen (see Romans 1:18–20) and “in the beginning God created the heavens and the earth” (Genesis 1:1).

We need to remember what God said in Proverbs 21:24: “A proud and haughty man — ‘Scoffer’ is his name; he acts with arrogant pride.” In contrast, God expects His people to take the higher ground, to earn a reputation for kind and gentle words, as we speak “the truth in love” (Ephesians 4:15). The theme verse of my life and Answers in Genesis includes every Christian’s duty to give answers “with meekness”:

But sanctify the Lord God in your hearts, and always be ready to give a defense to everyone who asks you a reason for the hope that is in you, with meekness and fear (1 Peter 3:15).

# Where Was the Garden of Eden Located?

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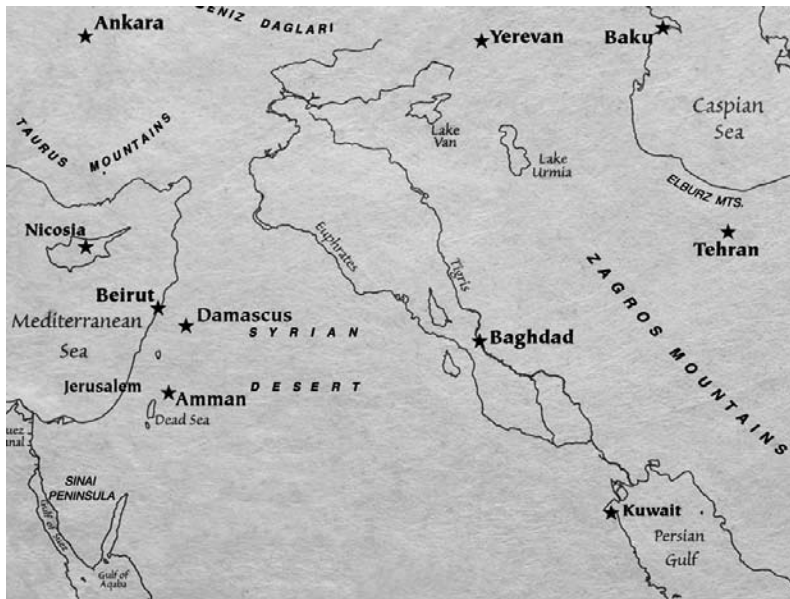
KEN HAM

**M**ost Bible commentaries state that the site of the Garden of Eden was in the Middle East, situated somewhere near where the Tigris and Euphrates Rivers are today. This is based on the description given in Genesis 2:8–14:

The LORD God planted a garden eastward in Eden. . . . Now a river went out of Eden to water the garden, and from there it parted and became four riverheads. The name of the first is Pishon. . . . The name of the second river is Gihon. . . . The name of the third river is Hiddekel [Tigris]. . . . The fourth river is the Euphrates.

Even the great theologian John Calvin struggled over the exact location of the Garden of Eden. In his commentary on Genesis he states:

Moses says that one river flowed to water the garden, which afterwards would divide itself into four heads. It is sufficiently agreed among all, that two of these heads are the Euphrates and the Tigris; for no one disputes that . . . (Hiddekel) is the Tigris. But there is a great controversy respecting the other two. Many think, that Pison and Gihon are the Ganges and the Nile; the error, however, of these men is abundantly refuted by the distance of the positions of these rivers. Persons are not wanting who fly across even to the Danube; as if indeed the habitation of one man stretched itself from the most remote part of Asia to the extremity of Europe. But since many other



Many wrongly conclude that the Garden of Eden was somewhere in the Middle East based on the names of the rivers in Genesis 2.

celebrated rivers flow by the region of which we are speaking, there is greater probability in the opinion of those who believe that two of these rivers are pointed out, although their names are now obsolete. Be this as it may, the difficulty is not yet solved. For Moses divides the one river which flowed by the garden into four heads. Yet it appears, that the fountains of the Euphrates and the Tigris were far distant from each other.<sup>1</sup>

Calvin recognized that the description given in Genesis 2 concerning the location of the Garden of Eden does not fit with what is observed regarding the present Tigris and Euphrates Rivers. God's Word makes it clear that the Garden of Eden was located where there were four rivers coming from one head. No matter how one tries to fit this location in the Middle East today, it just can't be done.

