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KHOR RORI: A MARITIME RESOURCES-BASED CANDIDATE FOR NEPHI'S HARBOR

George D. Potter

Abstract: *Khor Rori, which forms the mouth of Wadi (Valley) Darbat, is the largest inlet along the Dhofar coast of southern Arabia. The khor was excavated into a harbor by the erosive action of the river that flows through Wadi Darbat. In ancient times, Khor Rori was the only harbor in the Dhofar Region that could accommodate large sailing ships. The first colonizers of Khor Rori, who arrived around the ninth century BC, must have realized that this particular khor, because of its morphology, was an ideal natural port for trading their frankincense with other seafaring nations. Because Khor Rori has long been considered an important candidate for Bountiful and offers the advantage of not only the rich vegetation in Wadi Darbat and good sources of flowing water, it is also a safe harbor where a ship could have been built — indeed, the harbor would later become a busy port noted for building ships and much trade. This article provides updates since the original publications about Khor Rori, better documenting its advantages and exploring the possibility that essential raw materials for shipbuilding and shipwright expertise might have already existed at Khor Rori in Nephi's day.*

In 2003, Richard Wellington and I put forward the idea in our book *Lehi in the Wilderness* that the ancient frankincense harbor of Khor Rori (*Khor* means "inlet") in Oman is the probable place where Nephi built his ship.¹ At the time, we both lived in Saudi Arabia, and our research on Nephi's harbor constituted the last phase in our five-year effort to locate qualified candidates for sites described in the book of 1 Nephi. We were the first to propose that Wadi Taysyib al Ism is a candidate for the Valley of Lemuel, that Wadi Sharma is a candidate for Shazer, that

the villages along the frankincense trail between Wadi Ula to Medinah are candidates for the fertile parts, and that Khor Rori is a candidate for Nephi's harbor. Since that time, I have continued my research on Khor Rori and now wish to share further information.

The central event of the Old World Bountiful in the Book of Mormon is the building of Nephi's ship. As I search for the locations mentioned in the Book of Mormon, I appreciate that we will probably never know exactly where Nephi built his ship, unless the Lord reveals it. However, we are directed to "seek learning even by study, and also by faith" (D&C 109:14), so I feel it not amiss to use what scholarship is available to us to attempt to show that what Nephi described in the first book of the Book of Mormon was in keeping with what one would have probably found at Khor Rori at the turn of the sixth century BC.

Two other candidates have been proposed for Nephi's harbor, namely Khor Kharfot by Warren Aston,² and Wadi Mughsayl by W. Revell Phillips.³ This paper approaches the subject of the location of Nephi's harbor in five parts:

- Part One: What is reasonable to discern about the nature of Nephi's ship?
- Part Two: What were the geological features Nephi needed to build, outfit, and successfully launch his ship?
- Part Three: Where is Khor Rori, and what are the attributes of the land Bountiful?
- Part Four: Could Khor Rori have had the maritime resources Nephi required to build and sail a ship?
- Part Five: What are some additional speculations about Khor Rori?

Part One: What Can We Discern about Nephi's Ship?

Nephi provided no definitive description of his ship. Nevertheless, from the text of the Book of Mormon, we can conjecture the type of his ship and why it was different from other ships of its day.

First, the ship appears to have had a hull with a covered deck. Nephi wrote, "we did go down into the ship, with all our loadings and our seeds, and whatsoever thing we had brought with us" (1 Nephi 18:6). They did not go down *to* the ship, but *into* the ship with their provisions. The implication appears to be that the ship had a sizable storage hull. Later Nephi notes that there was room for dancing, suggesting a covered deck. Nephi guided and "sailed" his ship, an implication that it was a sailing ship with a rudder (1 Nephi 18:13, 22). From this limited information, it

appears that Nephi's ship, with the exception of an added deck, was rather conventional for the period. It must have been a large vessel, capable of supporting an extended family of several dozen members⁴ on a prolonged transoceanic journey. Nephi's vessel needed to carry food and water for a sustained voyage, bedding, a cooking box and cooking items, seeds for planting in the Promised Land, tools for sowing and harvesting plants, several sets of sails, bulky ancient tents (1 Nephi 18:23), materials for repairing the ship, at least one stone anchor, the brass plates, and at least one sword (probably more weapons). The ship had to be strong enough to withstand the powerful forces of pounding seas, including at least one "great and terrible tempest" (1 Nephi 18:13). In combination, these clues provide a possible model for Nephi's ship, as shown in Figure 1.

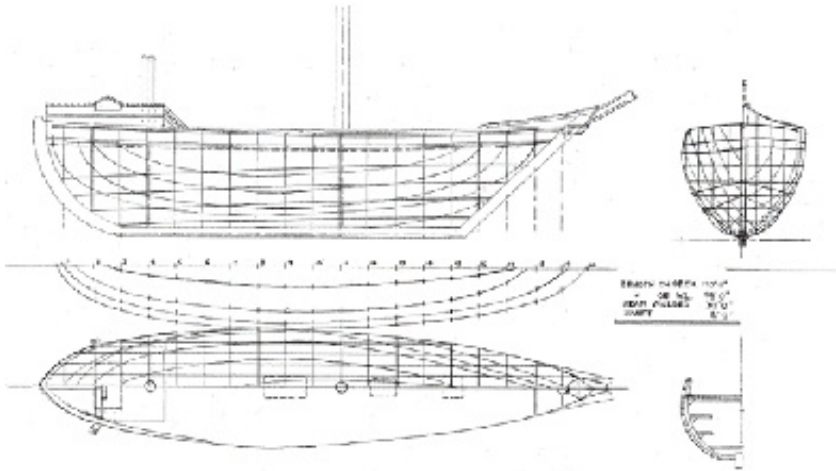


Figure 1. The proposed dimensions of Nephi's ship are 120' long by 30' wide.

Navy-hull expert Frank Linehan, who has built and commissioned ships, calculates that Nephi's ship had an approximately length of 120 feet and a width of 30 feet.⁵ Of course it can be argued that Nephi's party was smaller. Maritime archaeologist Tim Severin built and sailed a replica of a medieval Omani ship. His ship had a crew of 20 people and required a length of 80 feet.⁶

Warren Aston has suggested that Nephi's ship was possibly a large raft.⁷ Substituting Nephi's great achievement of building an ocean-going sailing ship of exceeding fine workmanship (1 Nephi 18:4) with that of roping together logs to form a raft implies a dangerous supposition — that Joseph Smith made errors in his translation of the Book of Mormon. The prophet repeatedly translated the word describing

Nephi’s vessel as a “ship” (1 Nephi 17:8, 17, 49, 51; 18:1, 2, 4–6, 8, 22). The prophet certainly knew the difference between a ship and a raft. Sailing ships are maneuverable, having keels, rudders, adjustable riggings, and narrow hulls that allow the ships to be sailed in a specific direction. A raft does not have the same capabilities. A brief reminder of the fate of Thor Heyerdahl’s raft is enlightening, since it highlights the crew’s inability to steer the raft. The journey commenced with the *Kon-Tiki* having to be towed by a tug into the Humboldt Current, which Heyerdahl knew would drift the raft directly into the path of the islands of eastern Polynesia. When his crew finally spotted an island after 101 days at sea, they tried to steer the raft to the island but could not land because the current pushed the raft farther out to sea.⁸ When they approached a second island, the crew could not steer the raft safely.⁹ The raft smashed into a reef at Raroia in the Tuamotu Islands on August 7, 1947, and was destroyed.



Figure 2. A model of Nephi’s ship by Conrad Dickson. Photograph by the author.

Nephi made it clear that he built a ship that he could steer (1 Nephi 18:13), “guide,” and “sail” (1 Nephi 18:22). He also recorded that his ship survived a four-day “great and terrible tempest” (1 Nephi 18:13). Yet it was only after the third day in the terrible storm that Laman and Lemuel became afraid. It is hard to imagine how the family,

resting low in the water on a raft and exposed to the waves and winds of the terrible storm, would not have survived more than a few hours. Avoiding Antarctic gales and hurricanes was the reason Thor Heyerdahl intentionally launched the *Kon-Tiki* raft during the calm period of the year. Indeed, steering the raft was a major problem faced by Heyerdahl and his crew.¹⁰ It is unimaginable to sailing experts that a large family aboard a raft could have navigated, let alone survived, a crossing of the Pacific Ocean (15,000 nautical miles) or a passage around Cape Good Hope.¹¹

I will continue my discussion by assuming that Nephi's ship was a sailing vessel somewhere between 80 and 120 feet long, with a hull weighing in excess of 100 tons. Phillips writes, "During my last time at Sur (Oman), workers were building a large, beautiful *dhow* for His Majesty the Sultan of Oman. I, and those with me, calculated that Nephi's ship must have been about the same size. I stood under the huge hull in awe and amazement and with new respect and understanding for the monumental task which Nephi would undertake."¹² Such a ship would have required a harbor with specific features for building it, launching it and maneuvering it safely into the Indian Ocean. Severin wrote about his replica ship, "It required a place to build her, a port to fit her out, and a large crew to sail her."¹³

Part Two: Nephi Needed Specific Geological Features to Build, Outfit, and Successfully Launch His Ship

There were two primary geological features that Nephi needed in order to be successful in his ship building and launching efforts. These features are addressed in the following two sections.

A Protected Harbor with Ways (Ramps)

What does Nephi tell us about the party's departure from Bountiful? He wrote that the family went "down into the ship, with all their loading and seeds, and whatsoever thing we had brought with us" (1 Nephi 18:6). The most likely meaning of this verse is that they entered a moored ship via a gangplank, i.e., they were in a harbor and Nephi or his family members stored their provisions, personal items, and bedding below deck, i.e., they were in a ship with a decking and not a ship at anchor beyond the surf line. After the family went down into the vessel, they "did put forth into the sea" (1 Nephi 18:8).



Figure 3. Ancient ways at Khor Rori. Photograph by the author.

