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Travel Path of the Jaredites

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Chapter 9

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No book about the Jaredites would be complete without a discussion of the probable travel route from Sumer and its environs to Mesoamerica. The description of the route in the Book of Ether is very brief. The intent of this book is to provide new information, discuss known information, and add some new insights that I believe provide a more plausible and accurate route description, especially since we know from linguistics and other information that the departure is from Sumer.

The first leg of the journey took the Jaredites “down into the valley which was northward”—said valley “was Nimrod, being called after the mighty hunter” (Ether 2:1). Since the main Sumerian plain is relatively flat, the Jaredite group likely originated from the eastern highland boundary area adjacent to or overlapping with Elam. We don’t know exactly where the valley of Nimrod was from this description, other than it was northward; however, Nimrod is a known king in Mesopotamia, and Genesis says that the “beginning of his kingdom” was the towns of “Babel, Erech, Akkad and Calneh in the land of Shinar” (Mesopotamia) (Genesis 10:10). Erech is the city of Uruk, which is a Sumerian city with Uruk name of the city in Sumerian. The valley of Nimrod is still somewhere in Mesopotamia, probably in the northern area.

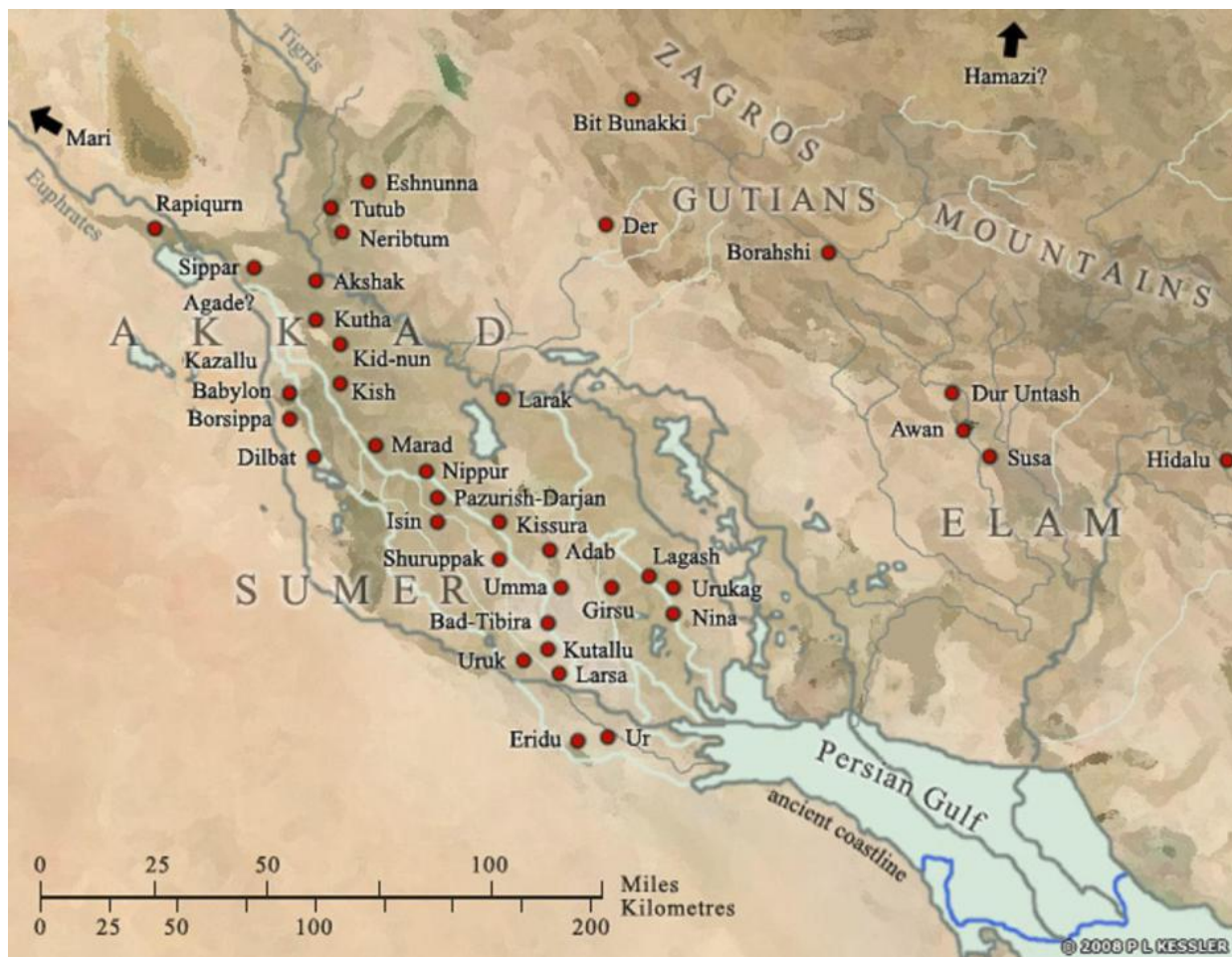


Figure 20. Sumer and Elam boundary area. (Ancient History Encyclopedia 2017)