Interestingly, Calvin goes on to say:

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1. John Calvin, *Commentary on Genesis*, Volume 1, online at: [www.ccel.org/ccel/calvin/calcom01.viii.i.html](http://www.ccel.org/ccel/calvin/calcom01.viii.i.html).

From this difficulty, some would free themselves by saying that the surface of the globe may have been changed by the deluge. . . .<sup>2</sup>

This is a major consideration that needs to be taken into account. The worldwide, catastrophic Flood of Noah's day would have destroyed the surface of the earth. If most of the sedimentary strata over the earth's surface (many thousands of feet thick in places) is the result of this global catastrophe as creationists believe, then we would have no idea where the Garden of Eden was originally located — the earth's surface totally changed as a result of the Flood.

Not only this, but underneath the region where the present Tigris and Euphrates Rivers are located there exists hundreds of feet of sedimentary strata — a significant amount of which is fossiliferous. Such fossil-bearing strata had to be laid down at the time of the Flood.

Therefore, no one can logically suggest that the area where the present Tigris and Euphrates Rivers are today is the location of the Garden of Eden, for this area is sitting on Flood strata containing billions of dead things (fossils). The perfect Garden of Eden can't be sitting on billions of dead things before sin entered the world!

This being the case, the question then is why are there rivers named Tigris and Euphrates in the Middle East today?

In my native country of Australia, one will recognize many names that are also used in England (e.g., Newcastle). The reason is that when the settlers came out from England to Australia, they used names they were familiar with in England to name new places/towns in Australia.

Another example is the names given to many rivers in the United States. There is the Thames River in Connecticut, the Severn River in Maryland, and the Trent River in North Carolina — all named for prominent rivers in the UK.

In a similar way, when Noah and his family came out of the ark after it landed in the area we today call the Middle East (the region of the Mountains of Ararat), it would not have been surprising for them to use names they were familiar with from the pre-Flood world (e.g., Tigris and Euphrates), to name places and rivers, etc., in the world after the Flood.

Ultimately, we don't know where the Garden of Eden was located. To insist that the Garden was located in the area around the present Tigris and Euphrates Rivers is to deny the catastrophic effects of the global Flood of Noah's day, and to allow for death before sin.

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2. Ibid.





# What Did Noah's Ark Look Like?

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TIM LOVETT (WITH BODIE HODGE)

**M**ost of us have seen various depictions of Noah's ark — from the large, box-like vessel to the one in children's nurseries with the giraffes' heads sticking out the top. But what did the ark really look like? Can we really know for sure?

## Depicting the Ark — A Sign of the Times?

Noah's ark has been a popular subject for artists throughout the centuries. However, it is not easy to adequately depict this vessel because the description in Genesis 6 is very brief. To paint a complete picture, the artist must assume some important details.

As the invention of Gutenberg's movable-type printing press in the 1400s made rapid and widespread distribution of the Holy Scriptures possible, Noah's ark quickly became the subject of lavish illustrations. Many designs were pictured, and some were more biblical than others. Often, artists distorted the biblical specifications to match the ships of the day. For instance, the picture shown in figure 1 has the hull of a caravel, which was similar to two of the small sailing vessels used by Christopher Columbus in 1492.

Unlike most other artists, Athanasius Kircher (a Jesuit scientist, 1602–1680) was committed to accurately depicting the massive ark specified in Genesis. He has been compared to Leonardo da Vinci for his inventiveness and his works' breadth and depth. This early "creation scientist" calculated the number



Figure 1. Artist's depiction of the construction of Noah's ark, from H. Schedel's *Nuremberg Chronicle* of 1493.