They could only do this if they were already moored in the water, or else they would have had to push the ship into the sea, in which case they would climb *up* into the ship. The fact that they put forth into the sea implies considerable control of the ship and tells us that the water they were in was not yet the sea, i.e., they were in a harbor. This implies a harbor as a necessary element to Nephi's narrative and an essential feature of Bountiful. When completed and fully laden with supplies, rigging, tons of ballast, water, and at least one anchor, Nephi's ship could have weighed more than 100 tons.¹⁴ As such, it could only have been built on a cradle (wooden platform) above the tide line and lowered into calm water using gravity. In an age void of cranes and even pulleys, it is implausible to consider other means to launch a heavy vessel. What is required for constructing a large ship is a sizable flat area of ground adjacent to deep water and protected from strong winds, high tides and breaking surf. Nephi's narrative suggests an ordered departure from Bountiful on a completed ship already in the water and seaworthy (1 Nephi 18:5–8). This would be consistent with Nephi having used the age-old practice of building a ship above the waters of a protected harbor and launching it from a dry-dock using ways (ramps). Resting the hull in safe water would provide the crew the essential time to allow the plank timbers to expand to seal the hull (the Hebrew word is *tzaref*) and then caulk any remaining leaks (see Ezekiel 27:9). This was the construction

method used by both the Hebrews and the Egyptians.¹⁵ Once the hull was verified as being watertight, the deck and riggings could be added; the ship then loaded with ballast and put to sea for sea trials prior to embarkation. All these maritime fundamentals required a protected shipbuilding yard above the calm waters of a harbor. This has been the case throughout history, even until today. One can travel from San Diego to Anchorage and not find a single shipyard on an exposed inlet or beach.



Figure 4. Khor Rori circa 300 BC, from display at the Khor Rori Interpretation Center. Photograph by the author.

In antiquity, Khor Rori was the harbor of the famous Frankincense trade. Ships from throughout the ancient world set anchor in her waters. Today, Khor Rori is a large waterway extending over 1.5 miles inland. The khor (inlet) has several natural places where large ships could moor, making it the likely reason that Khor Rori and Taqah (the settlement two miles to the west) were in ancient times called *Merbat* (“the moorings”). Saeed al-Mashori, the Omani Supervisor of Excavations at Khor Rori, showed us eight clearly defined remains of ancient shipyard “ways-ramps” from which ships were launched into the calm waters of Khor Rori. The ramps are located just south of the Sumhuram fortress and include moorings where ships were finished and loaded.¹⁶ Even if these ramps were not available in his day, Nephi could have prepared

his own building site and dug his own ramp. Excavations adjacent to the ways have uncovered a complete wharf and bollards (wooden post) used to tie up boats.¹⁷ Again, Linehan estimates that Nephi's ship was at least 100 feet long, and further noting that "the draft, the depth of water that a ship reaches when loaded, of Nephi's ship would equal one fifteenth (1/15th) the length of the waterline. These are the basic rules which from antiquity to today hold true and are used by modern-day naval architects."¹⁸



Figure 5. Natural harbor of Khor Rori. Photograph by the author.

In 1995, Jana Owen of UCLA, who made a study of inlets of southern Oman as part of the "Trans Arabia Expedition,"¹⁹ assured us that the only natural harbor that could accommodate large sailing ships was Khor Rori. It is reasonable to assume that Nephi's ship would have taken several years to construct, thus requiring a sheltered place to protect the work-in-progress from the annual monsoon storms. The cliffs that run the entire length of both sides of the Khor Rori provide a sheltered shipyard.

Although today there is no inlet at Khor Kharfot, Aston has presented an illustration showing what a harbor might have looked like in Lehi's time.²⁰ There is no archaeology or historical record to support his idea. Further, the illustration Aston offers presents a small inlet with no protection from the tidal surges and winds of the monsoons, and no breakwater to allow safe access through breaking surf to the open sea. The same eliminations would have been true for Wadi Mughsayl.



Figure 6. Break surf four miles from Khor Rori. Photograph by the author.

Safe Access to the Indian Ocean

Bountiful required a harbor with calm waters in order for the family to enter the ship while moored, and then “set forth into the sea,” as Nephi explains. Furthermore, it would have been impossible for Nephi’s ship and crew to sail anywhere without first conducting sea trials to test and adjust the ship and to allow the crew significant practice sailing. Shipbuilders know that any sailing vessel requires sea trials to trim the sails, to set the correct amount and position of the ballast to balance the hull, and to train the crew.²¹

These necessary tasks would have required Nephi’s ship to have exited and reentered its mother port many times without wrecking in the high surf and rocky cliffs common to the Omani coast. What is required in rough seas, like Oman’s Indian Ocean shoreline, is a formable breakwater. Today a sand bar closes off Khor Rori. However, the port is known to have been open anciently, the sand bar forming only circa AD 1646–90.²² Guarding both sides of the entry to Khor Rori are great granite cliffs. The cliffs reach a height of 100 feet and project out into the deep water a length of 400–450 meters, thus providing a natural breakwater for a safe passage to the sea far beyond the breaking surf zone. Phillips describes this remarkable passage into the deep water:

“At Khor Rori two elongated monoliths of rock flank the entrance to the khor and defy an obvious geological explanation.”²³



Figure 7. Cliffs forming breakwater at Khor Rori. Photograph by the author.

Building a ship strong enough to carry Lehi’s family to the New World was the primary reason the Lord directed Lehi to Bountiful. This premise makes the natural harbor at Khor Rori a logical candidate for Nephi’s harbor. The long, wide, and deep harbor would have provided Nephi a protected building site, calm waters for launching, mooring sites for outfitting and loading the ship, still waters for practice sailing her, and safe access to the open seas through a remarkable breakwater.

Part Three: Khor Rori and the Attributes of the Land Bountiful

The natural harbor of Khor Rori forms the mouth of the amazing Wadi (valley) of Darbat. Nephi’s harbor was located in the land his family called Bountiful, so named for its much fruit and wild honey (1 Nephi 17:5). Bountiful also featured a shoreline, a mountain where Nephi received instruction from the Lord (1Nephi 17:7), a deposit of ore (1 Nephi 17:11), flint to start a fire (1 Nephi 17:11), wild game (1 Nephi 18:6), and a place where Nephi could have been thrown into the depths of the sea (1 Nephi 17:43).

Much Fruit and Wild Honey

While it is possible that Nephi referred to wild fruits, the young prophet was from the land of Jerusalem, a culture renowned for its orchards, vineyards and its appreciation for fruit (Proverbs 8:19). In describing Bountiful, Nephi distinguished between honey and “wild honey,” but only “fruit,” not “wild fruit.” It is reasonable then that Nephi referred to cultivated crops, and not the wild vegetation that grows throughout the monsoonal region of Dhofar. Near the Bronze Age settlements at Khor Rori are found Iron Age remains of irrigated farms. Zarins notes, “At Khor Rori we found traces of long walls, many at right angles, placed in the context of diverting water from either springs or wadis.”²⁴ Nevertheless, we can only speculate on what Lehi would have found at Khor Rori around 587 BC. That said, excavations continue at Khor Rori, and archaeologists have so far confirmed that as far back as the third century BC, the harbor had “traces of irrigation works in alluvial deposits and stone alignments that bordered and protected the arable lands and herding practices. All this archaeological evidence is fully in line with the palaeobotanical and archaeozoological results which point to the population of Sumhuram [Hadhrami ruins at Khor Rori, circa 300 BC] as having a rich and varied availability of food.”²⁵



Figure 8. River in Wadi Darbat. Photograph by the author.

Of course it could be argued that Nephi's reference that "all these things were prepared of the Lord that we might not perish" (1 Nephi 17:5) suggests that the fruit Nephi saw was not cultivated by the locals. Warren Aston has used this argument to propose Khor Kharfot as a possible candidate for Bountiful: The "uncultivated fruit near the ocean as Nephi indicates, [is] the prime factor giving rise to the descriptive name Bountiful."²⁶ While this might have been the case, "uncultivated fruit" cannot constitute a "prime" or specific locator for Bountiful in the Dhofar region of Oman. If uncultivated vegetation is what Nephi meant by much fruit, this attribute for Bountiful would apply to the entire monsoonal zone in Dhofar, and not exclusively to either Khor Kharfot or Khor Rori. Furthermore, the wild vegetation in Kharfot grows in a very small area and is minuscule when compared to the amount and variety of native vegetation growing at Wadi Darbat, the valley in which Khor Rori is located. The beautiful Wadi Darbat is an Omani National Park with impressive waterfalls, five fresh-water lakes, a year-round river, and perhaps the most abundant wild fruit varieties found anywhere in Oman. Wadi Darbat is known locally as the "valley of the big trees."²⁷

Professor Samir Hanna of Sultan Qaboss University describes this valley: "majestic views of lakes, waterfalls and wildlife [see 1 Nephi 18:6]; all of this, coupled with the surrounding vegetation and the tranquillity of the place, provides a *vision of Paradise*."²⁸ To this day, wild honey is still collected in Wadi Darbat.²⁹ By foot or by camels, access to Wadi Darbat's lakes above the tall waterfalls from Khor Rori would have been easy. The author has observed camels and their herders ascending from the harbor to the lakes, while using both the modern road and beaten camel paths.

Today the harbor area of Wadi Darbat (Khor Rori) appears barren of significant vegetation. However, that was not the case in antiquity. Within living memory, Khor Rori was heavily forested; and the Botanical Mission from Florence states that overgrazing has resulted in the harbor's current state.³⁰ An archaeologist concludes that around 300 BC the harbor of Khor Rori "was fairly rich in cultivation."³¹ Either blessed with cultivated or wild fruits, Khor Rori/Wadi Darbat would have been a land of "much fruit," even a land described as a *paradise*.



Figure 9. One of five lakes in Wadi Darbat. Photograph by the author.

