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TRANSOCEANIC CROSSINGS

John L. Sorenson

The three crossings of the ocean to the New World reported in the Book of Mormon are treated in differing degrees of detail. Events of the earliest, by Jared's group, are recounted at considerable length but with little nautical information in Ether 2:13–25; 3:1–3, and 6:2–12. The voyage by Lehi's party is treated in 1 Nephi 17:5–18, 49–51, and in chapter 18. Concerning the voyage that brought Mulek, we have only two brief statements, Omni 1:15–16 and Helaman 8:21.

The fragmentary information in the text has led Latter-day Saints to pay but cursory attention to the voyages and their significance for the history and culture of Book of Mormon peoples. This paper analyzes the Lehi trip, for which we have the most textual and external comparative information, and demonstrates how we can expand our understanding of such events.

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A Paradigm for Voyages

The intent of this paper is to help us understand this voyage better. I consider that we understand an event when we have gained the widest feasible perspective on why and how it took place. This is akin to the aim regarding scripture in general urged upon us by Brigham Young.

Do you read the Scriptures, my brethren and sisters, as though you were writing them, a thousand, two thousand, or five thousand years ago? Do you read them as though you stood in the place of the men who wrote them? If you do not feel this, it is your privilege to do so.¹

To understand in this sense, we need to accumulate the largest possible body of information on the voyage described in 1 Nephi. An exhaustive set of questions will serve to alert us to new facts about the event, jarring us out of the mental rut induced by simply reading the text again and again. Once we have obtained reasonable answers to our questions, we should then know enough either to compose a monograph-sized history of the voyage and its setting close enough to the way things really were to be free from anomalies, or to produce a plausible historical novel, a dramatic production, or a series of artistic representations. Even if certain questions remained unanswered, they would provide a guide to further research.

The brevity of the Book of Mormon prevents our getting all the data we would like firsthand, but we can still consult other sources about voyages comparable to Lehi's. Thus we need to phrase our questions in two forms: those addressed directly to the scriptural voyage, and those intended to elicit complementary data from parallel cases. In the following list, questions of the second type are in parentheses:

I. Questions About the Origin of the Voyage

1. (What voyages can be usefully compared with this particular case?)
2. What historical and cultural factors led to this voyage? (What historical and cultural factors led to voyages in comparable cases?)

3. What did members of this party know about destinations, routes, and nautical technology? (What did comparable voyagers know of these matters?)
4. Was this voyage referred to in later history in the area of origin? (Were comparable voyages known to later history in their areas or origin?)

II. Questions About Preparations

5. What vessel technology was available to the voyagers in this case? (What vessel technology was available in comparable cases?)
6. Was a suitable vessel procured or procurable without new construction of one? (In comparable cases was a suitable vessel procured or procurable without new construction?)
7. What materials, tools, and knowledge were obtained in order to construct the vessel, and from where and how were they procured? (From this point on, the questions for comparable cases will be assumed.)
8. What was the design of the vessel, and how was it constructed?
9. How long did construction take?
10. What supplies and other materials were taken aboard in preparation for the voyage?
11. What training was necessary to prepare the crew for the voyage?
12. What port facilities were used for all the above actions?
13. What was the ethnic, social, and cultural composition of the group making this voyage?
14. What ritual, spiritual, psychological, ideological, etc., preparation of voyagers was carried out?

15. What seasonal timing was involved in preparation and departure?
16. How was the vessel launched?

III. Questions About the Voyage

17. How was a course laid and maintained, and how was the vessel operated?
18. What route was followed? Were other routes to the same destination feasible? What natural conditions were met and would likely have been met on alternate routes?
19. What were living conditions and routine aboard ship? Did these change during the voyage?
20. What emergencies occurred, and how were they met?
21. What stops were made, why, and for how long?
22. How long did the voyage take? Was this normal?
23. How were the personnel on board organized?
24. What effects on mortality, health, and psychological/spiritual outlook did life on board have?
25. Where did the vessel land, and what environment did the voyagers encounter at the landing place?

IV. Questions About Consequences of the Voyage

26. What happened to the vessel after the landing?
27. What modifications in their social organization resulted from the party's moving from ship to land?
28. How did the situation ashore change the party's activity patterns?

29. What elements of the culture of the group's area of origin were filtered out, newly emphasized, or otherwise modified by the voyage and new settlement?
30. What, if any, other people interacted with the immigrants soon after the landing, and what was the nature of the interaction?
31. Did the newcomers move from the landing site? If so, when, why, and to where?
32. What biological effects did the setting(s) in the new land produce in the newcomers, and they in their neighbors?
33. What spiritual and psychological effects did the new scene(s) produce in the newcomers?
34. What traditions about the voyage did descendants or neighbors maintain or construct in later generations? Was the landing area later perceived in any special manner?
35. How was voyaging as an activity viewed once the incoming group was settled in the land?
36. How did remembrance of the voyage enter into subsequent social, cultural, and political life (for example, as validation of leadership or rivalry)?