Figure 2. Athanasius Kircher (1600s) was careful to follow the Bible's instructions and used a rectilinear hull, based on the dimensions in Genesis 6:15, including three decks, a door in the side, and a window of one cubit.

of animals that could fit in the ark, allowing space for provisions and Noah's family. His realistic designs (figure 2) set the standard for generations of artists.

For the next two centuries, Bible artists stopped taking Noah's ark quite so seriously, and ignored the explicit biblical dimensions in their illustrations. These artists simply reflected the scholars of the day, who had rejected the Bible's history of the world. Few Christians living in 1960 had ever seen a biblically based rendering of Noah's ark. Cute bathtub shapes and smiling cartoonish animals illustrated the pervasive belief that Noah's ark was nothing more than a tool for character-building through fictionalized storytelling.

Then in 1961 Dr. John Whitcomb and Dr. Henry Morris published *The Genesis Flood*, which made sense of a global cataclysm and a real, shiplike Noah's ark.

This book was a huge thrust to help begin the modern creationist movement.

The primary focus in *The Genesis Flood* was the size of the ark and its animal-carrying capacity. A block-shaped ark was ideal for this, easily suggesting that the ark had plenty of volume. Later studies confirmed that a ship with a rectangular cross-section 50 cubits wide and 30 cubits high was stable. Images of a rectangular ark strikingly similar to Kircher's design rendered centuries

earlier began to appear in publications (see figure 3).

The next few decades saw another popular phenomenon — the search for Noah's ark. Documentary movies and books claimed Noah's ark was hidden on Mt. Ararat, and prime-time television broadcast some mysterious photos of dark objects jutting out from the snow. George Hagopian was one of the first modern “eyewitnesses”



Figure 3. This 1985 painting by Elfred Lee was completed after multiple interviews in the early 1970s with George Hagopian, an “eyewitness” of a box-shaped ark. (Image used with permission from Elfred Lee.)

who purported to have seen a box-shaped ark. And so it happened — Noah's ark was illustrated worldwide as a box.

When looking at history, artists in each generation have defined Noah's ark according to the cultural setting and what they knew at the time. While we used to see variety in the shape of the ark, more recent depictions have seemingly locked into the box shape. But new insights — in keeping with the biblical specifications of the ark and conditions during the Flood — suggest that it's time we start thinking “outside the box.”

### Thinking Outside the Box

While the Bible gives us essential details on many things, including the size and proportions of Noah's ark, it does not necessarily specify the precise shape of this vessel. It is important to understand, however, that this lack of physical description is consistent with other historical accounts in Scripture.<sup>1</sup> So how should we illustrate what the ark looked like? The two main options include a default rectangular shape reflecting the lack of specific detail, and a more fleshed-out design that incorporates principles of ship design from maritime science, while remaining consistent with the Bible's size and proportions.

Genesis describes the ark in three verses, which require careful examination:

1. Other objects spoken of in Scripture lack physical details that have been discovered (through archaeology and other research) later (e.g., the walls of Jericho were actually double and situated on a hillside — one higher than the other with a significant space of several feet between them).

6:14—Make yourself an ark [*tebah*] of gopherwood; make rooms [*qinniyim*] in the ark, and cover it inside and outside with pitch [*kofer*].

6:15—And this is how you shall make it: The length of the ark shall be three hundred cubits, its width fifty cubits, and its height thirty cubits.

6:16—You shall make a window [*tsohar*] for the ark, and you shall finish it to a cubit from above; and set the door of the ark in its side. You shall make it with lower, second, and third decks.