At this point, an important clue can be derived from the text in the Book of Ether. Specifically, as I discussed in *Geology of the Book of Mormon*, in the Book of Mormon there are many instances of God communicating with or in the midst of a cloud, often accompanied by earthquakes and thunder and sometimes fire, indicative of volcanic activity (Mosiah 27:11; Helaman 5:27–28, 34, 36; 3 Nephi 8:10). Although not an exclusive rule of thumb, as there may be other Biblical theophanies involving a cloud that are non-volcanic, this potential interpretive clue may be helpful in determining the route of the Jaredites. Some scientists who have looked at the elements of Exodus agree that Mount Sinai, with its description of smoke, fire, and earthquake, was a volcano and the pillar of cloud by day and fire by night was a column of volcanic eruption (Humphreys 2004), indicating Mount Bedr in northwestern Saudi Arabia is the likely Sinai.

Exodus 13: 21–22

And the Lord went before them by day in a pillar of a cloud, to lead them the way; and by night in a pillar of fire, to give them light; to go by day and night: He took not away the pillar of the cloud by day, nor the pillar of fire by night, from before the people.

While many do not support this interpretation, the various elements of the description are consistent. When an individual, such as Moses, approaches or ascends a volcano and encounters a “cloud,” that would be indicative of only minor volcanic activity, which can be ongoing at many volcanoes; on the other hand, something sufficient to lead people and be seen from a distance would require a major eruption (which often lasts over months and even years). Of course, the appearance or description of a cloud as part of communication with God may not refer to natural phenomena, but the approach here will be to assume such and see what it indicates regarding the Jaredite travel path.

The Lord instructed Jared₁ to “go at the head of them down into the valley which is northward. And there will I meet thee, and I will go before thee into a land which is choice above all the lands of the earth” (Ether 1:43). It is notable that the Lord promised to “go before” the group in some form or fashion, leading them all the way to the promised land in the New World. As indicated in Exodus with the same language, in that instance, the Lord went before the Israelites in a “pillar of cloud” and by a “pillar of fire.” Ether 2:5 indicates the method in which the Lord “did go before them,” namely, that he “stood in a cloud.”

After the Jaredites arrived at the Valley of Nimrod, the Lord came down in a cloud to the brother of Jared, who “saw him not” (Ether 2:4). There is only one volcano that shows activity at that time in Mesopotamia, and it is located at the northern extent of ancient Assyria. The name of the volcano is Nemret Dagi, and it is located on the southern end of Lake Van and is adjacent to some small valleys. The name of the volcano, ironically, means Mount Nimrod, although the naming of the volcano appears to be relatively modern, dating back to the Middle Ages. In Armenian legend, Hayk defeated the biblical king Nimrod and buried him in these mountains, so the name may correlate to this ancient reference.

Identifying the second leg of the Jaredite journey is critical because if they went east, they would have traveled over the Pacific Ocean, and if they went west, they probably crossed the Mediterranean Sea and Atlantic Ocean. Some have postulated that they could have also gone south to the Red Sea, which would still indicate a Pacific crossing. One argument against a Red Sea departure, just from a matter of logic, is that if their starting point was already on or in close proximity to the Persian Gulf, why would they travel a long distance on land to access the Pacific Ocean when they had direct access to the Pacific through the Persian Gulf right from the beginning?

With its internal geographic correlations, the Book of Mormon indicates an Atlantic side arrival in the Isthmus of Tehuantepec (Sorenson 2013). For the second leg of the journey, the Jaredites were to first, “go forth into the wilderness” “into that quarter where there never had man been”; then, for the third leg of the journey, they “did build barges, in which they did cross many waters” (Ether 2:5-7). Some have assumed that “many waters” must

indicate that they were crossing a series of lakes or swamps, somehow portaging their barges across dry land. However, in the Book of Mormon, “many waters” is used to mean a large body of water such as a sea or ocean (see 1 Nephi 13:10, 12, 13, 29; 1 Nephi 17:5). Finally, the language describing the end of the third stage of the journey is curious: the Lord “would not suffer that they should stop *beyond the sea in the wilderness*, but he would that they should come forth even unto the land of promise” (Ether 2:7, emphasis added). This indicates that the end of the third stage of the journey was “beyond the sea in the wilderness.”

There is no previous indication that the Jaredites abandoned their boats; in fact, the Sumerian meaning of the name of the place where they pitched their tents by the seashore indicates that it was both the landing and departure point for their barges/boats. It also indicates that they landed on an “earth pile,” which would seem to indicate an island, since known Sumerian currently does not have a word for “island.”