Wild Game

As Professor Hanna notes, Wadi Darbat is known for its wildlife.³² In the mountains surrounding the wadi are found the Arabian leopard, mountain gazelle, Blanford's fox, hyrax, hyena, and the Nubian goat.³³ Ancient cave art in Wadi Darbat portrays large wild animals.³⁴

A Mountain, Ore, and Flint

As for a nearby mountain at Khor Rori, there are numerous choices. To the immediate west of Khor Rori is Jabel Taqa, just two and a half miles from the natural harbor and its ancient ramps. Since antiquity, the mountain on the east of Khor Rori has been called *Edahk A-Solot*.³⁵ *Edahk Al-Solot*, traditionally called "the mountain of prayer," is also the mountain where William Revell Phillips of Brigham Young University found ore and where a Neolithic flint quarry is located below its slopes and just four miles east of Khor Rori.³⁶ It is interesting to speculate the reason why the Lord requested Nephi to go to the mountain (1 Nephi 17:7) instead of just showing him how to build a ship where he was sleeping. Might the Lord have known that Nephi would ask him where to find ore to make tools (1 Nephi 17:9), and that the answer had

already been provided – the very mountain he was praying on? Aston has suggested that a distinguished mountain at Bountiful was located “nearby” the sea. Clearly, this attribute would have existed at Khor Rori, Khor Kharfot, Wadi Mughsayl, and all the other inlets along the Salalah coastal plain. The Book of Mormon gives us no details about the mountain on which Nephi prayed, only that he went there often. We can only conjecture where the mountain was located in reference to where the family camped. How tall was it? How close was it to the seashore? Or how long did it take Nephi to reach it on foot or by camel? The entire Dhofar seashore is bordered by mountain ranges within easy walking distances from the beach.

A Place to Throw Nephi into the Depths of the Sea

The cliffs that form the breakwater at Khor Rori are 100 feet tall. The cliffs reach over 400 meters into the depths of the Indian Ocean. Since it is known that people were living atop these cliffs anciently and possibly in Lehi’s time, perhaps the family was camped among them, and that the argument between Nephi and his brothers took place near the edge of the cliffs. If Laman and Lemuel had successfully thrown Nephi from these towering cliffs into the deep waters of the Indian Ocean, Nephi’s ship would never have sailed (see Figure 6 and footnotes 60 and 61).

Combining the above attributes that would have marked Khor Rori in 600 BC, and all within a short six-mile walking radius, the natural harbor makes Wadi Darbat and its natural harbor of Khor Rori a formidable candidate for the land of Bountiful. In his book *Lehi and Sariah in Arabia*, Aston proposes twelve criteria for the land of Bountiful.³⁷ With its natural harbor of Khor Rori, Wadi Darbat would have met all of Aston’s criteria, except for the criterion, questioned herein, that Bountiful was a place with little or no population.

Part Four: Could Khor Rori have had the Maritime Resources Nephi Required to Build and Sail a Ship?

While still camped in the valley of Lemuel, Nephi received the revelation that he would be given a promised land across the many waters (1 Nephi 2:20; 13:10, 12–13, 17, 29). Nephi must have been quite young when he understood that he needed to build a great ship capable of taking a large family across the many waters. Nephi must have realized that he needed to learn dozens of shipwright and seamanship skills, as well as acquire a long list of raw materials for his ship’s construction. Due to the fame of the frankincense trade, his father likely knew that Khor Rori

was one of the few places in the ancient world that possessed these vital resources. While in the valley, Nephi, being young and inexperienced, the challenge must have seemed overwhelming. According to the *Jewish Encyclopaedia*,

The first positive commandment of the Bible, according to rabbinic interpretation (Maimonides, “Minyan ha-Mizwot,” 212), is that concerning the propagation of the human species (Gen. 1. 28) ... it is thus considered the duty of every Israelite to marry as early in life as possible. Eighteen years is the age set by the Rabbis (Ab. v. 24); and anyone remaining unmarried after his twentieth year is said to be cursed by God Himself (Ḳid. 29b). Some urge that children should marry as soon as they reach the age of puberty, *i.e.*, the fourteenth year (Sanh. 76b); ... A man who, without any reason, refused to marry after he had passed his twentieth year was frequently compelled to do so by the court.³⁸

If Nephi had three unmarried older brothers and presumably one or more older sisters, how old was he when he knew he needed to build a large and stout ship? He must have been in his early teens. At that age, what could Nephi have known about the complicated multi-skills he needed to master to construct an ocean-going ship, or for that matter the other skills he would eventually master in order to build swords like Laban’s or to construct an ore smelter, to build a temple like Solomon’s, and to hammer ore into gold plates? It should be remembered that Nephi came from an elite family. He was highly educated for his time, knowing how to read and write in more than one language. His father was wealthy, having inherited lands and possessing gold, silver, and precious things (2 Nephi 2:4). One could suggest that Nephi could have been the son of a metal artisan, but that seems unlikely. Since Lehi was wealthy, Nephi was a master writer in more than one language, and it is estimated that in ancient Israel only 3% of Jews were even literate.³⁹ In this context, it is doubtful that young Nephi knew any of the manual skills of the servant or a member of the craftsman-class.⁴⁰ Who was there to teach him these multiple skills? Perhaps finding a place where young Nephi could learn from master shipwrights and experience seamen was the very reason Lord led Nephi to Bountiful.

Even if Nephi had access to the best shipbuilders during his time, he still needed guidance from the Lord on how to make his ship strong enough to reach the New World. It is doubtful that any Omani ship in that day could have reached the Promised Land. The Lord counselled

Nephi, “Thou shalt construct a ship, after the manner which I shall show thee, that I may carry thy people across these waters.” (1 Nephi 17:8). So how could his ship have been stronger and otherwise different from how other ships were constructed in 600 BC? US Navy hull expert Frank Linehan believes that since the earliest known Omani ships were sewn together using coconut rope, they did not have the structure strength to reach the Americas. In our book *The Voyages of the Book of Mormon*, Linehan proposes several improvements the Lord could have made to the ships of that day to make Nephi’s ship strong enough to survive a transoceanic voyage, including reinforcing the hull with iron or wooden pegs.⁴¹

Even with divine guidance, there remain many questions relating to Nephi’s account in the Book of Mormon. Where did Nephi find the raw materials necessary to build a large and stout ship? How could a young man with no shipwright skills construct a large vessel of “exceedingly fine workmanship”? (1 Nephi 18:4). Moreover, who taught Nephi and his crew the multitude of skills required to navigate and safely sail a large vessel?

Of course, one could simply dismiss these questions by resorting to a mythological explanation, that is, an all-powerful God provided a long list of building materials for the young man and a host of angels to mentor him. However, Nephi only wrote that the Lord “showed him great things,” and that he, Nephi, did the work (1 Nephi 18:1–3). This latter explanation seems to be the natural manner in which the Lord develops his disciples. My proposition is that even though the Lord inspired Nephi on how to build a ship, Nephi still had to actually acquire the raw materials for constructing the ship, find master shipwrights to mentor him on how to fabricate a ship, and experienced seamen to teach him and his crew how to sail a large ship. I concur with Brigham Young University’s Wm. Revell Phillips, who wrote, in reference to Nephi constructing a ship: “I do not limit God’s ability to do whatever he wishes by whatever means he wishes to do it, but if we chose the supernatural explanation there is no meaning or purpose to all our logic and speculation.”⁴²

We are not at the point where Khor Rori can decisively provide answers to all the questions critics of the Book of Mormon might raise about the building and sailing of Nephi’s ship. Nevertheless, recent discoveries at Khor Rori are providing rational answers to the doubters. Indeed, one of the strengths of Khor Rori is that the more that is discovered about the ancient harbor, the stronger it becomes as a scholarly defense for the Book of Mormon, as explained in the following section.

Khor Rori was Populated before Lehi's Time, and the Harbor was Probably an Active Trading Port

A distinguishing attribute of Khor Rori, which is not the case for Khor Kharfot or Wadi Mughsayl, is that it is likely to have been populated in Nephi's time. It is also possible that the inlet was an active trading port in that era. It would then follow that if Khor Rori was a trading port in Nephi's time, the port could have provided Nephi the tangible and intangible maritime resources he needed to construct and sail a ship.

Based on Nephi's text, whether Bountiful was a wilderness or populated can be argued either way. On the one hand, before reaching Bountiful, Nephi continually referred to their journey "in the wilderness" (1 Nephi 2:4, 5; 16:9–16,35;17:1–4).⁴³ Yet, after reaching their camp on the seashore, Nephi ceased using the term "wilderness" in reference to Bountiful. A population at Nephi's harbor provides a reasonable explanation of how Nephi, through daily observation, knew his ship was different from those built by other shipwrights (1 Nephi 18:2). Further, it is highly probable that wherever Lehi camped along the Indian Ocean, his family would have been in contact with locals. On the other hand, Warren Aston promotes the paradigm that Nephi built his ship in an area that had no or little population;⁴³ thus few or no maritime resources. However, the entire Dhofar region was populated well before Lehi's arrival, including the area surrounding Khor Kharfot. Neolithic sites are found in Khor Kharfot.⁴⁴ Newton and Zarins describe the features of the Bronze Age: "Small scale Bronze Age settlements of the uplands, foothills and coast of Dhofar participated in this international trade as evidenced by the recovery of Bronze Age tools and weapons, the domestication of plants and animals, trade in frankincense, and perhaps copal."⁴⁵

Iron Age sites have been found at Raysut, just five miles from Khor Kharfot.⁴⁶ An assessment of ancient manmade structures in Kharfot by archaeologist Paolo Costa indicates that the wadi was inhabited at some period.⁴⁷ Believing that Lehi settled in an area void of people seems out of context with what is known about the history of the area. Wm. Revell Phillips notes, "On this point, I differ sharply with Warren Aston. Lehi would have searched with difficulty to find a suitable site on the seashore that was completely unpopulated. ... Wherever he reached the sea, Lehi had neighbors, and if he tried to avoid them and was not curious about them, they were certainly curious about him. In a short time, he must have become aware of significant population centers along the coast and of a major commercial port at Khor Rori, where a wide variety of supplies and amenities were probably available.

Surely some members of Lehi's extended family must have made friends among the local people and must have traded with them, learned from them, and given and received help in a wide variety of endeavors.⁴⁸ The question begs to be asked, if members of Nephi's family were interacting with locals, why would he have chosen to construct his ship at a remote site when he could have simply moved to Khor Rori with its excellent harbor, vital maritime resources, abundant fresh water, and plentiful food sources?

What Do Archaeologists Tell Us about Khor Rori in Nephi's Time?