Most Bibles make some unusual translation choices for certain key words. Elsewhere in the Bible, the Hebrew word translated here as “rooms” is usually rendered “nests”; “pitch” would normally be called “covering”; and “window” would be “noon light.” Using these more typical meanings, the ark would be something like this:

The *tebah* (ark) was made from gopher wood, it had nests inside, and it was covered with a pitch-like substance inside and out. It was 300 cubits long, 50 cubits wide, and 30 cubits high. It had a noon light that ended a cubit upward and above, it had a door in the side, and there were three decks. (For the meaning of “upward and above,” see the section “2. A cubit upward and above” on the following pages.)

As divine specifications go, Moses offered more elaborate details about the construction of the tabernacle, which suggests this might be the abridged version of Noah’s complete directions. On the other hand, consider how wise Noah must have been after having lived several centuries. The instructions that we have recorded in Genesis may be all he needed to be told. But in any case, 300 cubits is a big ship, not some whimsical houseboat with giraffe necks sticking out the top.

Scripture gives no clue about the shape of Noah’s ark beyond its proportions — length, breadth, and depth. Ships have long been described like this without ever implying a block-shaped hull.

The scale of the ark is huge yet remarkably realistic when compared to the largest wooden ships in history. The proportions are even more amazing — they are just like a modern cargo ship. In fact, a 1993 Korean study was unable to find fault with the specifications.

All this makes nonsense of the claim that Genesis was written only a few centuries before Christ, as a mere retelling of earlier Babylonian flood legends such as the *Epic of Gilgamesh*. The *Epic of Gilgamesh* story describes a cube-shaped ark, which would have given a dangerously rough ride. This is neither accurate nor scientific. Noah’s ark is the original, while the *Gilgamesh Epic* is a later distortion.

## What about the Shape?

For many years, biblical creationists have simply depicted the ark as a rectangular box. This helped emphasize its size. It was easy to explain capacity and illustrate how easily the ark could have handled the payload. With the rectangular shape, the ark's stability against rolling could even be demonstrated by simple calculations.

Yet the Bible does not say the ark must be a rectangular box. In fact, Scripture does not elaborate about the shape of Noah's ark beyond those superb, overall proportions — length, breadth, and depth. Ships have long been described like this without implying a block-shaped hull.

## Scientific Study Endorses Seaworthiness of Ark

Noah's ark was the focus of a major 1993 scientific study headed by Dr. Seon Hong at the world-class ship research center KRISO, based in Daejeon, South Korea. Dr. Hong's team compared 12 hulls of different proportions to discover which design was most practical. No hull shape was found to significantly outperform the 4,300-year-old biblical design. In fact, the ark's careful balance is easily lost if the proportions are modified, rendering the vessel either unstable, prone to fracture, or dangerously uncomfortable.

The research team found that the proportions of Noah's ark carefully balanced the conflicting demands of stability (resistance to capsizing), comfort (seakeeping), and strength. In fact, the ark has the same proportions as a modern cargo ship.

The study also confirmed that the ark could handle waves as high as 100 feet (30 m). Dr. Hong is now director general of the facility and claims "life came from the sea," obviously not the words of a creationist on a mission to promote the world-wide Flood. Endorsing the seaworthiness of Noah's ark obviously did not damage Dr. Hong's credibility.

The word *ark* in Hebrew is the obscure

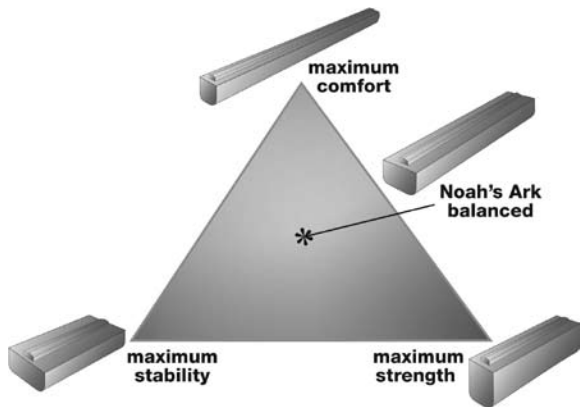


Figure 4. The proportions of the ark were found to carefully balance the conflicting demands of stability, comfort, and strength.