Ether 2:13

And now I proceed with my record; for behold, it came to pass that the Lord did bring Jared and his brethren forth even to that great sea which divideth the lands. And as they came to the sea they pitched their tents; and they called the name of the place Moriancumer; and they dwelt in tents, and dwelt in tents upon the seashore for the space of four years.

Sumerian

ma: ship or boat

ma'u: barge

mar-ru: storm or wind

muru: rainstorm

ri: to lay down, cast, set in place, to lead away, to release

RI-a-na (form of *ri*)

a-RI-ni (form of *ri*)

ana: wooden object

ku: to place, lay down

uma: triumph, victory

kamar: wood

a: water

a-ni (form of *a*)

a-na (form of *a*)

u: type of land

u: earth pile

u: earth

Constructed Compound Word: **Moriancumer**

During the second leg of the journey, across the barren quarter, the Jaredites were led by the Lord who “did go before them, and did talk with them as he stood in a cloud, and gave directions wither they should travel.” Later, at the place that marked the end of the third leg of their journey, the Lord again talked with the brother of Jared and “stood in a cloud” (Ether 2:14).

Guided by the Cloud

In applying the premise that volcanic eruptions served as a navigational guide, it should not be assumed that the Jaredites were leapfrogging from one volcano to another, since it is clear that they were “being directed continually by the hand of the Lord” (Ether 2:6) and were traveling at times through areas where no volcanoes were located or

active. Volcanic activity would have been principally useful in offering navigational guidance in areas that might not have had populations or trade routes and when maintaining a specific direction was necessary, such as in barren territory or open sea/ocean, as is indicated by the fact that they traveled in “that quarter where there never had man been.”

For the second and third legs of the journey, an examination of all volcanoes or volcanic fields and their history of eruption to the east of Mesopotamia and easterly through and beyond the Mediterranean indicates only two volcanoes had eruptions during the departure timeframe of the Jaredites (2600–2700 BC); the Harrat Ash Shamah volcanic field (eruption in 2670 BC \pm 200 years), in current northwestern Saudi Arabia near the Jordanian border, and the Tenerife volcano in the Canary Islands (eruption approximately 2650 BC). There were no volcanic eruptions of any sort east of Mesopotamia, again confirming that the Jaredite journey moved west through the Mediterranean Sea.



Figure 21. Approximate route of the first three legs of the Jaredite journey. (Google Earth, 2016, modified by the author)

The approximate route shown in figure 21 indicates that the Jaredites crossed a portion of the Syrian Desert, using the volcanic cloud as a guide and that the third leg of the trip took them to a spot in the ocean where another volcanic cloud would have been extremely useful as a directional navigational guide, especially if one is aiming to arrive at a small island. Figure 21 should not be viewed as an exact route, since the Jaredites may have launched at

a slightly different point in the eastern Mediterranean and probably stopped at various locations along the way for supplies. The arrival at the Canary Islands would have required a bit of open-water travel in the barges, since the islands are located 60 to 70 miles offshore, but in calm weather this would not have been much different from sailing the Mediterranean Sea.

The Canary Islands as the preparation place before the Jaredites' final haul to Mesoamerica makes a lot of sense, since it puts them directly into the Trade Winds that blow toward Mesoamerica. After all, the last leg of the journey would require a "furious wind to blow upon the face of the water" (Ether 6:5). This is the route that Columbus took on his initial voyage (see figure 22), which took him 5 weeks to arrive in the Caribbean. Also, interestingly, the Canary Islands is the only other Pre-Columbian place in the world that anciently utilized a 260-day calendar like the Olmecs. It is not known if there were inhabitants on the Canary Islands at the time of the Jaredite landing, so that interesting link will remain a bit speculative for the time being.

One question that arises regarding the departure point is whether there was sufficient quality wood for the Jaredites to construct their ships. The Canary Islands are home to the Canary Island pine (*P. canariensis*), a large, evergreen tree native and endemic to the outer Canary Islands (Gran Canaria, Tenerife, Hierro and La Palma). *P. canariensis* wood is strong and serviceable. It has excellent durability and is classified among the best grades of pine wood. Objects built of the heartwood have remained sound under full exposure to weather for 200 years (Gravano 2002).