My queries lack the advantage of direct shipbuilding and sailing experience. Surely blue-water sailors would revise and rephrase my list to advantage and would produce better answers.

Answering the Questions

Several types of sources in addition to the scriptures deserve consideration as we search for answers. In descending order of value, the types are:

1. The scriptural text itself
 - a. relatively unequivocal statements
 - b. straightforward inferences from scriptural statements

2. Reports of premodern voyages that are
 - a. comparable in time and location to Lehi's trip
 - b. indirectly comparable, that is, at another time but over the same route and under like conditions
 - c. not comparable in time or space but comparable in some ways in technology, sociology, meteorology, oceanography, etc.

3. Reports of voyages in recent centuries
 - a. routine voyages under conditions similar to those of ancient times
 - b. experimental voyages using replicas of early vessels

4. Inference from indirect evidence of voyaging established by archaeological, ethnological, or linguistic parallels

5. Modern calculations and reasoning (for example, what volume of supplies can be accommodated on a vessel of such and such size?)

Space limitations permit me to treat only type 1 information here. However, a large bibliography is available (see note 26) of references to the most important literature in which information from source types 2 through 5 can be pursued.

The Paradigm Applied to the Lehi Group's Case

Here I address as many of the thirty-six questions concerning this voyage as the Book of Mormon deals with directly or by inference. The numbers introduce discussions of the corresponding questions in the list above.

2. According to the Book of Mormon, the historical and cultural factors involved in the departure of the Lehi group from the land of Jerusalem center in the fact that the sociopolitical establishment there had rejected Lehi's warning message and standing as a legitimate prophet. The reasons for his rejection are not expounded in the text, but 1 Nephi 7:14 implies that they were generally the same as for his contemporaries in the Old Testament—Nahum, Habakkuk, Zephaniah, and Jeremiah (compare 2 Chronicles 36:11–16). The Bible indicates that it was their political impact that was most unwelcome, but spiritual, ritual, cultural, and social implications of their criticism of rulers

and people were, of course, also involved.² Beyond the pressures to flee, however, Lehi had a positive reason for departing—the Lord had given him a “land of promise” as a refuge and a reward (1 Nephi 5:5; compare 2:2. Hereafter, when only chapter and verse are cited, reference to 1 Nephi is to be understood).

This same question may also be asked in reference to the land of Bountiful as an origin area: What factors led to Lehi’s departure from there? The record of Nephi before the eighteenth chapter does not make explicit but does imply that the Lord intended Bountiful to be only a stopover on a longer journey. Lehi and Nephi understood that (10:13), but it appears that Laman and Lemuel and perhaps others in the party did not see it that way (17:5–18, especially verse 17). They seem to have expected to stay in Bountiful. Nothing is even hinted about conditions in that area that pushed them to emigrate; only the command of the Lord to Nephi is indicated as impelling their departure. It could be, however, that Laman’s and Lemuel’s perception that Bountiful offered only limited prospects for the prosperity and ease they hoped to attain could have persuaded the brothers that moving on might be better than staying where they were.

3. No hint can be found in the text that anyone in Lehi’s party had any knowledge whatever of nautical matters, nor is it likely that any had even been on a vessel before. Upon arrival in Bountiful they were impressed by the green land, as most desert travelers would have been (17:5–6), but they may also have been in awe of the sea. The waters off Arabia had high symbolic value. Note the brothers’ unbelief that they could cross “these great waters.” Nor did they manifest any belief or interest in the possibility of constructing a ship, even though the mercantile connections their father apparently enjoyed at Jerusalem probably had acquainted them with the existence of commercial destinations around the Indian Ocean.³

4. Regarding the secrecy attending the group’s flight from the land of Jerusalem, we are specifically told (4:36) that they did not want “the Jews” to know of their flight, for they might “pursue . . . and . . . destroy” the small party. But once they were at a substantial distance from Jerusalem, they were no longer likely to be concerned about what the Jews could do to hinder them. In the wilderness, the instruction of the Lord that they not use “much fire” (17:12) suggests a defensive tactic against desert raiders rather than against Jewish pursuers.⁴ Their

policy of secrecy probably ensured that no public record of their departure from the homeland was kept, although Lehi's or Ishmael's kin might have held a tradition of the event, and remaining prophets could have known of it by revelation.⁷

As to a tradition or record of their leaving the land of Bountiful, there is no apparent reason why local inhabitants of that area (who are not noted in Nephi's record but unquestionably were present, as archaeology and linguistics show⁸) would have known of their departure or would have paid particular attention to it. On the south coast of the Arabian peninsula where their vessel was built, the possibility is tiny that this one among a number of vessels constructed in that day would be specifically noted in local tradition or records. Nephi's record gives us no reason to suppose that the departure was noted by others.