term *tebah*, a word that appears only one other time when it describes the basket that carried baby Moses (Exodus 2:3). One was a huge, wooden ship and the other a tiny, wicker basket. Both floated, both preserved life, and both were covered; but the similarity ends there. If the word implied anything about shape, it would be “an Egyptian basket-like shape,” typically rounded. More likely, however, *tebah* means something else, like “lifeboat.”<sup>2</sup>

The Bible leaves the details regarding the shape of the ark wide open — anything from a rectangular box with hard right angles and no curvature at all, to a shiplike form. Box-like has the largest carrying capacity, but a ship-like design would be safer and more comfortable in heavy seas. Such discussion is irrelevant if God intended to sustain the ark no matter how well designed and executed.

## Clues from the Bible

Some people question whether the ark was actually built to handle rough seas, but the Bible gives some clues about the sea conditions during the Flood:

The ark had the proportions of a seagoing vessel built for waves (Genesis 6:15).

Logically, a mountain-covering, global flood would not be dead calm (Genesis 7:19).

The ark moved about on the surface of the waters (Genesis 7:18).

God made a wind to pass over the earth (Genesis 8:1).

The Hebrew word for the Flood (*mabbul*) could imply being carried along.

The 1993 Korean study showed that some shorter hulls slightly outperformed the ark model with biblical proportions. The study assumed waves came from every direction, favoring shorter hulls like that of a modern lifeboat. So why was Noah’s ark so long if it didn’t need to be streamlined for moving through the water?

The answer lies in ride comfort (seakeeping). This requires a longer hull, at the cost of strength and stability, not to mention more wood. The ark’s high priority for comfort suggests that the anticipated waves must have been substantial.

### 1. Something to Catch the Wind

Wind-driven waves would cause a drifting vessel to turn dangerously side-on to the weather. However, such waves could be safely navigated by making

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2. C. Cohen, “Hebrew TBH: Proposed Etymologies,” *The Journal of the Ancient Near Eastern Society* (JANES), April 1, 1972, p. 36–51. (The journal was at that time called *The Journal of the Ancient Near Eastern Society of Columbia University*.)

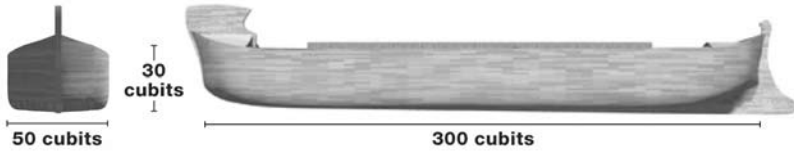
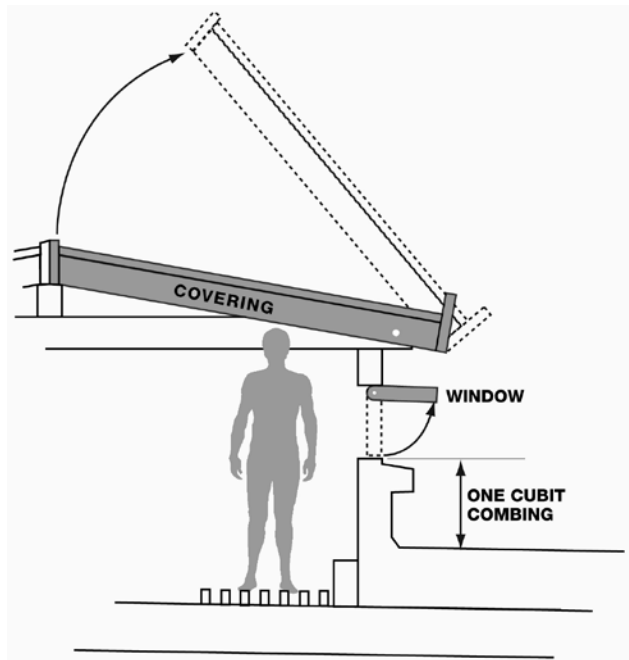


Figure 5. Scripture gives no clue about the shape of Noah's ark beyond its proportions that are given in Genesis 6:15, which reads: "And this is how you shall make it: The length of the ark shall be three hundred cubits, its width fifty cubits, and its height thirty cubits."