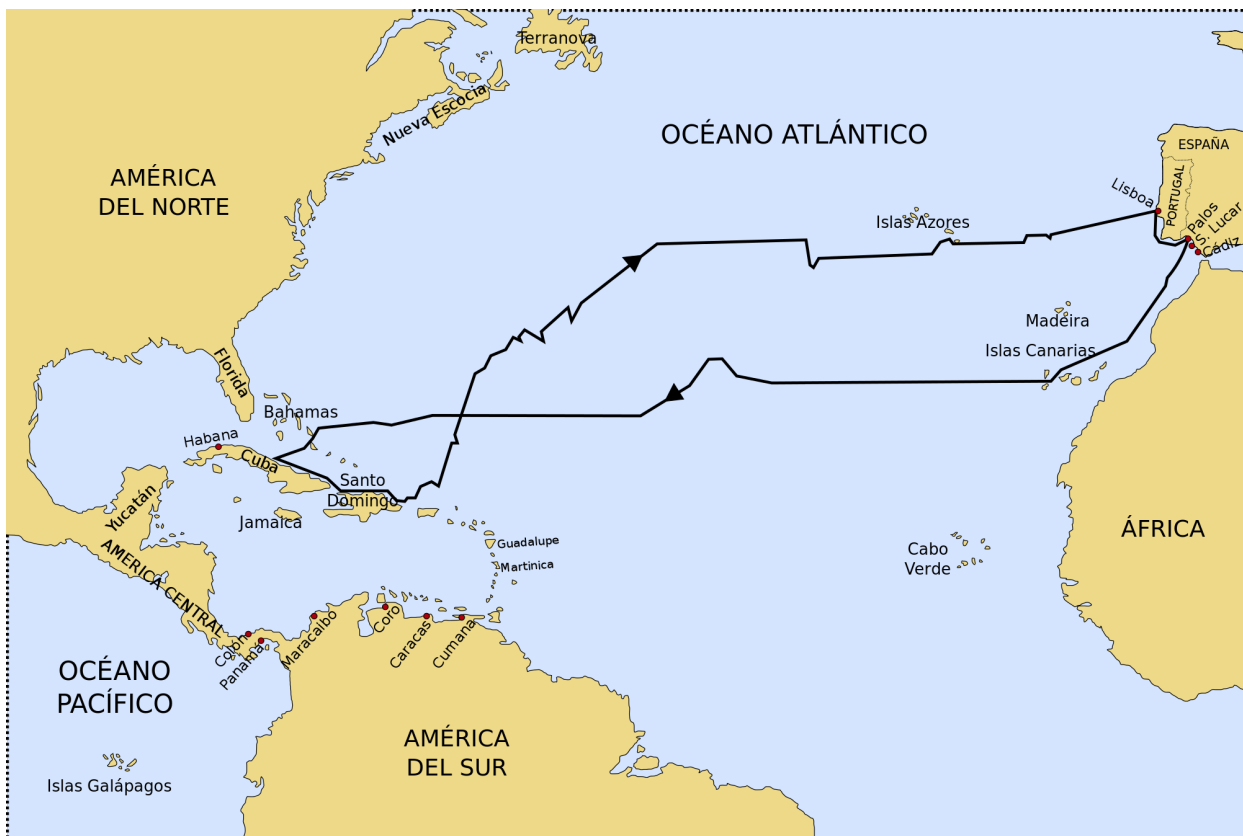


Figure 22. The route of Columbus's first trip, using the Trade Winds. (Wikipedia.org, 2015b)



© 2005 Brooks/Cole - Thomson

Figure 23. Zone of North Atlantic Trade Winds. (Brooks/Cole – Thomson 2005)

For the final leg, leaving the Canary Islands, there are two volcanoes that erupted during the right period and in the right place and would have worked perfectly in conjunction with the trade winds and the Atlantic Ocean currents to direct the Jaredites from the Canary Islands to Mesoamerica at critical junctures. Starting from the Canary Islands, the Jaredite group was positioned to catch the Canary Current off of Africa (see figure 23). The current would have taken them into the North Equatorial Current and zone of the favorable Trade Winds (see figure 23). Continuing along the North Equatorial Current, the group would have needed to stay to the south and catch the Caribbean Current where it splits off. The volcano Mount Pelée on the Caribbean island of Martinique could have served as a navigational guide to make sure that the group caught the Caribbean Current since it had eruptions during the proper timeframes (eruptions in 2460 BC +/- 100 years and 2660 BC +/- 200 years). On the way to their final landing place (somewhere near current Veracruz, Mexico), the Jaredites could have been led by the Pico de Orizaba volcano, which is just inland of Veracruz and is the tallest volcano in Mexico and the third highest peak in North America. It also erupted during the right timeframe (2780 BC +/- 75 years and 2500 BC +/- 75 years) and would have served as a final directional target for the Jaredite group.