Excavations at Ras Al-Jinz indicate that Oman had been involved in a sea trade with India from great antiquity (2500–900 BC).⁴⁹ Excavations at other sites in Oman indicate that Oman was involved in maritime trade with India perhaps as far back as the mid-fourth millennium BC.⁵⁰ Bronze Age findings of carnelian at Khor Rori indicate that the harbor was trading with northwest India centuries before Nephi's time.⁵¹ It is well documented that Khor Rori was the harbor for the exportation of Omani frankincense, a trade that dates to prehistory.⁵² The fact that Oman was trading frankincense with Mesopotamia and India as early as the mid-third millennium BC⁵³ strongly suggesting that the port of Khor Rori was involved in some level of maritime trading well before Nephi set sail. Archaeologist Lynne S. Newton and Juris Zarins write, "Thus, the maritime experience along the Indian Ocean appears to have linked a number of distinct cultural traditions from the Arabia Gulf, India and the Indian Ocean."⁵⁴

While noting that Khor Rori "has much to recommend it as a possible Bountiful" in at least some aspects, Aston has argued that Khor Rori's role as a port had not begun in Nephi's day and that the ruins at Sumhuram date to no earlier than the beginning of the third century BC.⁵⁵ However, the use of Khor Rori as a port may have begun well before the invasion of the Hadhramis in Khor Rori ca. 300 BC, which may have been motivated by a desire to control and benefit from an already existing frankincense trade that centered in the harbor. The Hadhrami settlement did not exist at Nephi's time; however, based on recent work, we now have evidence that it was settled well before 300 BC. In a 2021 publication that discusses finds made in 2016, University of Pisa archaeologists suggest that Sumhuram was built in an area that was already heavily populated, with settlements possibly extending back to and beyond Lehi's day:

The discovery, at the end of 2016, of the HAS1 settlement on the Inqitat promontory [at Khor Rori] partly upset the previous hypotheses by bringing forth numerous new questions. Unlike what we imagined, Sumhuram was founded in an area that was already heavily populated, as shown by the presence of settlement HAS1. HAS1 was indeed inhabited since the 4th century BC to 1st/2nd century AD, but some older dates from an area used as a dump suggest that there was already a settlement context around the 8th century BC.⁵⁶

Newton and Zarins conclude: “The colony in the Dhofar region at Khor Rori, was constructed in stages and the layout resembles a typical South Arabic period settlement. ... The site, built ca. 300 BC, juts out over the lagoon and sits on top of earlier shell-midden Iron Age sites. The site sits at a prime location: the lagoon served as a harbor or protected port from the southwest monsoon. Both sides of the lagoon have promontories that not only provided natural lookout post, but also were distinctive landmarks on the coast for sailors.”⁵⁷ Zarins indicates that another Iron Age site is located “on the terrace immediately below the Hadhrami outpost.”⁵⁸

The data so far cannot confirm that the port was being used as a port in Lehi’s day, but it was likely inhabited; and given its advantages as a port and its later rise as a major port, the proposal that Khor Rori functioned as a port with at least some maritime skills in Lehi’s day seems plausible.

While there is no way of knowing the exact place where Lehi might have camped at Khor Rori, there are several Iron Age possibilities, including Khor Taqah, Wadi Darbat, an earlier settlement on the site where Sumhuran was later built, or on Inqitat, the promontory on the east entrance to the Khor Rori. If camped atop Inqitat, it provided a possible site for where Nephi argued with his brothers, who tried to throw him to his death in the depths of the sea. Artifacts found on the promontory indicate that Inqitat was continually inhabited from 800 BC to the Islamic period.⁵⁹ Newton and Zarins conclude: “It is likely that merchants from Shabwa arriving long before the actual colony [Sumhuran, ca. 300 BC] was established, found contemporary inhabitants throughout the area, including those at Khor Rori.”⁶⁰

Maritime archaeologists concur that Khor Rori was probably an active trading port during the first millennium BC, perhaps even featuring moorings for loading and unloading the timber and other items Nephi would have needed. Jana Owen (UCLA),⁶¹ director of the Transarabia Coastal Survey,⁶² concluded, “We know about the

Hadhrami invasion, but I believe that it [Khor Rori] would have been used [as a port] previous to that invasion. Again, around the settlement we have surveyed a good deal of Iron Age lithics; this is earlier than the work that is now being done by the Italians from Pisa. We also did a dive survey of the lagoon where we found evidence of modification on the northeastern edge of the lagoon; and the size is clearly indicative of large ship dockings.”⁶³ Furthermore, there is tentative evidence that sailing ships were constructed at Khor Rori as far back as 1000 BC.⁶⁴ The Office of the Advisor to His Majesty the Sultan for Cultural Affairs reported on Khor Rori in 2008:

There is a Bronze Age settlement indicated by round, stone, megalithic-style structures at the top end of the al-Hamr al-Sharquiya promontory on the eastern side of the mouth of wadi Darbat [Khor Rori]. A surface survey of the settlement unearthed some flint tools and fragments of copper attributable to the late 3rd millennium BC. ...

The emergence of this kind of settlement, which marked a cultural shift in the region of Dhofar, coincides in time with the appearance in written Mesopotamian sources of an increasing use of ritual fumigation with aromatic substances, which could be interpreted as frankincense.

It is therefore probable that these Bronze Age people [at Khor Rori] were already exploiting and trading in the principal resource of the area, namely frankincense. Trade would have had to be by sea, probably by coastal navigation and by stages reaching Mesopotamian and the Indus valley.⁶⁵

The Omani Ministry of National Heritage and Culture states that Dhofar, whose ancient harbor was Khor Rori, “grew from obscure beginnings before 1,000 BC. ... Its growth was the major stimulus to the reopening and expansion of Indian Ocean maritime routes.”⁶⁶

Five Resources Nephi Needed to Build and Sail a Ship

In order to build and sail a ship, there are five elements to which Nephi needed access: hardwoods, fabric, ore and metal workers, shipwrights, and seamanship skills. The following sections examine the availability of these resources in the area.

Access to Long, Straight Hardwoods

There is no evidence that shipbuilding timber ever grew in Oman, yet Nephi needed long straight hardwood to build a ship strong enough to survive an ocean crossing. Phillips notes in a précis that “Timber appropriate for building a conventional, ocean-going ship does not grow anywhere along the Omani coast and probably did not in the past. Trees are very scarce in the Dhofar, and those of significant size tend to yield gnarly, punky wood.”⁶⁷



Figure 10. Typical tree (fig) in Dhofar, unsuitable for ship building.
Photograph by the author.

Phillips could have added that the short and gnarly trees that do grow in Dhofar are pervious soft woods which, when placed in the water, will become waterlogged and sink. The Omani Ministry of National Heritage and Culture notes: “Teak and coconut wood were used exclusively for building hulls. Teak had to be imported from India.”⁶⁸ Jeff Lindsay suggests, “it is reasonable to argue that if locals relied in imported wood for key ships’ components, Nephi may also have needed to.”⁶⁹ For example, maritime archaeologist Tim Severin constructed in Oman a replica of Sindbad’s sailing ship, which would have been smaller than Nephi’s. He noted, “The problem was that the keel piece to my replica needed to be 52 feet long, 12 inches by 15 inches in cross-section, and dead straight.”⁷⁰ Severin had to import from India all the timbers for the replica. The main spar, the timber that holds the main sail, required

a straight tree 81 feet long. The mast required another timber 65 feet long.⁷¹ Since such trees never grew in Oman, Nephi, like Severin, needed access to imported wood. Ample evidence witnesses to the contact between southern Oman and India and the Horn of Africa from as early as 1950 BC,⁷² which timespan could have allowed access to hardwoods from India, the source from which shipbuilders in the Arabian Peninsula and Mesopotamia historically obtained their hardwoods.

Tom Vosmer, director of the Traditional Boats of Oman Project, noted of ancient ship building in Oman, “Most, if not all, planking timber had to be imported: teak (*Techona grandis*), ventek (*Lythracea lanceolata*), mango (*Mangifera indica*), as did spar timber.”⁷³ Phillips adds: “If the ship were built at Khor Rori or even at Salalah, teak lumber from India was almost certainly available for purchase on the docks at Khor Rori.”⁷⁴ Severin added, “The timber for building Omani ships is brought nearly 1300 miles from the Malabar coast of India. It is a trade which goes as far back as the earliest records, because Oman lacks trees large enough to provide first-class boat timber.”⁷⁵ However, would this timber imported from India have been available to Nephi at Khor Rori in the sixth century BC? In the year 2000 the World Heritage Committee of the United Nations’ Education, Scientific and Cultural Organization (UNESCO) designated Khor Rori as a World Heritage site, noting that trade in frankincense was “one of the most important trading activities of the ancient and medieval world.”⁷⁶ German maritime archaeologist Norbert Weismann, who specializes in Oman, writes of Khor Rori, “Certainly it was involved in the traffic to India in Greco-Roman times, but there was trade with India much earlier.”⁷⁷ Nephi’s description of working “timbers of curious workmanship” hints that the timbers were possibly pre-cut woods (workmanship) from a foreign location. An example for pre-cut timbers being exported was “Almug” (1 Kings 10:11), a hardwood used for building the temple. Almug was shipped from Ophir but was believed to have originated in India. Almug appears in the plural form, which Biblical scholars have taken to mean that the wood was delivered in planks.⁷⁸ When it was written, the Periplus of the Erythraean Sea noted that India was importing beams and rafters to Oman.⁷⁹ How could the timbers have been curious to Nephi if he had logged and cut the lumber himself?