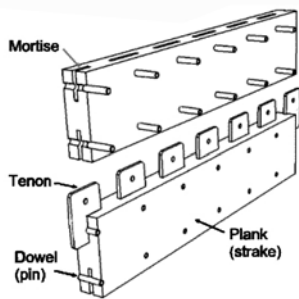
the ark steer itself with a wind-catching obstruction on the bow. To be effective, this obstruction must be large enough to overcome the turning effect of the waves. While many designs could work, the possibility shown here reflects the high stems which were a hallmark of ancient ships.

## 2. A Cubit Upward and Above

Any opening on the deck of a ship needs a wall (combing) to prevent water from flowing in, especially when the ship rolls. In this illustration, the window "ends a cubit upward and above," as described in Genesis 6:16. The central position of the skylight is chosen to reflect the idea of a "noon light." This also means that the window does not



need to be exactly one cubit. Perhaps the skylight had a transparent roof (even more a "noon light"), or the skylight roof could be opened (which might correspond to when "Noah removed the covering of the ark"). While variations are possible, a window without combing is not the most logical solution.



### 3. Mortise and Tenon Planking

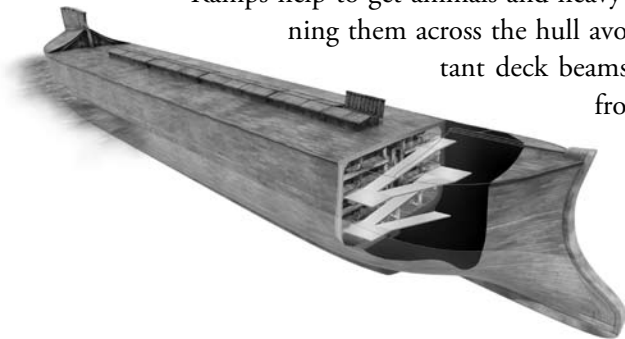
Ancient shipbuilders usually began with a shell of planks (strakes) and then built internal framing (ribs) to fit inside. This is the complete reverse of the familiar European method where planking was added to the frame. In shell-first construction, the planks must be attached to each other somehow. Some used overlapping (clinker) planks that were dowelled or nailed,

while others used rope to sew the planks together. The ancient Greeks used a sophisticated system where the planks were interlocked with thousands of precise mortise and tenon joints. The resulting hull was strong enough to ram another ship, yet light enough to be hauled onto a beach by the crew. If this is what the Greeks could do centuries before Christ, what could Noah do centuries after Tubal-Cain invented forged metal tools?

### 4. Ramps

Ramps help to get animals and heavy loads between decks. Running them across the hull avoids cutting through important deck beams, and this location is away

from the middle of the hull where bending stresses are highest. (This placement also better utilizes the irregular space at bow and stern.)



### 5. Something to Catch the Water

To assist in turning the ark to point with the wind, the stern should resist being pushed sideways. This is the same as a fixed rudder or skeg that provides directional control. There are many ways this could be done, but here we are reflecting the “mysterious” stern extensions seen on the earliest large ships of the Mediterranean.