The length of the journey would have been in the neighborhood of 5,500 miles, and utilizing the upper end of the current speeds, shown in figure 24, the travel time based on the ocean current alone (with no consideration of wind assist) would have been 290 days from the Canary Islands. Using the average current speed, it would have taken 432 days. The Book of Ether indicates that the Jaredites were “driven forth before the wind” and were “three hundred and forty and four days upon the water” (Ether 6:6–11), which is a reasonable timeframe from the Canary Islands to Mesoamerica based on the current alone. It is also possible that they could have stopped at the Cape

Verde Islands and/or somewhere in the Caribbean for a short period to resupply, which may have lengthened the journey a bit and could mean that the 344 days “upon the water” refers to the total time on the water, minus the time spent making stops on land.

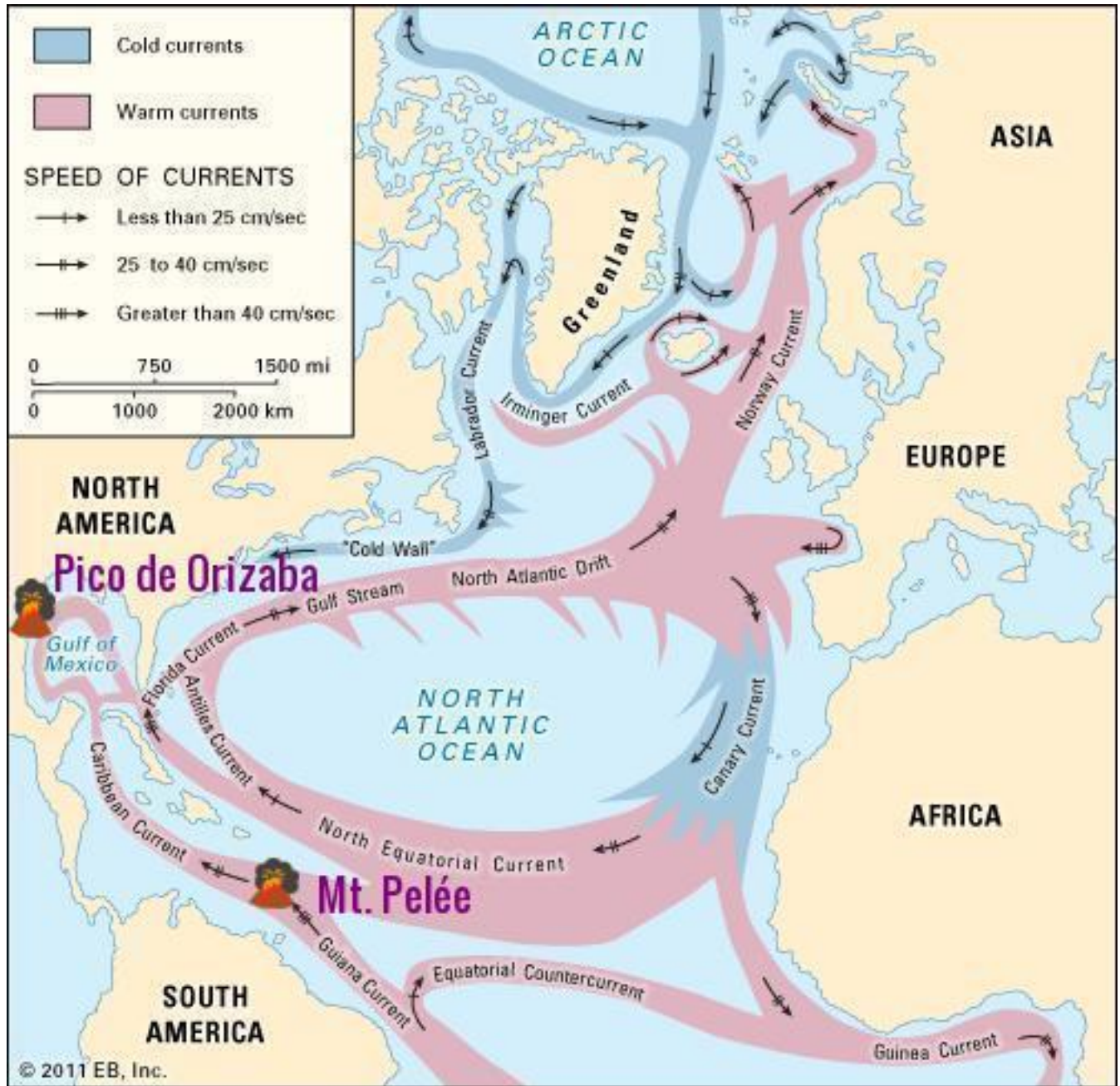


Figure 24. North Atlantic Ocean currents and locations of Mount Pelée and Pico de Orizaba volcanoes. (EB, Inc., 2011, modified by author)

The nature of the vessels and a plausible construction design based on the description given has been evaluated with some detail by Captain Richard Rothery (1999) and so will not be repeated here. Captain Rothery assumed a route across the Pacific, but the features of the boat as described would be the same. Some Book of Mormon illustrations have erroneously shown these boats to look like submarines, but there is no indication given in the text that there was a different exterior design other than the ships had sealed decks.