5. At least some of the technology Nephi used on his ship differed from that used by contemporary shipbuilders (18:2). His statement to this effect implies that he was sufficiently familiar with what those others did that he could clearly distinguish his techniques from theirs. Nevertheless, he used only tools he himself was capable of manufacturing and materials that his party could obtain by their own efforts. We have no reason to suppose that the repertoire of skills he and his family possessed were superior to or even different from those common among nonspecialists in the Jerusalem area in his day. So even though the Lord showed him the "manner" after which he was to build the ship, he and his brothers still "work[ed] the timbers" with those simple tools; their technique would have to be broadly similar to that of other shipwrights of his era. The implication is that the chief differences were in quality of workmanship and some aspects of design. (Compare 2 Nephi 5:16 for a parallel situation in the case of the temple Nephi built. Although he constructed it "after the manner of the temple of Solomon," still "it could not be built like unto Solomon's temple" in certain aspects. Consider too the case of the Salt Lake Temple, for which Brigham Young reported visionary guidance as to its plan,⁹ although the techniques, materials, and architecture employed remained within a range not surprising to nineteenth-century American craftsmen.)

6. The text implies that no existing vessel was available, or suitable, for the party's use in or near the Bountiful area. The family had been wealthy (2:4); had the Lord desired that they purchase a ship, presumably they could have brought sufficient

portable wealth through the desert to buy one. Moreover, they could have been led this way or that a few hundred miles from where they were to some other destination on the Indian Ocean coast that could have provided such a ready-made vessel, had there been a superior one about. Much time and labor would have been saved had they not had to build one, but perhaps they needed the experience to toughen them physically and spiritually for the arduous voyage and to enhance group cohesion.

Other vessels might indeed have existed, but the emphasis in 18:1–4 on the unusual and superior workmanship suggests that a vessel of more conventional design and technique might not have held up on such a singular trip as the one intended. (Compare 18:13–15 about storm stress on the vessel; and note that the answer to this question in the case of Mulek's party, which likely departed from Egypt via the Mediterranean Sea, could be quite different.)

7. We learn from 17:9–11 and 16 that Nephi began from scratch, personally locating and surface mining ore, constructing bellows and starting fire in order to manufacture woodworking tools. The ore seems to have been obtained and refined and the tools prepared while he was on "the mountain" (17:7) where he had gone for divine instruction. He showed his brothers the tools only after those were finished. And note that specification of "the" mountain intimates that only one rather obvious one was near or perhaps visible from their camp.

Copper hardened with arsenic or tin or simply by heating and hammering was the likely metal a lone worker could deal with successfully; its cutting edge would be suitable for the intended purpose. Iron is a less likely possibility. At least earlier on their journey Nephi was unable to repair his "steel"-backed bow and had to use an all-wood substitute (16:18–23). Samuel Shepley and John Tvedtnes have each proposed that Lehi was a smith, not a merchant as proposed by Hugh Nibley; or perhaps he was both.⁴ The evidence is not decisive either way. If Lehi possessed metallurgical skills, it seems odd that a much less experienced Nephi would go off alone to do a task with divine help that his father could have carried out routinely. But Nephi must have been acquainted with the basic skills of the craft, as evidenced by the fact that he did not have to ask the Lord what tools to make nor how to make a workable bellows (17:9–11). In the New World, moreover, he immediately sought out and recognized various ores and confidently made plates for record

keeping (19:1). In favor of the notion that the whole family was familiar with metal work is the fact that even his brothers showed no surprise at his ability to make tools, although they did scoff at his ability to build a ship.

Adequate timbers likely would not have been available to them on the immediate coast, only back in the hills a certain distance.⁹ Probably not more than five or six men in such a small group would be available to “go forth” (18:1) to the hills for timber. Hauling it would have been arduous and time-consuming, as would sawing planks. (Given the relatively short trees available in that part of Arabia, a boat of suitable size for their purpose probably had to be made of planks.) Saws, mauls or hammers, axes, chisels or adzes, and awls would also have been required. What the sails (implied by 18:8–9) and cordage were made of we cannot guess from the text. Nothing hints other than that the party made all their tools and did all the construction by themselves, perhaps because their poverty did not allow paying local craftsmen.