Fabric for Sails

Nephi’s ship was powered by sails (1 Nephi 18:22). Therefore, fabric for sails would have been another resource for the construction of Nephi’s ship. Traditionally, the sails on Arab ships were woven from coconut

or palm leaves or were made from cotton cloth. These materials stretch with time and need to be replaced within weeks. Nephi needed sails appropriate for strong stormy wind conditions, as well as, larger sails for calm winds. Thus, his ship needed several sets of sails requiring a considerable amount of fabric. Cotton would have been available at Khor Rori either as a locally grown product⁸⁰ or as an import from India. According to the *Periplus of the Erythraean Sea*, written in the early Christian centuries, perhaps as late as the fourth century, cloth was one of the products that the inhabitants of Dhofar imported in return for their frankincense.⁸¹ An unlikely, but possible material for sails could have been fabric woven from goat hair.⁸² Such sails would have been thick, heavy and less capable of catching wind. Perhaps Nephi could have fabricated sails from the heavy goat hair tents the family brought from Jerusalem. Nautical archaeologist Tom Vosmer studies the possibility that third-millennium BC sailors used sails fabricated from goat hair to propelled reed ships from Oman to India. However, his replica of a 5,000-year-old Omani ship with goat hair sails sank within hours of launching.⁸³

Iron Ore and Metal Workers

As noted earlier, researchers from Brigham Young University discovered iron ore in Dhofar, their “most exciting and significant discovery” only six miles east of Khor Rori.⁸⁴ Other recent findings have relevance to the Book of Mormon narrative. Bronze blades, a knife, and hooks were found in Dhofar dating to 4000 BC.⁸⁵ Excavations by a team from the University of Pisa discovered at Khor Rori iron axes, iron nails, an iron knife, an iron razor, well-crafted swords, and iron-smelting slag from four iron smelters and slag from one bronze smelter dating from the first century BC.⁸⁶ According to the Omani Office of Cultural Affairs, “The excavations in Sumhuram have produced a significant quantity of artefacts in metal – bronze and iron. These are mostly utensils for everyday use, mainly in iron: nails, chisels, hooks, needles, razors, various blades, clips, weights, locks, lamps, sickles and mattocks. ... Many of these bronze objects seem to have been cast with a lost wax technique and finished by hammering and engraving. The premises discovered in the residential area that were used by artisans for working metal, especially iron, the discovery of numerous small crucibles in glazed terracotta bearing traces of bronze casting as well as the great quantity of bronze and iron slags — all indicative that Sumhuram produced most of the metallic objects found there.”⁸⁷ Furnaces for smelting iron and bronze objects were located round the Sumhuram’s market square.⁸⁸ In all, the

Pisa archaeologists collected 50 kilos of smelting slag, mostly from the iron production chain at Khor Rori.⁸⁹ In 2013, a large bronze plate with writing on it was also excavated in Khor Rori.⁹⁰ Although the plate dates to the Sumhuram period, it hints that recording written text on metal plates was a technology that might have existed at Khor Rori even before that period. Vittoria Buffa notes: “The text with its allusion to bronze (objects/material) is evidence of metalworking in the port. The numerous furnaces excavated by IMTO are clear evidence of the various industrial activities of the inhabitants of the port. The tablet was certainly forged at Sumhuram; moulds for bronze inscriptions were found at Sumhuram. Within the community there were, therefore, specialized craftsmen able to produce artefacts not only of daily use.”⁹¹ Phillips of Brigham Young University has suggested that Nephi’s metallurgy “may have been learned from the local smiths of Dhofar or from the Indian traders that passed through nearby trading ports.”⁹²



Figure 11. Model of temple at Khor Rori (Khor Rori Archaeological Park Museum) and bronze plate from in the temple (Land of Frankincense Museum). Photographs by the author.

But what of the statement in 1 Nephi 17:9 about Nephi seeking revelation on where to find ore so that he could make his own tools to build the ship? Doesn’t this undermine the proposal that a vibrant community of shipbuilders was already present at Bountiful who could have provided the tools Nephi would need? Why would Nephi have had

to find his own ore and forge his own tools? Metal tools would certainly have been in high demand by the shipbuilders, and the valuable ore deposits may have been guarded. It is reasonable to assume that Nephi's finances were limited and metal tools very expensive. If Nephi was shown by the Lord where to mine his own ore and learned from local smelters on how to forge his own tools, Nephi's remaining finances could be used to acquire the necessary imported hardwoods and sail fabric.

Expert Shipwrights

Hugh Nibley suggests that Lehi “and his sons knew a good deal about caravan techniques is obvious, and yet we are explicitly told that they knew nothing at all about shipbuilding (1 Nephi 17:17, 18:2). Why should they? Shipbuilding was the jealously guarded monopoly of the coast people.”⁹³ Nibley explains, “Members of the family laugh contemptuously when Nephi proposed to build a ship (1 Nephi 17:17–20), and might well have quoted the ancient proverb, ‘Do not show an Arab the sea or to a Sidonian the desert, for their work is different.’”⁹⁴ It is likely that when Nephi arrived at Bountiful, his knowledge of shipbuilding was nil. John L. Sorensen concludes: “No hint can be found in the text that anyone in Lehi's party had any knowledge whatever of nautical matters.”⁹⁵ Maritime expert Frank Linehan, who has built his own small ships, believes that to build a ship stout enough to reach the New World, Nephi needed access to the best shipwrights of his day.⁹⁶ While the Lord gave Nephi the instructions on how to build the ship, he did not give him the lifetime of experience that shipwrights need to perform their particular craft. Besides metalwork, here is a shortened list of some of the essential competencies Nephi needed to master to construct a ship: (1) forming a hull by preshaping planks and knowing exactly where to place the ship's ribs so the hull could withstand the forces of the sea; (2) woodworking, for example, tapering a mast, shaping perfectly fitted joints, or preventing leaks by carving planks to within 1/64 of an inch in exactness; (3) rope-working and sewing timber, since ship needs miles of rope, and attaching the ropes to the timbers needs the exact number of strings and at the correct tension; (4) bending the planks into exact shapes using steam boxes; (5) caulking the ship and knowing how to mix the caulking compounds to prevent leaks; (6) oiling the ropes so they do not fail; (7) antifouling the ship by mixing a coating compound that can protect against shipworms; (8) outfitting the ship by knowing how and where to anchor the mast and how to install a complicated set of riggings and sails. So who mentored Nephi in these essential competencies? As noted earlier, Khor Rori was a major economic center in the ancient

world, and maritime archaeologists believe that shipbuilding probably took place there hundreds of years prior to Lehi's arrival. Ancient shipyard ramps (ways) can still be observed at Khor Rori, attesting to the fact that shipwrights built and repaired ships there to support the ancient frankincense sea trade.

Seamanship Skills

Nephi needed a competent crew and the seamanship skills to train them. It takes years to learn and practice the skills needed to control a sailing ship at sea. Historian Maurizio Tosi writes of the ancient Arabian captains: "For the first navigators it was like venturing into outer space and only a body of accumulated experience ensured their survival at sea."⁹⁷



Figure 12. Ancient ship entering Khor Rori, from the Khor Rori Interpretation Center. Photograph by the author.

The *Periplus of the Erythraean Sea* mentions that Khor Rori was a safe haven for ships held up in the winter: "The place goes by the name of Moscha — where ships from Cana (Yemen) are customarily sent; ships come from Dimyrike (southern India) and Barygaza (modern-day Broach in India) which cruise nearby [and] spend the winter there due to the lateness of the season."⁹⁸ Undoubtedly, the later Greek captains learned from the earlier Arabian sailors the advantage of mooring in the protected waters of Khor Rori during the winter northeast monsoon.

Perhaps during the winters at Khor Rori, Nephi had access to idle captains who knew how to sail large ships across the open seas of the Indian Ocean and other experienced seamen who could have instructed Nephi and assisted in training his crew. Nephi's ship had to have been manned by a crew with a basic knowledge of how to raise and taper the sails while adjusting the riggings, steer the ship, sail with and against the wind, including how to quickly change the sails if a storm approached, and how to repair the ship. During all hours of the night and day, a ship the size of Nephi's would have required at least a three-man crew, two men aft at the tiller and one man forward as a lookout.

Another strength to the populated Khor Rori paradigm is that the harbor was at the end of the only known trail to the Indian Ocean from the interior trade route.⁹⁹ The famous incense trail would have provided Lehi an existing caravan trail for access to the Indian Ocean. The trade route turned eastward at what Book of Mormon scholars believed was Nahom (1 Nephi 17:1) but eventually turned south for a short distance to traverse the roughed shoreline mountains of Dhofar. Camels are top heavy. Whenever possible, caravans avoided mountains; and when impossible to avoid, level trails were cut through the mountains to allow camels to climb and descend steep slopes. Laden with heavy tents (1 Nephi 17:6) and provisions, Lehi's family would have required camels to haul their heavy loads and thus needed an established trail through the steep and highly vegetated mountains of Dhofar. The ancient frankincense caravan trail cut through the mountains of Dhofar and descended to the harbor of Khor Rori. Without a known trail from the interior to Khor Kharfot, Phillips made the following observation: "Wadi Sayq today is a narrow canyon for most of its length and is clogged with huge boulders and unfriendly vegetation, making it almost impossible to bring a caravan down the wadi."¹⁰⁰

Part Five: Additional Speculations on Khor Rori

In the following sections I offer a series of questions and possible answers to those questions relative to Khor Rori.

Was Khor Rori Actually Named Bountiful?

Any proposed answer is necessarily speculative. Nevertheless, I believe that speculation is of sufficient interest to the reader and should be presented.

I was introduced to Omani historian and author Ali Al-Shahri by S. Kent Brown of Brigham Young University. Ali has written eleven books

on the history and language of the Dhofar region where Khor Rori is located. His epigraphical research has been quoted by archaeologist Juris Zarins, the former director of the Land of the Frankincense Museum in Salalah.¹⁰¹ Al-Shahri has been a guest speaker at Brigham Young University. Ali Al-Shahri's book *The Language of Aad* contains the genealogy of his family, indicating that they are direct descendants of Ophir,¹⁰² the man whose name was given to the famous harbor that is mentioned in the Old Testament. The Brown-Driver-Briggs Hebrew and English Lexicon states that Ophir is the name of an Arabian tribe.¹⁰³ Rev. Charles Forster, B.D., of the Cathedral of Canterbury wrote that "Ophir, like all his elder brethren, settled in Arabia, and that his chief seat lay in the mountains of Oman."¹⁰⁴ It also interesting to know that Ophir had a brook running through it (Job 22:24) and that the only continually running river in southern Oman is found in Wadi Darbat/Khor Rori. Of his ancestors Al-Shahri writes, "Ophir in the Bible and the Torah is the name of one of Joktan's sons, and his sons lived between Meshah and Sephar, which is thought to extend from Hadramaut to the East of Dhofar. So Ophir is the name of one of the three brothers who shared ancient Dhofar between them. They were Uz, Ophir and Jerah"¹⁰⁵ (see Genesis 10:26–30). Khor Rori is located in the Omani region of Dhofar. While Al-Shahri's written genealogy is based on the oral tradition of tribal elders, during my visit to Khor Rori in 2019, two representatives from LDS Family Search joined me to meet with Ali for the purpose of obtaining his permission to digitize his genealogy.