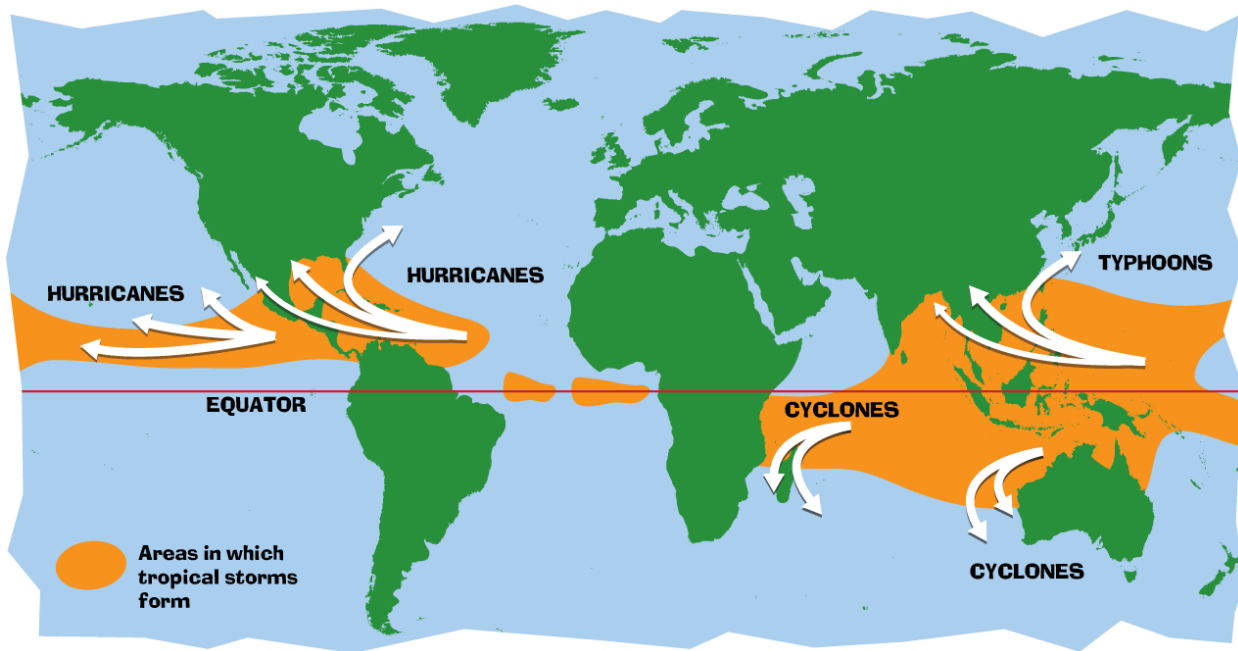


Figure 25. Tropical Storm and Hurricane pathways. (NASA 2016)

Other indicators in support of the route identified here are the likely references to a tropical storm or hurricane in Ether 6. Ether 6:5 reads, “The Lord God caused that there should be a furious wind blow upon the face of the waters, towards the promised land,” and verses 6 and 8 mention that there were “great and terrible tempests” and that the “wind did never cease to blow towards the promised land.” The only route consistent with the tropical storm or hurricane pathways described (see figure 25) and the trade winds that would have pushed them to Mesoamerica is the Canary Island route. In general, a Pacific crossing runs counter to the prevailing winds.

The 16 Stones

While in the Canary Islands, not long before their departure, the brother of Jared was concerned about having light in the boats they had constructed and presented to the Lord (who again spoke from a cloud) 16 stones (one for each end of each of the eight boats); he “went forth unto the mount, which they called the mount Shelem, because of its exceeding height” and “did molten out of a rock” stones that “were white and clear, even as transparent glass” (Ether 3:1; 6:2). The Lord then touched the stones, so they were then “prepared” to give “light unto the vessels” (Ether 3:6, 6:2). There are multiple volcanoes in the Canary Islands. Individual islands within the Canary Islands that could be the location of Shelem, based on volcanic activity, are Isla dell Palma, Villa di Valverde, Tenerife, Gran Canaria, and Lanzarote. In regards to current elevation, Tenerife is by far the highest.

Before an attempt can be made to identify the geologic source of the stones, it is necessary to evaluate the word *molten*. The word *molten* that is found in current editions of the Book of Mormon had a different spelling in the Printer’s Manuscript of the Book of Mormon (we don’t have the Original Manuscript for this portion of Ether). The word was spelled “moulton” and appeared in various earlier editions of the Book of Mormon. Royal Skousen (2009) has evaluated this word, noting the spelling is not an error, and observes that the exact verb is not listed in the Oxford English Dictionary. Through some biblical comparisons, he indicates that an appropriate meaning is “to cast (metal)” (3754). However, the text in the Book of Mormon is not necessarily supportive of such a narrow definition.