8. Questions of the ship’s design cannot even be approached from the text aside from a few generalities. First, because the vessel was sail powered, it had to have at least one mast, sail(s) and rigging, and it probably was keeled and had some type of rudder (18:13). Second, given the amount of stores implied (18:6), it is likely to have been decked, with supplies secured below from storm (18:15; compare verse 6: “we did go *down into* the ship, with all our loading”; italics added). Third, we can suppose, given the effective limits on the number of workers available to them, that no larger ship would be built and thus no more time wasted than would be just adequate for the small group. The Hiltons estimate that the party by this time consisted of around seventeen adults and thirty-two children, requiring a sixty-foot ship.¹⁰ Perhaps, but it could have been smaller. Note that Columbus’s *Nina* may have been only sixty feet long.¹¹

9. The length of time it took to build the vessel can only be surmised. The Hiltons¹² suggest under two years. Given the builders’ inexperience and small number and the necessity of carrying out other routine tasks simultaneously, it could well have taken more.

Another chronological consideration is also involved. In 2 Nephi 1:4 we are told that Lehi, recently arrived in the American promised land, reported having seen a vision that Jerusalem had been destroyed (compare 17:14). We do not know how long after

the event the vision came to him. Had the party stayed in south Arabia, normal communication from Jerusalem down the frankincense caravan route might have informed them of the fall of their homeland to the Babylonians within a few months without the need for a vision. Lehi probably left Jerusalem in the first year of the reign of Zedekiah. The fall of Jerusalem occurred something more than ten years into that reign (2 Kings 24:18–25:3). With eight years in the wilderness Lehi's group would have at most three years (reduced by the "many days" mentioned in 17:7 before they got to work) to prepare the ship before word of Jerusalem's fall would be likely to reach them. But they probably left in the prime sailing season on that coast (mid-March to early May; a brief second possibility for leaving occurs in late August), so they may actually have had no more than two years to build the boat. However, a number of assumptions lie behind these calculations and make them uncertain. For example, the arrival of caravans from Israel might have been taking longer than two months, for the frankincense harvest was seasonal, taking place mainly in winter but perhaps also in spring,¹³ and presumably the caravan season coincided. Thus Lehi's group might have had until the opening of the sailing season the following March to get under way before news from the north about Judea's fall would arrive. That might have allowed three years for their shipbuilding.

10. At first glance, the phrasing of 18:6 seems to indicate almost overnight preparation of stores for the voyage, but that would be impossible. The expression "after we had prepared all things" must point to a period of at least weeks during which hunting and collecting were pursued intensively. (No indication is given that the party cultivated crops while in Bountiful, although a point is made of such activity immediately upon their arrival in America—see 18:24. The silence is significant.) "Fruits and meat from the wilderness" could not have been obtained without a good deal of time, effort, and movement within the region. Given their Arabian coastal location, dates were probably an important item in the category *fruit*. Honey is specifically mentioned; presumably they could only have obtained their large supply of it at a certain season.

Finally, it is likely that the catch-all term *provisions* referred to grains, for fruit, meat, and honey would not constitute an adequate diet. Olive or another oil would also be probable. Very likely these "provisions" would have been obtained by trading

surplus wilderness products such as skins to local inhabitants. If the group had succeeded in bringing camels or asses with them all the way from Jerusalem, those might have been traded, but it seems unlikely that they had survived beyond the time of extreme hunger described in 16:18–20. Of course they had taken “provisions” with them upon leaving their first major camp at the river Laman (16:10), but these were apparently being consumed continuously from Jerusalem on, for verse 11 speaks of “the remainder” of the provisions left to them at that juncture. They likely arrived at Bountiful with little stock of food.

They still did have “seeds” intentionally saved to carry to the New World (16:11). In addition to the seeds brought from the Jerusalem area, probably more were added from Bountiful. (Smith discusses crops probably present in that area.¹⁴)

A final item of provisioning would obviously be a supply of fresh water and perhaps wine (compare 18:9) in either pottery vessels or skin bags.

11. People of the desert would certainly require training in even the most rudimentary management of a vessel before they set sail. The most plausible way to get that knowledge would be instruction by sailors on boats already in that vicinity. One can imagine also a combination of inspiration and trial and error as a means, particularly if Nephi’s ship was of novel design.

13. The text is clear enough that apart from Zoram, only Lehi’s and Ishmael’s family members were in the voyaging party. All were Hebrew-speakers and at home with cultural ways of the Jerusalem area and not ethnically or socially varied among themselves, however cosmopolitan some of them might have been due to travel or learning.