If Ali Al-Shahri's genealogy can be verified as authentic, it will provide an important clue in our search for Nephi's harbor. An obvious qualification for Nephi harbor is that it was located in a land that people would refer to as "fruitful" or "Bountiful." While there continues to be debate as to the location of ancient Ophir, it is reasonable to hypothesize that Khor Rori is a candidate for ancient Ophir.¹⁰⁶ *The LDS Bible Dictionary* states of Ophir: "probably a port of southern Arabia." *Strong's Bible Dictionary* states that Ophir was "a land or city in southern Arabia in Solomon's trade route where gold evidently was traded for goods."¹⁰⁷ Ali Al-Shahri grew up at Khor Rori in its beautiful upper section of Wadi Darbat. Included in his book is a map that shows the tribal lands of the Ophir people. The tribe's lands of Ophir start at the harbor of Khor Rori and run west for about ten miles, commencing at the sea and reaching to the coastal mountains.¹⁰⁸ Therefore, Al-Shahri's genealogical record and tribal traditions provide tentative evidence that the ancient name for the natural harbor of Khor Rori is "Ophir."¹⁰⁹



Figure 13. Proposed route from Jerusalem to Khor Rori/Ophir.

So what does *Ophir* mean? According to *Smith's Bible Dictionary* (1863), Ophir means "abundance." The same definition is given in *Jones Dictionary of Old Testament Proper Names* (1990).¹¹⁰ If you place "Bountiful" in the Microsoft Word Thesaurus, you will find "abundant" as a synonym. Thus, an accurate translation of the name *Ophir* into English and a possible proper name for Khor Rori is "Bountiful." Potts' *Bible Proper Names*¹¹¹ states that Ophir means "a fruitful region," and we know Nephi named the land where he built his ship Bountiful because of the land's "much fruit and also wild honey" (1 Nephi 17:5). According to Ali, Wadi Darbat has some 400 flowering plants that make its wild honey highly prized.¹¹²

Discovering possible evidence that Khor Rori was Ophir is significant for two reasons. First, it supports the assertion that the khor (inlet) was one of the ancient world's trading ports and that it functioned as a harbor well before Nephi's time. Indeed, King Solomon sent his navy to Ophir to acquire gold, silver, ivory, apes and peacocks – all likely items that were traded for frankincense at Khor Rori by civilizations bordering the Indian Ocean (see 1 Kings 10:11, 22). During Pliny's time, Oman was still famous for trafficking in native gold.¹¹³ According to Meseu Julian in his book *Ophir is Dhofar*, during the Queen of Sheba's reign, Dhofar

had the biggest goldmine in Arabia.¹¹⁴ Second, if Khor Rori is the precise location of the harbor of Ophir, we can use Al-Shahri's tribal lands map to narrow the location for Ophir, namely Bountiful, to an area of only a few squares miles that are at and adjacent to Khor Rori.

The Sword Connection

Nephi forged many quality swords that were comparable to Laban's high-quality weapon (2 Nephi 5:14). As previously noted, Nephi was a young lad when he left the land of Jerusalem. His family was wealthy and he was highly educated for his time, reading and writing at a remarkable level and in more than one language. It is unlikely in his era that the young son of an elite family would have toiled in manual labor, let alone having been a master blacksmith before leaving Jerusalem. What are the skills young Nephi would have had to master to make a sword of highest quality? What is certain, he could not have mastered such complex competencies while casually observing others forging swords. As one sword smith told me, "Nephi had to have worked beside a master sword maker for months in order to make even a crude sword." For example, even before refining steel, Nephi would have to have known the art of making charcoal "without oxygen."

Wm. Revell Phillips of Brigham Young University writes:

Nephi struck stones together to make fire, built a presumably simple pit furnace, and constructed a bellows of animal skins to blow air into the glowing mass of charcoal and ore (see 1 Nephi 17:11). ... Nephi's smelting furnace almost certainly never reached the melting point of iron (1535° C or 2795° F), but it didn't need to. When air is introduced into a hot mixture of iron oxides and charcoal, carbon from the charcoal combines with oxygen from the air to form carbon monoxide, which is a reducing gas. This gas filters upward through the charcoal-ore mixture, removing oxygen from the iron oxides to form carbon dioxide and tiny crystals of iron, freed of its oxygen, filter downward to accumulate at the base of the fire pit as a gray, spongy mass called a "bloom" or "sponge iron." This form of iron reduction, called the "direct process," begins at about 1200° C (2192° F), which is possible in a simple charcoal furnace. Although the bloom is not molten, silicate impurities in the ore form a molten slag (see 1 Nephi 17:16) that floats to the top to shield the hot bloom from the oxygen and cooling effect of the air above. The white-hot bloom can be withdrawn

from the furnace and hammered (“forged”) to squeeze out remaining slag and to weld, or compress, the iron crystals into a solid mass called “wrought iron.” Iron produced by this direct process is quite pure (99.5 percent). It is softer and more malleable than good bronze and cannot be hardened by any amount of additional forging. Wrought iron is not suitable for tools or weapons, and added forging drives more slag from the iron, making it even more malleable. Long heating of the wrought iron in direct contact with glowing charcoal, however, causes carbon atoms to diffuse into the outer layers of the iron, creating a simple form of steel (martensite). This process is called “carburizing,” and repeated carburizing and forging produce an outer layer of steel that can be very hard and sharpened to a fine edge. The iron is said to be “case hardened,” and repeated sharpening will remove the carburized steel. In antiquity, all swords were not created equal. Common soldiers fought with inferior weapons that might dent and bend, but kings wielded swords of special steel, each created by a skilled smith after days or months of hard, hot work at his forge (e.g., Excalibur). The sword of Laban, said to be of “most precious steel” (1 Nephi 4:9), was perhaps one of those special swords.¹¹⁵



Figure 14. Smelting and sword making at Khor Rori, courtesy of Interpretation Center UNESCO World Heritage Site Khor Rori. Photograph by the author.

Nephi would have needed several years to construct his large ship. Steel refining and sword making were active at Khor Rori in the first millennium BC. Knowing that his family would be voyaging to a promised

land, and not knowing if they would face hostile inhabitants or wild animals there, Nephi must have sensed the need for weapons. Mentoring under master sword smiths and practicing sword making at Khor Rori during the time he was building his ship seems a likely possibility. The smelters and sword smiths of Khor Rori present a possible explanation of how Nephi became a master sword smith and an experienced refiner of metals.

Summary

As stated at the beginning of this article, unless the Lord reveals it, we will probably never know the exact location where Nephi built his ship. While the data so far cannot confirm that the Khor Rori was being used as a port in Lehi's day, it was likely inhabited and given its advantages as a protective harbor, its later rise as a major port, and the existence of maritime trade in the Indian Ocean prior to Lehi's time, the proposal that Khor Rori functioned as a port with at least some maritime skills in Lehi's day seems reasonable. At present, Khor Rori provides a pragmatic theory for how a young man, with no maritime knowledge, could, with divine guidance, construct and sail a large ship stout enough to reach the Americas. So important were the tangible and intangible resources that were possibly available at Khor Rori that these scarce ancient assets provide a rational explanation for why the Lord led Lehi's family through the hellish desert of Arabia to reach a place where Nephi could learn how to construct, launch, and captain his ship. Even if it is later proven that these assets were not available to Nephi at Khor Rori, Wadi Darbat's outstanding protected harbor, abundant vegetation, and amazing breakwater for safe passage to the Indian Ocean make Khor Rori a favorable candidate for the site where Nephi built and launched his ship. Khor Rori certainly is a feasible candidate for Bountiful and warrants further research.

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Discovering the Amazing Jaredites (2021). He the editor of a monthly newsletter on Book of Mormon research. Highlights of his research are presented on his website, www.nephiproject.com.

Endnotes

- 1 George Potter and Richard Wellington, *Lehi in the Wilderness* (Springville, UT: Cedar Fort, 2003).
- 2 Warren P. Aston, *Lehi and Sariah in Arabia* (Gordon, NSW, AU: Xlibris, 2015).
- 3 William Revell Phillips, “Mughsayl, Another Candidate for Land Bountiful,” *Journal of Book of Mormon Studies* 16, no. 2 (2007): 48-59, 97, <https://scholarsarchive.byu.edu/jbms/vol16/iss2/7>.
- 4 Lynn and Hope Hilton estimated some sixty-five people onboard Nephi’s ship: Hilton, Lynn and Hope Hilton, *In Search of Lehi’s Trail* (Salt Lake City: Deseret Book, 1976), 113. While John Tvedtnes argued against excessive guesswork on population numbers, he also pointed to several factors that could have led to similar numbers. See John Tvedtnes, “Brent Lee Metcalfe, ed., *New Approaches to the Book of Mormon: Explorations in Critical Methodology*,” *Review of Books on the Book of Mormon* 6 (1994), 24–25, <https://scholarsarchive.byu.edu/msr/vol6/iss1/4/>. Another estimate is between 50 and 65 people. See James E. Smith. “Nephi’s Descendants? Historical Demography and the Book of Mormon,” *Review of Books on the Book of Mormon* 6, no. 1 (1994): 2596, <https://scholarsarchive.byu.edu/msr/vol6/iss1/10/>. Potter and Wellington reason that the party could have been as large as 75: Potter and Wellington, *Lehi in the Wilderness*, 140–43.
- 5 George Potter, Frank Linehan, and Conrad Dickson, *Voyages of the Book of Mormon* (Springville, UT: Cedar Fort, 2011), 67–89.
- 6 Tim Severin, *The Sindbad Voyage* (New York: G. P. Putnam’s Sons, 1983), 81.
- 7 Aston, *Lehi and Sariah in Arabia*, 204–206.
- 8 Thor Heyerdahl, *Kon-Tiki*, trans. F.H. Lyon (New York: Rand McNalley, 1964), 219–21.
- 9 *Ibid.*, 239, 248–50.
- 10 *Ibid.*, 102–104.