In a previous publication *Ziff, Magic Goggles, and Golden Plates* (2016), I evaluated the word *ore* in the Book of Mormon, determining that it was used interchangeably with the final metal product, indicating that complex

smelting is not required to be taking place in the Book of Mormon but could be limited to just hot working and forming of an existing metal.

While Nephi₁ was still in the Old World, the word “moulton” was used twice involving the production of iron tools used to make a ship (1 Nephi 17:9, 17:16). In one instance, he sought “ore to moulton that I may make tools,” and in the second he “did make tools of the ore which I did moulton out of the rock.” In one case, Nephi’s intent was to moulton the ore, and in the other, he apparently moultoned the rock. It is not known where or in what fashion he obtained the “ore”—whether it was through trading or finding it himself. He definitely used heat in the process since the text mentions he made “bellows wherewith to blow the fire.”

Iron has a melting point too high for primitive furnaces to have extracted it in pure form from its ore. The best that could have been achieved is a cluster of globules of iron mixed with sludgy impurities. This unpromising substance can be turned into a useful metal by repeated heating and hammering, until the impurities are literally forced out, making what is referred to as “wrought iron.” This was the state of metallurgy at the time of Nephi; furnace designs capable of melting pure iron were not achieved until 513 BC by the Chinese. The addition of carbon to iron could sometimes lower its melting point to just the upper temperature limits of the primitive furnaces but would also make the final product brittle.

The meaning of *moulton*, based on Nephi’s metallurgical use of the term, would not be “casting metal” from a liquid form, but would be what is better described as hot working (pounding and removal of gangue material) from softened metal.

In fact, the word *moult* as a verb is found in the Oxford English Dictionary with one definition and attestation of the metallurgical use of the word applied to metalworking, specifically ironworking:

1612 S. STURTEVANT *Metallica* xiii. 94 Freestone . . . in continuance of time . . . moultheth, or crometh away.

According to the OED, a *freestone* is a “stone that can be sawn in any direction and readily shaped with a chisel, such as fine-grained sandstone or limestone.” And *crome* means to remove with a hook.

The full title for the metalworking treatise *Metallica* indicates the scope of the book:

Briefly comprehending the doctrine of diverse new metallical inventions, but especially how to neale, melt and worke all kinde of mettles ores, irons and steeles with sea-coale, pit-coale, earth-coale and brush sewell. (Sturtevant 1612)

In a metallurgical context, the more exact meaning of *moulton* in the Book of Mormon derives not from *molt*, meaning to cast (metal), but from *moult*, involving the working of metal (or other material) typically in the presence of heat. When one moultons “out of a rock,” it means that the rock is worked to cause the removal or shedding of impurities or gangue material with the assistance of heat.

Some have supposed that the “stones” must be glass, criticizing the description based on the premise that the technical ability to make transparent glass did not occur until the first century AD, not recognizing that; non-transparent glass, however, was made as early as 3500 BC in Mesopotamia.

The description given in Ether says the objects were “stones” and were “as transparent glass,” not that they were actually glass. The stones were taken out of the rock by removing the gangue material around the “stones.” The removal process could have involved heat in the form of heating and quenching the rock, which was a known and ancient technique to crack or break rocks. Some may object that “transparent glass” was not a type of material that would have been recognized; however, there actually was transparent glass anciently, and it occurred naturally.

Although most people think of glass as a man-made material, it is found in many forms in the natural world. Natural glass can occur when volcanoes spew molten rock, lightning strikes desert and beach sands, and meteorites pound the earth and by formation as skeletal structure of some sea organisms.

In nature, glasses are formed when sand and/or rocks, often high in silica, are heated to high temperatures and then cooled rapidly. Obsidian or volcanic glass, for example, is molten rock that has quickly cooled, becoming rock in a glassy state. Tektites and Libyan Desert Glass are other forms of glassy rock created by the intense heat and force of meteoritic impacts on the earth millions of years ago. Fulgurites, which are glass made when lightning strikes sand, are brittle tubes of melted sand. Some marine creatures, such as microscopic algae and sea sponges, have siliceous (silica) skeletons, which are also a form of natural glass. Some of these forms can be transparent, such as Libyan Desert Tears (see figure 26).