14. They adhered to a version of Mosaic ritual (for example, 1 Nephi 2:7; 4:16; 2 Nephi 25:24), although their practices probably were different from the semi-pagan ways then prevalent in Jerusalem (compare 2 Chronicles 36:14). At least they likely carried out sacrifice and prayer before embarkation. The voice of the Lord to Lehi (18:5) was itself also preparatory in the sense of this question. Moreover, the language in 18:6 about entry into the vessel—“every one according to his age”—implies a special ritual. Further, the whole set of experiences, practical and spiritual, of the ten years since they had left Jerusalem, constituted a preparation for the voyage in the same sense that Zion’s Camp proved a preparation of early Latter-day Saints for their trek to the Great Basin.

15. Being “driven forth before the wind” (18:8) implies dependence on the monsoon winds from the west to bear the vessel across the Indian Ocean (see the answer to question 9 above).¹⁵ Typically, ships left the Arabian coast on that wind between mid-March and early May, although a date a bit later or in late August–early September cannot be ruled out.

16. All that is said about launching is that “we did put forth into the [out to?] sea” (18:8). I suppose that the sizable vessel had already been put into the water from the beach (on rollers?) and had undergone shakedown sailing off the coast even before provisioning, let alone departure.

17. A course was laid by observing one of the spindles inside the Liahona or “compass,” which “pointed the way whither we should go” (16:10; 18:12, 21). I see no reason at all to suppose this device was magnetic, despite the term *compass*. Rather it was faith operated; when Nephi was tied up by his brothers, the pointer would not function, but when he was unloosed, he “took” the compass and “it did work whither I desired it,” so that he could know in what direction to “guide the ship” (18:21–22). This language about how the device served to point out the course is operationally enigmatic, but that the vessel was actually kept on course by a combination of adjustments to rudder and sails is obvious.

18. The most economical explanation of the course followed supposes that the Lord typically uses natural forces familiar to us to accomplish his ends. In this case, he would have directed the party over a course where winds and currents would carry any vessel toward the intended spot in America with a minimum of miraculous intervention. No doubt other seafarers would already have passed over certain legs of the same route, though probably not the whole of it. (Compare the LDS pioneers of 1847 crossing the plains to the Great Salt Lake via the sensible North Platte River valley, and so on, rather than through mountain-cluttered New Mexico, Colorado, or Montana.)

Across the Indian Ocean the routine course taken by sailing ships in premodern times followed near 15 degrees north latitude, which carried them straight east to the Malabar coast of India. From there they would round Sri Lanka (Ceylon) and sail east near 10 degrees north latitude to the Straits of Malacca and past the site of modern Singapore.¹⁶ One feasible course thereafter would wend between major islands of today’s Indonesia to the Admiralty group north of New Guinea, thence past Tonga and through Polynesia near the Marquesas. Recently

scientists have discovered that every dozen years or so what is known in the meteorology of the eastern Pacific as the "El Niño condition" develops in which unusual winds from the west replace the typical trade winds. At such time sailing eastward across the mid-Pacific and even on to America is feasible.¹⁷ However, this was not the only possible route; for the sea off China and across the north Pacific between 25 and 40 degrees north could also have served.¹⁸

The Book of Mormon is silent about conditions encountered after the ship met with the tropical storm (18:9–21), which was probably in the Indian Ocean or the Bay of Bengal. Failure of the record to mention other difficulties on the voyage may imply that no life-threatening situations were encountered after the one great storm, or at least none significant enough for Nephi to describe on the small plates. Either route suggested would offer, but not guarantee, the possibility of a safe trip across the ocean. (Contrast the vivid language about the continuously stressful Jaredite journey in Ether 6:5–11, which fits conditions only on a north Pacific route around 45 degrees north.) Nephi simply said that "after we had sailed for the space of many days we did arrive at the promised land" (18:23).

21. Arab ships on the Indian Ocean route typically stopped ashore to repair storm damage, such as obtaining a new mast, as well as to scrape speed-impeding barnacles off the hull.¹⁹ Especially after the one almost disastrous storm, the need to stop for repairs seems likely, perhaps in Sri Lanka or Sumatra. Another reason for stops would be to take on a new supply of water and fresh, anti-scurvy foods. Also, they may have spent periods in port, waiting for seasonal winds to turn the right direction or avoiding a storm. Some of the waits could have been fairly long. After all, if the journey through Arabia consumed eight years, we need not suppose the Lord would hasten the party across the ocean, more than ten times as far, in hasty, uninterrupted fashion. Stops would also have broken the tedium of the long voyage for those aboard the ship and given them—especially the children!—a welcome opportunity to escape the psychological and physical confines of their small vessel. In addition, being on land could give them a chance to conduct Mosaic sacrificial ceremonies impossible on the vessel because of lack of animals.