- 11 Conversations with Frank Linehan and Conrad Dickson, both competitive sailors who have sailed over one million miles each, and are co-authors of *The Voyages of the Book of Mormon*.
- 12 Phillips, “Mughsayl, Another Candidate for Land Bountiful,” 55.
- 13 Severin, *The Sindbad Voyage*, 18.
- 14 Frank Linehan, the Western Region Marine Surveyor for United States Maritime Administration, an authority on the performance and construction of deep-water sailing vessels, estimated that Nephi’s ship would have been of a “light tonnage of no less than 100 tons” (personal communications with authors, June 1999).
- 15 Raphael Patai, *The Children of Noah: Jewish Seafaring in Ancient Times* (Princeton, NJ: Princeton University Press, 1998), 37–38.
- 16 Omani Ministry of National Heritage and Culture, *Oman a Seafaring Nation*, 2nd ed. (Sultanate of Oman: Oriental Printing Press, 1991), 146, hereafter referred to as OMNHC.
- 17 Lynne S. Newton and Juris Zarins, *Dhofar Through the Ages, an Ecological, Archaeological and Historical Landscape*, The Archaeological Heritage of Man series (Oxford: Archaeopress, 2019), 1:32.
- 18 Frank Linehan, personal correspondence to author, July 2009.
- 19 Jana Owen, personal communication to author, August 14, 2000. Owens worked on the Trans Arabia Survey from 1991–1995 under the direction and guidance of Juis Zarins. For additional information on Owen see footnote 61.
- 20 Aston, *Lehi and Sariah in Arabia*, 133.
- 21 The events of the storm after leaving Bountiful suggest that Laman and Lemuel had had some sailing experience and considered themselves capable of captaining the ship. During the storm Laman and Lemuel seemed too relaxed for people who had never practiced sailing before (see 1 Nephi 18:8, 11). In fact, they seem to suffer from an arrogance borne of a little knowledge, like teenage boys who have just passed their driver test! Years later the Lamanites considered that their fathers were wronged in the wilderness and while crossing the sea (Mosiah 10:12), as well as in the land of their first inheritance (Mosiah 10:13). These are all times that Laman and Lemuel complained that Nephi took the

- lead (see 1 Nephi 16:38 and 2 Nephi 5:3) and implies that Laman and Lemuel felt accomplished enough sailors, and had practice enough, to consider that they should have captained the ship.
- 22 Dr. Eduard G. Rheinhardt, personal communication to author, April 12, 2001. At that time Dr. Rheinhardt was Assistant Professor, School of Geography and Geology, McMaster University, Hamilton, Ontario.
 - 23 Phillips, “Mughsayl, Another Candidate for Land Bountiful,” 56.
 - 24 Juris Zarins, *The Land of Incense: Archaeological Work in the Governorate of Dhofar* (Oman: Al Nahda Printing Press, 2001), 88.
 - 25 *Khor Rori (Sumhuram)* (Oman: Office of the Adviser to His Majesty the Sultan of Cultural Affairs, 2008), 55.
 - 26 Aston, *Lehi and Sarian in Arabia*, 135.
 - 27 Ahmed Mussalam Al-Kathiry, interview with author, September 1999.
 - 28 Samir Hanna and Mohammed Al-Belushi, *Caves of Oman* (Ruwi, OM: Sultan Qaboos University and International Printing, 1996), 103, https://www.researchgate.net/publication/351228369_Introduction_to_the_Caves_of_Oman.
 - 29 Al Shahri showed the author and his party where men collected wild honey in caves in Wadi Darbat just two miles from Khor Rori.
 - 30 The Botanical Mission of Florence University reported: “Today the archaeological excavations at Sumhuram [Khor Rori] lie in an area heavily exploited by man, in a plain rendered sterile by over-grazing by dromedaries and goats that has been going on for centuries.” Mauro Raffaelli, Marcello Tardelli, and Stefano Mosti, “Scientific Activity in Dhofar, 2000-2004,” in *A Port in Arabia between Room and the Indian Ocean*, ed. Alessandra Avanzini (Rome: L’Erma di Breitschneider, 2008), 673–79. Also in multiple conversations with the author, Dhofar historian Ali Al Shahri claims that in his youth Khor Rori was forested.
 - 31 *Khor Rori (Sumhuram)*, 56.
 - 32 Hanna and Al-Belushi, *Caves of Oman*, 103.
 - 33 Wikipedia, s.v. “Wildlife of Oman,” last edited January 16, 2022, 00:16, https://en.wikipedia.org/wiki/Wildlife_of_Oman.

- Gehad Medhat, “Wildlife_of_Oman Culture Trip,” Culture Trip, February 16, 2018, <https://theculturetrip.com/middle-east/oman/articles/where-to-find-omans-incredible-wildlife/>. Also see Zakariya b. Muhammed Al Qazzouini, “Athar al-bilad wa-akhbar al ibad (died A.D. 1283),” in *Monuments of Countries and Reports of Far Way Places* (Beirut: Dar Sadir, no year), 56.
- 34 Hanna and Al-Belushi, *Caves of Oman*, 100, 103.
- 35 Ali Al Shahri, *The Language of Aad* (Abu Dhabi: National Packaging & Printing, 2000), 35.
- 36 Ore found 10km from east of Khor Rori. See William Revell Phillips, “Metals of the Book of Mormon,” *Journal of Book of Mormon Studies* 9, no. 2 (2000): 38, <https://scholarsarchive.byu.edu/jbms/vol9/iss2/6/>. Flint quarry: Site TZ 95:227 is on the west side of Wadi Sinur. See Fig. 28, “Archaeological sites located on the Salalah plain”, in Juris Zarins, *Land of Incense* (Sultanate of Oman: Al Nahda Printing Press, 2001), 72–73.
- 37 Aston, *Lehi and Sariah in Arabia*, 102–106.
- 38 Solomon Schechten and Julius H. Greenstone, “Marriage Law,” in *Jewish Encyclopedia*, ed. Isidore Singer et al. (New York: Funk & Wagnalls, 1901–1906), <http://www.jewishencyclopedia.com/articles/10435-marriage-laws>, citations deleted.
- 39 Meir Bar-Ilan, “Illiteracy in the Land of Israel in the First Century C.E.,” in *Essays in Social Scientific Study of Judaism and Jewish Society*, ed. Simcha Fishbane, Stuart Schoenfield, and Alain Goldschlaeger, vol. 2 (New York: Ktav, 1992), 46–61.
- 40 Noel Reynolds proposes that Nephi could have been a trained scribe and perhaps even produced metal plates in scribal workshops. The hypothesis, though interesting, lacks archaeological support that scribal workshops worked in metals. It also seems unlikely that Lehi acquired his wealth by working as a scribe. See Noel B. Reynolds, “Lehi and Nephi as Trained Manassite Scribes,” *Interpreter: A Journal of Latter-day Saint Faith and Scholarship* 50 (2022): 161–216, <https://journal.interpreterfoundation.org/lehi-and-nephi-as-trained-manassite-scribes/>.
- 41 Potter, Linehan, and Dickson, *Voyages of the Book of Mormon*, 39, 67–69.
- 42 Phillips, “Mughsayl, Another Candidate for Land Bountiful,” 52.

- 43 Aston, *Lehi and Sariah in Arabia*, 105.
- 44 Newton and Zarins, *Dhofar Through the Ages*, 16.
- 45 Ibid., 22
- 46 Ibid.
- 47 Aston, *Lehi and Sariah in Arabia*, 177.
- 48 Phillips, “Mughsayl, Another Candidate for Land Bountiful,” 56.
- 49 Serge Cleuziou and Maurizio Tosi, ed., “Black Boats of Magan: Some Thoughts on Bronze Age Water Transport in Oman and beyond from the Impressed Bitumen Slabs of Ra’s al-Junayz,” in *South Asian Archaeology*, ed. A. Parpola (Helsinki: Studia Orientalia, 1993), 745–61. Also see Maurizio Tosi, „Die Indus-Zivilisation jenseits des indischen Subkontinents,“ in *Vergessene Städte am Indus: frühe Kulturen in Pakistan vom 8.-2. Jahrtausend v. Chr.* (Mainz am Rhein, DE: P. von Zabern, 1987), 132–33.
- 50 Newton and Zarins, *Dhofar Through the Ages*, 22.
- 51 Ibid., 21.
- 52 Ibid., 6.
- 53 Ibid, 22.
- 54 Ibid.
- 55 Aston, *Lehi and Sariah in Arabia*, 225–26; and Warren Aston, “Identifying Our Best Candidate for Nephi’s Bountiful,” *Journal of the Book of Mormon and Restoration Scripture* 17, no. 1–2 (2008): 61 and 64n11.
- 56 Silvia Lischi, “Notes on the South Arabian Occupation of Inqitat,” in *South Arabian Long-Distance Trade in Antiquity: “Out of Arabia,”* ed. George Hatke and Ronald Ruzicka (Newcastle, UK: Cambridge Scholars Publishing, 2021), 229, https://www.google.com/books/edition/_/UEcdEAAAQBAJ?hl=en&gbpv=0.
- 57 Newton and Zarins, *Dhofar Through the Ages*, 25.
- 58 Zarins, *Land of Incense*, 87.
- 59 Lischi, “Notes on the South Arabian Occupation of Inqitat,” 228–29.
- 60 Newton and Zarins, *Dhofar Through the Ages*, 27.

- 61 Jana Owen was the director of the Transarabia Coastal Survey under the guidance of Juris Zarins. The survey was part of the Transarabian Expedition that was sponsored by the Oman Ministry of Information. See Owen, “Do Anchors Mean Ships? Underwater Evidence for Maritime Trade Along the Dhofar Coast of the Southern Indian Ocean” in *Profumi D’ Arabia, Atti Del Convegno*, Alessandra Avanzini (Rome: L’erma di Bretschneider, 1997), 351, <https://books.google.com/books?id=3zOlyZmJiiAC&pg=PA351&lpg=PA351>. With Zarins, Owens conducted a survey of Graeco-Roman period, Pre-Islamic, and Iron and Bronze Ages sites in Dhofar. Owens also provided guidance for the Brigham Young University team Terry B Ball, S. Kent Brown, Arnold H. Green, David J. Johnson, and W. Revell Phillips, authors of “Planning Research on Oman,” *Journal of Book of Mormon Studies* 7, no. 1 (1998): 17,18. Owen was a member of the Trans Arabia Expedition staff from 1991–1995, according to Zarins, *Land of Incense*, 158.
- 62 With Juris Zarins, Jana Owen surveyed the Iron and Bronze Ages settlements in Dhofar. See Ball et al., “Planning Research on Oman,” 57.
- 63 Jana Owen, personal communication with author, August 14, 2000.
- 64 Several kinds of ancient ships are depicted in rock art drawings found in caves in sight of Khor Rori just two and a half miles from the harbor (Ali Al-Shahri took George Potter to see the rock art in 2000). The stick figure representations of humans in the ships provide a rough dating of the art to 1000 BC. For dating of rock art in Arabia, see Muhammed Abdul Nayeem and Majeed Khan, *The Rock Art of Arabia* (India: Hyderabad Publishers, 2000), 447–554. The depiction of ships in the rock art at Khor Rori is unique from ships built at northern Oman, Nayeem 445). Dr. Muhammed Abdul Nayeem is a professor of Archaeology and Museology at King Saud University, Riyadh. A possible implication is that the unique style of ships means that the ancients who lived at Khor Rori built ships as far back as 1000 BC in their own style. Dating rock art is problematic. Zarins believes the same depictions of ships could date to the Iron Age B (325 BC to AD 650), Juris Zarins, *The Land of Incense* (Oman: Sultan Qaboos University Publications, 2001), 134. However, the author believes

the rock art depicting ships in Wadi Darbat will prove to be much older, since the rock art there has not been scientifically dated. In neighboring Saudi Arabia the first scientific dating of similar petroglyphs has shown, through radiocarbon dating, microerosion analysis and OSL analysis, that the rock art dates from Pre-Pottery Neolithic up to the historical period. See Robert Bednarik, “Scientific Investigations into Saudi Arabian Rock Art: A Review,” *Mediterranean Archaeology and Archaeometry* 17, no. 4. (Jan. 2017): 43–59, https://www.academia.edu/39946178/SCIENTIFIC_INVESTIGATIONS_INTO_SAUDI_ARABIAN_ROCK_ART_A_REVIEW.