## How Long Was the Original Cubit?

Do we really know the size of Noah's ark (Genesis 6:15), the ark of the covenant (Exodus 25:10), the altar (Exodus 38:1), Goliath (1 Samuel 17:4), and Solomon's Temple (1 Kings 6:2)? While the Bible tells us that the length of



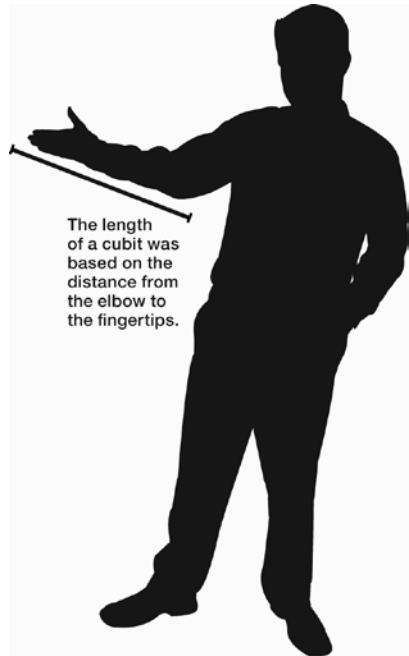
Noah's ark was 300 cubits, its width 50 cubits, and its height 30 cubits, we must first ask, "How long is a cubit?" The answer, however, is not certain because ancient people groups assigned different lengths to the term "cubit" (Hebrew word *ammah*), the primary unit of measure in the Old Testament.

Table 1. The length of a cubit was based on the distance from the elbow to the fingertips, so it varied between different ancient groups of people. Here are some samples from Egypt, Babylon, and ancient Israel:

Culture	Inches (centimeters)
Hebrew (short)	17.5 (44.5)
Egyptian	17.6 (44.7)
Common (short)	18 (45.7)
Babylonian (long)	19.8 (50.3)
Hebrew (long)	20.4 (51.8)
Egyptian (long)	20.6 (52.3)

But when Noah came off the ark, only one cubit measurement existed — the one he had used to construct the ark. Unfortunately, the exact length of this cubit is unknown. After the nations were divided years later at the Tower of Babel, different cultures (people groups) adopted different cubits. So it requires some logical guesswork to reconstruct the most likely length of the original cubit.

Since the Babel dispersion was so soon after the Flood, it is reasonable to assume that builders of that time were still using the cubit that Noah used. Moreover, we would expect that the people who settled near Babel would have retained or remained close to the original cubit. Yet cubits from that region (the ancient Near East) are generally either a common (short) or a long cubit. Which one is most likely to have come from Noah?



In large-scale construction projects, ancient civilizations typically used the long cubit (about 19.8–20.6 inches [52 cm]). The Bible offers some input in 2 Chronicles 3:3 which reveals that Solomon used an older (long) cubit in construction of the Temple.

Most archaeological finds in Israel are not as ancient as Solomon, and these more modern finds consistently reveal the use of a short cubit, such as confirmed by measuring Hezekiah's tunnel. However, in Ezekiel's vision, an angel used "a cubit plus a handbreadth," an unmistakable definition for the long cubit (Ezekiel 43:13). The long cubit appears to be God's preferred standard of measurement. Perhaps this matter did not escape Solomon's notice, either.

Though the original cubit length is uncertain, it was most likely one of the long cubits (about 19.8–20.6 inches). If so, the ark was actually bigger than the size described in most books today, which usually use the short cubit.

## Was Noah's Ark the Biggest Ship Ever Built?

Few wooden ships have ever come close to the size of Noah's ark. One possible challenge comes from the Chinese treasure ships of Yung He in the 1400s. An older contender is the ancient Greek trireme *Tessarakonteres*.

At first, historians dismissed ancient Greek claims that the *Tessarakonteres* was 425 feet (130 m) long. But as more information was learned, the reputation of these early shipbuilders grew markedly. One of the greatest challenges to the construction of large wooden ships is finding a way to lay planks around the outside in a way that will ensure little or no leaking, which is caused when there is too much movement between the planks. Apparently, the Greeks had access to an extraordinary method of planking that was lost for centuries, and only recently brought to light by marine archaeology.