22. No information is given about duration, but the distance alone allows us to estimate time. This distance traveled would have been on the order of seventeen thousand miles. We

get valuable comparative data about rates of travel in the mid-Pacific by examining a recent voyage under pre-European conditions by the reconstructed Polynesian double-hulled canoe named *Hokule'a*. The vessel traveled eight thousand miles in six legs, ranging from three hundred to three thousand miles: Hawaii to Tahiti, Tahiti to the Cook Islands, on to New Zealand, then Tonga, Samoa, and back to Tahiti and Hawaii. Total sailing time was nearly eighty-two days, for an average of ninety-eight miles per day. Surprisingly, the speed sailing east "against the trade winds" was twice what it had been going west.²⁰ This practical experience confirms warnings by nautical experts that maps that show "average" wind velocities and directions are meaningless as predictors of what may happen on any particular voyage.²¹ Had Lehi's ships been able to travel continuously at the same rate as *Hokule'a*, the entire voyage would have taken only about half a year. But we cannot assume such a thing. The storm mentioned in 1 Nephi 18 drove them "back" for four days, meaning an overall loss of at least eight days; that did not happen to *Hokule'a*. Thereafter surely the winds were not always with Lehi's group, so delays due to weather alone must have caused significant waits; we know that for the Indian Ocean portion of the route, Arab, Chinese, and Portuguese ships sometimes waited for months for desired winds. Also, as mentioned in the answer to question 21, stops to maintain the vessel and restock food and water could well have consumed considerable time. *Hokule'a's* eighty-two days at sea actually stretched over more than a year, as crew members flew home to Hawaii for rest after each leg of the trip! Moreover, the Polynesian crew already had accumulated a large body of lore and expertise about sailing in that particular part of the Pacific, while Nephi was always traveling under unfamiliar conditions. And his vessel almost certainly would not have been designed like the Polynesian vessel, likely being slower.²² Given these conditions, a full year seems a minimum period to accomplish the long voyage from Arabia to (Central) America. Two years are not unlikely.

23. What was the social organization aboard the ship? All we know is that Nephi, the nominal captain, proved to have limited power (18:10ff) during his brothers' mutiny. But a ship simply could not be operated without regular tasks such as helmsman and watch being performed. The overall success of the voyage assures us that the men aboard did carry out at least minimal routine tasks. Studies of parallel situations could no

doubt tell us more about this subject as well as about shipboard routine of concern in question 19.

The reference in Mosiah 10:12 to a tradition among the Lamanites that their ancestors “were also wronged while crossing the sea” may have reference to the occasion when Nephi retook control of the ship (18:20–22) during the great storm, or it might refer to another incident, but likely the issue was one of power and control, whenever the event. (Note 2 Nephi 1:2 which refers to “their rebellions [plural] upon the waters.”)

25. Nephi does not give us useful information about where the ship landed, but two later statements in the scripture do. Mosiah 10:13 mentions “the land of their [the Lamanites] first inheritance, after they had crossed the sea.” Then Alma 22:28, as part of a comprehensive description of geography in the land of promise, speaks of Lamanites spread in the wilderness “on the west in the land of Nephi, in the place of their fathers’ first inheritance, and thus bordering along by the seashore.” When this information is put together with other geographical statements, it becomes clear that the land referred to was on the “west sea” coast at the southern extreme of the territory spoken of in the Nephite record. In the first century B.C. it was considered part of (“in”) the land of Nephi (whose primary area was in the highlands), hence the coastal zone must have been thought of as a mere wilderness adjunct to Nephi, a hint that the land of first inheritance was not a very large or important region in its own terms. We learn from 18:25 that the area was dominated by forests.

The most plausible correlation of Book of Mormon geography with today’s map identifies the land of first inheritance or initial landing zone with a stretch of the Pacific coast a few score miles on either side of the Guatemala-El Salvador border.²³ That zone features swamps and lagoons just inside a beach, mixed with areas of seasonal forest. Within a couple of miles of the beach, taller forest is found, interspersed with grassland (conditions anciently could certainly have been somewhat different). Rainfall is light to moderate (increasing markedly inland as the land rises), but temperature and humidity are quite high year round. The zone is uncomfortable for human habitation but at times has been productively farmed. Except for a few periods of fairly heavy inhabitation, the area can truly be called jungly wilderness.