- 65 *Khor Rori (Sumhuram)*, 57.
- 66 OMNHC, *Oman, a Seafaring Nation*, 107–108.
- 67 Phillips, “Mughsayl, Another Candidate for Land Bountiful,” 55.
- 68 OMNHC, *Oman a Seafaring Nation*, 14.
- 69 Jeff Lindsay, co-editor of *Interpreter*, personal correspondence with author, Sept. 26, 2021.
- 70 Severin, *Sindbad Voyage*, 37–38.
- 71 *Ibid.*, 43.
- 72 Maurizio Tosi, “Early Maritime Cultures of the Arabian Gulf and the Indian Ocean,” in *Bahrain through the Ages*, ed. Shaikha Haya Ali Al Khalifa and Michael Rice (London: Routledge, 1986), 106.
- 73 Tom Vosmer, personal communication with author, May 25, 2000.
- 74 Phillips, “Mughsayl, Another Candidate for Land Bountiful,” 56.
- 75 Severin, *Sindbad Voyage*, 31.
- 76 “World Heritage Committee Inscribes 61 New Sites on World Heritage List” (report, UNESCO’s World Heritage Committee, November 30, 2000), <http://whc.unesco.org/en/news/184>.
- 77 Norbert Weismann, email correspondence with author, May 17, 2000.
- 78 Matthew George Easton, “Almug,” s.v., *Illustrated Bible Dictionary*, 3rd ed. (London: T. Nelson & Sons, 1897), [https://en.wikisource.org/wiki/Easton%27s_Bible_Dictionary_\(1897\)/Almug](https://en.wikisource.org/wiki/Easton%27s_Bible_Dictionary_(1897)/Almug).
- 79 *The Periplus of the Erythraean Sea: Travel and Trade in the Indian Ocean by a Merchant of the First Century*, trans. and ed. W.H. Schoff,

- (London, 1912), chapters 32–36, <https://sourcebooks.fordham.edu/ancient/periplus.asp>. Moscha is widely recognized to be Khor Rori. See Mikhail Boukharin, “The Name of Moscha Limén,” in *Khor Rori Report 1*, ed. A. Avanzini (Pisa: Edizioni Plus, 2002), 323–24, <https://www.academia.edu/8666217>.
- 80 Cotton was introduced in southern Arabia in antiquity, possibly as early as 4000 BC. See Zarins, *Land of Incense*, 60.
- 81 *The Periplus of the Erythraean Sea*, chapter 32.
- 82 Michael Ryder, “The Use of Goat Hair, an Introduced Historical Review,” *Antropozoologica* 17 (193): 40.
- 83 “Ancient Boat Expedition Hits Trouble,” *The Sydney Morning Herald*, September 9, 2005, <https://www.smh.com.au/world/ancient-boat-expedition-hits-trouble-20050909-gdm16r.html>.
- 84 Phillips, “Metals of the Book of Mormon,” 38.
- 85 Office of the Advisor of His Majesty the Sultan of Cultural Affairs, *The Museum of the Frankincense Land, The History Hall* (Muscat: Office of the Advisor of His Majesty the Sultan of Oman for Cultural Affairs, 2007), 82.
- 86 “Excavations and Restoration of the Complex of Khor Rori, Interim Report,” October 2000–April 2001 (Pisa: Università di Pisa, 2001), 12–15, 45.
- 87 *Khor Rori (Sumhuram)*, 32.
- 88 “Italian Mission to Oman,” *Arabiantica*, <http://www.arabiantica.it>.
- 89 Laura Chiarantini, “Sumhuram Preliminary Report November–December 2006” (Pisa: University of Pisa, 2006), 53–55, http://www.arabiantica.it/wp-content/uploads/2020/12/SUM06B_Report.pdf.
- 90 *Khor Rori (Sumhuram) Six years later 2008–2014* (Oman: Office of the Adviser to His Majesty the Sultan for Cultural Affairs, 2015), 13. Also see C. Chiavari et al., “Ancient Metallurgy at Sumhuram (Sultanate of Oman): Technical Aspects of Raised Inscriptions on South Arabian Bronzes,” *Archaeometry* 53, no. 3 (2011): 528–46, https://www.academia.edu/2065445/Ancient_Metallurgy_at_Sumhuram_Sultanate_of_Oman_.

- 91 Vittoria Buffa and Alessandra Avanzini, eds., *Sumhuram: the becoming of the town, Khor Rori Report 4* (Rome: L'erma di Bretschneider, 2019), 8, https://www.academia.edu/42948290/Sumhuram_the_becoming_of_the_town_Khor_Rori_Report_4.
- 92 Phillips, "Metals of the Book of Mormon," 36–43.
- 93 Hugh W. Nibley, *An Approach to the Book of Mormon* (Salt Lake City: Deseret Book, 1957), 6:92.
- 94 Ibid., 78.
- 95 John L. Sorenson, "Transoceanic Crossings," in *First Nephi, The Doctrinal Foundation*, ed. Monte S. Nyman and Charles D. Tate Jr. (Provo, UT: Religious Studies Center, Brigham Young University, 1988), 257, <https://rsc.byu.edu/book-mormon-first-nephi-doctrinal-foundation/transoceanic-crossings>.
- 96 Frank Linehan, multiple personal conversations with the author. Linehan is a hull expert for the U.S. Navy, a licensed chief engineer in the U.S. Merchant Marines, and co-author of *Voyages of the Book of Mormon*.
- 97 Tosi, "Early Maritime Cultures of the Arabian Gulf and the Indian Ocean," 94.
- 98 *Periplus of the Erythraean Sea*, chapter 32. Khor Rori was known as Moskha Limen in the *Periplus*. See Juris Zarin, "The Latest on the Archaeology of Southern Oman," Review of *A Port in Arabia Between Rome and the Indian Ocean, Khor Rori Report*, ed. Alessandra Avanzini, *Journal of the American Oriental Society* 129, no. 4 (Oct.–Dec. 2009): 2:665–74, <https://www.jstor.org/stable/25766909>.
- 99 Zarin, *Land of Incense*, 102, showing a map of Trade routes across Arabia from Neolithic to the Islamic Period.
- 100 Phillips, "Mughsayl, Another Candidate for Land Bountiful," 51.
- 101 Zarins, *The Land of Incense*, 132–34.
- 102 Al Shahri, *The Language of Aad*, 25.
- 103 Brown-Driver-Briggs Hebrew and English Lexicon, Unabridged, Electronic Database, s.v. "Ophir," (2006), <https://biblehub.com/hebrew/211.htm>.

- 104 Charles Forster, *The Historical Geography of Arabia* (London: Duncan and Malcolm, 1844), 1:161, https://www.google.com/books/edition/The_Historical_Geography_of_Arabia_Or_Th/cdXwB9duM8oC?hl=en&gbpv=1&printsec=frontcover.
- 105 Al Shahri, *The Language of Aad*, 34.
- 106 Bertram Thomas, *The Arabs* (London: Thornton Butterworth, 1973), 262. Although Nigel Groom believes Ophir was in Africa, he notes the similarity between the names of Zufar (Dhofar) and Ophir, “Zufar is sometimes proposed as a likely word etymologically close to Ophir, while the nineteenth-century traveler Vod Wrede observed that the Mahra of south Arabia, who lived adjacent to Zufar and whose language has very ancient origins, used the word ‘ofir’ to mean ‘red’ and called themselves the tribe of ‘Ofir’, meaning the ‘red country.’” Nigel Groom, *Frankincense and Myrrh, A study of the Arabian Incense Trade* (London: Longman, 1981), 49–50.
- 107 *Strong’s Bible Dictionary*, s.v. “Ophir,” (1890), <http://kingjamesbibledictionary.com/StrongsNo/H211/Ophir>.
- 108 Al Shahri, *The Language of Aad*, 31.
- 109 Al-Shahri, personal correspondence with the author, Sept. 2018.
- 110 Abarim Publications, <https://www.abarim-publications.com/Meaning/Ophir.html>. William Smith Bible Dictionary, s.v. “Ophir,” <https://www.christianity.com/bible/dictionary/smiths-bible-dictionary/ophir.html>. Alfred Jones, *Dictionary of Old Testament Proper Names* (Grand Rapids: Kregel Publications, 1990), s.v. “Ophir.”
- 111 *Bible Truth*, s.v. “Parvaim,” <https://bibletruthpublishers.com/parvaim/ljm16516>.
- 112 Al-Shahri, conversation with George Potter, September 23, 2018, wherein he stated that there are 400 different kinds of flowering plants in Wadi Darbat, and because of the great variety of plants the wild honey gathered in the Wadi is used for medicine and is extremely expensive.
- 113 Forster, *Historical Geography of Arabia*, vol. 1, 168.
- 114 Al-Shahri, *The Language of Aad*, 35.
- 115 Phillips, “Metals of the Book of Mormon,” 41.