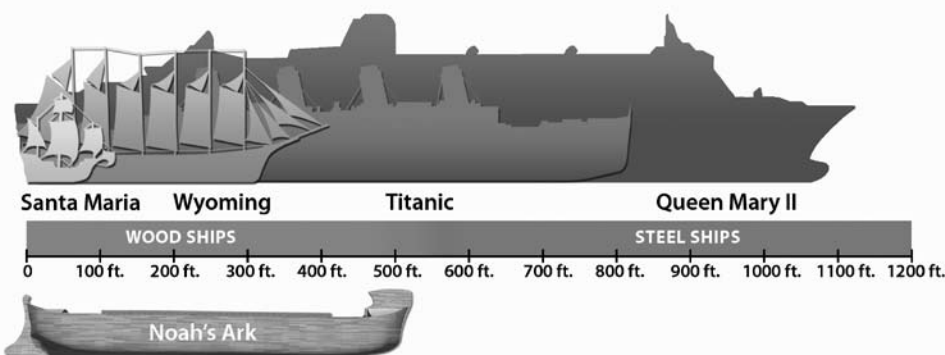


Figure 6. The ark is near the maximum size that is known to be possible for a wooden vessel. How big was the ark? To get the 510 feet (155 m) given here, we used a cubit of 20.4 inches (51.8 cm).

It is not known when or where this technique originated. Perhaps they used a method that began with the ark. After all, if the Greeks could do it, why not Noah?

### Designed for Tsunamis?

Was the ark designed for tsunamis? Not really. Tsunamis devastate coastlines, but when a tsunami travels in deep water, it is almost imperceptible to a ship. During the Flood, the water was probably very deep — there is enough water in today's oceans to cover a relatively flat terrain to a consistent depth of over two miles (3.2 km). The Bible states that the ark rose “high above the earth” (Genesis 7:17) and was stranded early (Genesis 8:4), before mountaintops were seen. If the launch was a mirror of the landing — the ark being the last thing to float — it would have been a deep-water voyage from start to finish.

The worst waves may have been caused by wind, just like today. After several months at sea, God made a wind to pass over the earth. This suggests a large-scale weather pattern likely to produce waves with a dominant direction. It is an established fact that such waves would cause any drifting vessel to be driven sideways (broaching). A long vessel like the ark would remain locked in this sideways position, an uncomfortable and even dangerous situation in heavy weather.

However, broaching can be avoided if the vessel catches the wind at one end and is “rooted” in the water at the other — turning like a weather vane into the wind. Once the ark points into the waves, the long proportions create a more comfortable and controlled voyage. It had no need for speed, but the ark did “move about on the surface of the waters.”

The box-like ark is not entirely disqualified as a safe option, but sharp edges are more vulnerable to damage during launch and landing. Blunt ends would also produce a rougher ride and allow the vessel to be more easily thrown around (but, of course, God could have miraculously kept the ship's precious cargo safe, regardless of the comfort factor). Since the Bible gives proportions consistent with those of a true cargo ship, it makes sense that it should look and act like a ship, too.

Coincidentally, certain aspects of this design appear in some of the earliest large ships depicted in pottery from Mesopotamia, not long after the Flood. It makes sense that shipwrights, who are conservative as a rule, would continue to include elements of the only ship to survive the global Flood — Noah's ark.

Scripture does not record direction-keeping features attached to the ark. They might have been obvious to a 500 year old, or perhaps they were common

among ships in Noah's day as they were afterward. At the same time, the brief specifications in Genesis make no mention of other important details, such as storage of drinking water, disposal of excrement, or the way to get out of the ark. Obviously, Noah needed to know how many animals were coming, but this is not recorded either.

The Bible gives clear instruction for the construction of a number of things, but it does not specify many aspects of the ark's construction. Nothing in this newly depicted ark contradicts Scripture, even though it may be different from more accepted designs. But this design, in fact, shows us just how reasonable Scripture is as it depicts a stable, comfortable, and seaworthy vessel that was capable of fulfilling all the requirements stated in Scripture.