26. After leaving the ship (18:23), the group paid no attention to it again, it appears. Likely this was in part because

they were delighted to be free from its confines. Nothing is said later to suggest that seafaring was attractive to them, for over five hundred years at least, although, of course, a fuller record might give a different picture. One supposes that the vessel was in pretty poor condition by the moment of landing, and with all attention necessarily given to pioneering agriculture and exploration (18:24–25), it is no wonder that nobody looked to the sea again.

27. The routine tasks upon which members of the party had settled during the voyage were now a thing of the past. New problems and a new division of labor were suddenly thrust upon them. The pattern of organization among them must have changed; however, the nominal pattern still held Lehi to be dominant (for example, see 2 Nephi 4:10). The relationship between the challenges of the new environment and the issue of rulership precipitated by Lehi's death is not clear. It is implied in 18:24–25 that at least one crop was harvested and considerable exploration done even before Nephi made his plates, and by then he had a good deal to record (19:1). Lehi might have lived ashore for several years, thus the events of 2 Nephi 4:13 and 5:1–5 could have been so far removed from the time of landing as not to deserve consideration in this analysis.

28. At the least, the daily routine of all the party would have been totally restructured on land. Preparation of fields, the planting, care and harvesting of crops, and exploration tasks are mentioned or implied. Even before crops were harvestable, however, the settlers had to feed themselves currently. Hunting is indicated (18:25) and various foods such as shellfish could have been gathered in these tropical lowlands; processing would require new skills and perhaps new equipment on the part of both men and women. Also implied is the need for different forms of shelter constructed from the newly available materials, as well as a fresh supply of clothing and household goods.

29. Despite silence in the record about explicitly cultural changes, it is apparent that the conditions the group had endured during eleven or more years since they had lived in the Jerusalem area would have changed some of their ways drastically. This is confirmed in 2 Nephi 25:2 and 6 where Nephi says that he had allowed his people's poor recollection of the Old World ways to wipe part of the slate clean, permitting him to create a new, modified form of Israelite culture (compare 2 Nephi 5:14–19). Recall that among his group, only he, his brother Sam, Zoram, and perhaps their wives, had experienced the Old World culture

as adults. The same situation must have prevailed among the Lamanite faction.

30. Nothing is said in the record about interaction between the immigrants and possible inhabitants of the land found by them on arrival, just as it is silent about relations with inhabitants in the south Arabian Bountiful. That such people were present in both areas is beyond question.²⁴ A sure evidence of that fact for the Nephites is the later reliance on "corn" (maize) documented for the land of Nephi in Mosiah 7:22; 9:9. Maize is a native American plant "so completely dependent on man that it does not grow in the wild."²⁵ Hence the immigrants had to have received the seed and instruction about how to cultivate it from people already on the scene.

31. Since we do not know how long it was before they moved from the landing area, we cannot be sure of impelling factors, but discomfort due to the climate could easily have been one.

32. That biological changes would have been entailed in Lehi's descendants on the new scene is obvious from the point of view of biological anthropology. Exposure to new diseases, foods, climate, pests, etc., would have had immediate effects, although generations would probably have had to pass for the full range of consequences to become apparent. Also, we can reasonably suppose that they themselves imported Old World diseases to which they had developed immunity but which could have had serious consequences for peoples whom they contacted. Their imported plants could also have brought along damaging diseases.

33. Two documented results on spirit or psychology are noted. According to Nephi's perception, the Lamanites "did become an idle people, full of mischief and subtlety" (2 Nephi 5:24). We cannot tell what if any connection there might have been between the curse put upon them and the conditions of their life in the new natural setting. As for the Nephites, a long generation later they were characterized thus: "Our lives passed away like as it were unto us a dream, we being a lonesome and a solemn people, wanderers, cast out from Jerusalem, born in tribulation, in a wilderness, and hated of our brethren . . . wherefore, we did mourn out our days" (Jacob 7:26). But we remain uncertain how these characteristics might relate to question 33.

If we consider the Book of Mormon a real book about real people, the kind of exercise this paper constitutes should be repeated a hundred times.²⁶