Figure 26. Naturally formed Libyan Desert Glass (aka Libyan Desert Tears). (www.dragonsreverie.com 2016)

Natural glass has been identified in the Canary Islands, so it might be a candidate for the material constituting the 16 stones. A search and review of the mindat.org (2016) worldwide mineral database indicates that the following minerals or materials, which have been found in the Canary Islands, can occur in both a white and transparent or translucent form:

- Albite
- var: Oligoclase
- Albite-Anorthite Series
- Analcime
- Apatite
- Apophyllite
- Aragonite
- Baryte
- Britholite-(Ce)

Britholite Group
Calcite
Celestine
Chabazite
var: Phacolite
Chabazite-Ca
Chabazite-Na
Clinocllore
Clinoptilolite-Ca
Cowlesite
Diamond
Diopside
Dolomite
Edenite
Enstatite
Epistilbite
Erionite
Faujasite-Ca
Faujasite-Na
Fluorapatite
Forsterite
Gismondine
Glass
Gmelinite
Gonnardite
Gypsum
Halite
Haüyne
Heulandite
Kaolinite
K Feldspar
var: Adularia
Laumontite
Lévyne
Merlinoite
Mesolite
Mica Group
Mogánite
Mordenite
Natrolite
Nepheline
Nordstrandite
Offretite
Opal
var: Opal-AN
var: Precious Opal
Phillipsite
Phillipsite-K
Phillipsite-Na

Phlogopite
 Quartz
 var: Chalcedony
 Quartz-beta
 Salammoniac
 Sanidine
 Scolecite
 Sodalite
 Sulphur
 Thomsonite
 Thomsonite-Ca
 Wairakite
 Wüstite
 Zircon

Since it is not known exactly what the divine modification of the stones was, some of the above-listed minerals were included even though they normally would not have sufficient durability to serve the purpose needed by the Jaredites. While science has been able to explain many ancient miracles, others (such as the resurrection of Christ) are beyond our current scientific understanding.

Contrary to modern LDS artists' illustrations of the event, the Book of Mormon does not say that the stones began to produce light when they were touched one by one by the finger of the Lord. The text indicates only that they produced light much later, when a stone was placed in each end of the vessels (Ether 6:2). It is possible that they were placed in each end of the boats because the light was generated utilizing the kinetic energy of the upward and downward movement of each end of the boat, similar to the light generated by today's mechanically powered "shake" flashlights. All that the text says about what was done to the stones was that the "Lord had prepared the stones."

If one is looking for some sort of "solid state" answer to the light from the stones, the principle of light being able to emanate from some forms of rock has long been known in the form of the oxidation of white phosphorus (known as chemiluminescence) however the brightness is low and thus probably does not fit the description given in Ether. Incidentally, one of the white transparent minerals listed above is apatite, which contains 18.2% phosphorus; perhaps some chemical reaction converting it to white phosphorus might have been involved.

Other known forms of natural luminescence are:

- Chemiluminescence, a result of a chemical reaction
- Bioluminescence, emission as a result of biochemical reaction by a living organism
- Electrochemiluminescence, a result of an electrochemical reaction
- Crystalloluminescence, produced during crystallization
- Electroluminescence, a result of an electric current passing through a substance
- Cathodoluminescence, a result of a luminescent material being struck by electrons
- Mechanoluminescence, a result of a mechanical action on a solid
- Triboluminescence, generated when bonds in a material are broken as it is scratched, crushed, or rubbed
- Fractoluminescence, generated when bonds in certain crystals are broken by fractures
- Piezoluminescence, produced by the action of pressure on certain solids
- Sonoluminescence, a result of imploding bubbles in a liquid when excited by sound
- Photoluminescence, a result of absorption of photons

- Fluorescence, photoluminescence as a result of singlet–singlet electronic relaxation (typical lifetime: nanoseconds)
- Phosphorescence, photoluminescence as a result of triplet–singlet electronic relaxation (typical lifetime: milliseconds to hours)
- Radioluminescence, a result of bombardment by ionizing radiation
- Thermoluminescence, the re-emission of absorbed energy when a substance is heated
- Cryoluminescence, the emission of light when an object is cooled

Perhaps one or a combination of these methods somehow operated within the mineral or stone.

The Interpreter Stones

At the time the Lord prepared the 16 stones, he also provided to the brother of Jared on Mount Shelem two additional stones (Ether 3:23), which were passed down and referred to in the Book of Mormon as “interpreters.” Moroni₂ sealed up the interpreters (Ether 4:5) with the golden plates. Doctrine and Covenants 17:1 verifies that the interpreters (by then referred to as the “Urim and Thummim”) that Joseph had were those delivered to the brother of Jared on Mount Shelem. Since it is unknown where the two stones originated, it is not really possible to conjecture what material they were made of. Joseph Smith described them as “transparent” (Smith 1842), and Martin Harris described them as being “white, like polished marble, with a few gray streaks” (Harris 1859), although this latter description sounds more like Joseph Smith’s seer stone than the interpreters. Based on this description, the stones are similar in appearance to the 16 stones, and if they did come from a local source in the Canary Islands, they could have come from the minerals and materials listed above.