NOTES AND REFERENCES

1. John A. Widtsoe, ed., *Discourses of Brigham Young* (Salt Lake City: Deseret Book Co., 1941), p. 128.
2. Hugh Nibley, "Two Shots in the Dark," in *Book of Mormon Authorship: New Light on Ancient Origins*, ed. Noel B. Reynolds (Provo, Utah: Brigham Young University, 1982), pp. 110–11.
3. The symbolism associated with "Irreantum" or "many waters" can be glimpsed in citations in *Book of Mormon Critical Text, Vol. 1: 1 Nephi—Words of Mormon*. Second Edition (Provo, Utah: Foundation for Ancient Research and Mormon Studies, 1986), p. 94, note 787. Robert R. Stieglitz, "Long-distance Seafaring in the Ancient Near East," *Biblical Archaeologist* 47 (1984): 138–39, points out the overseas connections of that day.
4. Hugh Nibley, *Lehi in the Desert and The World of the Jaredites* (Salt Lake City: Bookcraft, 1952), p. 72–77. A fuller and more up-to-date picture of "the Arabian nexus" of Lehi's journey is given in Robert F. Smith, "Book of Mormon Event Structure: The Ancient Near East," *Foundation for Ancient Research and Mormon Studies Preliminary Report SMI-84* (Provo, Utah, 1984, rev. 1986), pp. 23–30.
5. Orson Pratt believed that Ezekiel, in Babylon, knew of Mulek by revelation; I agreed in my "The Twig of the Cedar," *Improvement Era* 60 (May 1957):330 (5); reprinted under the title "Bible Prophecies of the Mulekites," in *A Book of Mormon Treasury* (Salt Lake City: Bookcraft, 1959), pp. 229–37.
6. Smith, "Event Structure," pp. 26–28.
7. Widtsoe, *Discourses*, p. 410.
8. Samuel E. Shepley, "Old World Metal Workers," paper given at Annual Symposium, Society for Early Historic Archaeology, Provo, Utah, 22 Oct. 1983. John A. Tvednes, "Was Lehi a Caravaneer?" *Foundation for Ancient Research and Mormon Studies Preliminary Report TVE-84* (Provo, Utah, 1984).
9. Lynn M. Hilton and Hope Hilton, *In Search of Lehi's Trail* (Salt Lake City: Deseret Book Co., 1976), p. 106.
10. *Ibid.*, p. 113.
11. Jose Maria Martinez-Hidalgo, ed. by Howard I. Chapelle, *Columbus' Ships* (Barre, Mass: Barre Publishers, 1966), p. 93, for that estimate. The data are not firm; Martinez prefers a length ten feet greater—see pp. 93–100.
12. Hilton and Hilton, *In Search*, p. 114.
13. *Ibid.*, p. 141, reprinting Pliny the Elder, Pt. XXXII.
14. Smith, "Event Structure," p. 27.
15. G. R. Tibbetts, *Arab Navigation in the Indian Ocean Before the Coming of the Portuguese*. Royal Asiatic Society of Great Britain and Ireland, Oriental Translation Fund, n.s., vol. 42 (London, 1981), pp. 360–77.
16. *Ibid.*, p. 360ff.

17. *Foundation for Ancient Research and Mormon Studies Update*, April 1986; Ben R. Finney, "Anomalous Westerlies, El Niño and the Colonization of Polynesia," *American Anthropologist* 87 (1985): 9-26.

18. Thor Heyerdahl, "Feasible Ocean Routes to and from the Americas in Pre-Columbian Times," *American Antiquity* 28 (1963): 482-88, and his *Sea Routes to Polynesia* (Chicago: Rand-McNally, 1968), pp. 37-50. Joseph Needham and Lu Gwei-Djen, *Trans-Pacific Echoes and Resonances; Listening Once Again* (Singapore and Philadelphia: World Scientific, 1984), pp. 5-6, agree with Heyerdahl. Compare Needham alone in his magnum opus *Science and Civilisation in China*, vol. 4, part III (Cambridge: Cambridge University Press, 1971), pp., 547-48.

19. Tibbetts, *Arab Navigation*, p. 49.

20. "Wind and Stars Guide Polynesian Voyagers on Year-long Exploration," *Provo (Utah) Daily Herald*, 5 Oct. 1986, p. 42 (Associated Press dispatch).

21. Clinton R. Edwards, "Commentary: Section II," in *Man Across the Sea: Problems of Pre-Columbian Contacts*, ed. Carroll L. Riley et al., p. 302 (Austin and London: University of Texas Press, 1971). Finney, *Anomalous Westerlies*, 9-26.

22. Ben R. Finney, *Hokule'a: The Way to Tahiti* (New York: Dodd Mead, c. 1979).

23. John L. Sorenson, *An Ancient American Setting for the Book of Mormon* (Salt Lake City: Deseret Book Co., and Foundation for Ancient Research and Mormon Studies, 1985), p. 138 and Map 5.

24. *Ibid.*, pp. 83-87.

25. *Ibid.*, p. 139.

26. A bibliography of about 5,000 titles on pre-Columbian ships, voyaging and other culture contacts—of what I have called sources of types 2 through 5—will be issued on a computer disk in 1988: John L. Sorenson and Martin H. Raish, *Transoceanic Culture Contacts and Voyaging: A Comprehensive Annotated Bibliography*.