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Source: *Journal of Book of Mormon Studies*, Vol. 1, No. 1 (Fall 1992), pp. 142-162

Originally Published by: Foundation for Ancient Research and Mormon Studies (FARMS)

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John L. and Janet F. Hilton

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Introduction

We believe the Book of Mormon is a history of unique peoples who lived in a real place and time. We believe their historical account has inestimable spiritual value. We might understand their history and message better if we could determine their physical surroundings. After studying internal Book of Mormon geography for thirty-five years, fifteen years of which included intense study, we are disappointed to conclude that the text's internal geographical descriptions do not produce a unique, complete geographical interpretation credible to most scholars. Textual ambiguity leads readers to quite

different geographical models based on the assumptions each reader chooses to bring to the study of the text.

To delimit these assumptions, we have focused on the Book of Mormon river Sidon, a river purportedly shallow enough to cross on foot yet deep and swift enough to carry thousands of bodies out to sea (Alma 3:3; 44:21–22). This description is sufficient to define the limits for the size of this river. We therefore began an extended study of the hydrology of the Book of Mormon.¹

To prepare for the 1992 field study of the southern end of the Rio Grijalva in Mesoamerica (formerly the Rio San Miguel), we carefully studied recent detailed topographical maps of the region and compared them to Book of Mormon geography. We found that if the Grijalva's southern section corresponded to the Manti-Zarahemla part of the Book of Mormon Sidon river, a number of otherwise perplexing geographical relationships in the text seem to be resolved.² To our surprise, this location's characteristics not only compare to the water flow that we calculate to be necessary, but they also appear to compare to the area's topology as described in the text, from the most general to the most specific details. This model then follows from consistently applied, plausible, researched assumptions—not specific assumptions previously thought important but ones we calculated according to the needed water flow, topographical map detail, measured river water flow rate, and personal discussion with natives now living on the rivers. But because these assumptions permit detailed agreement between the text and an actual physical location, we feel the model merits further investigation.

More than one third of the Book of Mormon covers Nephite activities in the time period from 90 to 70 B.C. For this study we selected the Nephite homelands of this period: the city of *Manti*, the local land of *Zarahemla*, and the river *Sidon* because these regions possess extensive geographical descrip-

¹ John L. Hilton, "Book of Mormon Hydrology Working Papers: Derived Information for the River Sidon Based on Pedestrian Fords near the Cities of Zarahemla and Manti, 1991." Available from the author.

² For example, among the problems resolved is the relationship of Manti, Zeezrom, Cumeni, and Antiparah—all were "on the south near the west sea" (Alma 53:22; 56:13); Antiparah was within portage distance of the west sea (Alma 56:31); traveling from this area to east-coast Nephiah would involve crossing "the *head* of Sidon" (Alma 56:25); and others as discussed throughout this paper.

tions, the most interrelated references, and physical details recognizable on modern topographical maps. The hypothesized physical location lies in the southernmost part of the Mexico-Guatemala frontier northward from the Continental Divide to the upper end of the Chiapas Central depression.

Background

In recent years the ability to seriously compare a Book of Mormon geographical model to the physical world has greatly improved. At the same time, Book of Mormon scholars have increasingly recognized the need for more careful examination of the geographical information in the text itself. A detailed review by John L. Sorenson³ of many of the early geographical studies reminds us that much greater care is needed if consensus is to be hoped for and the truth ultimately identified. The best overall effort so far toward this needed careful scholarship is Sorenson's own book *An Ancient American Setting for the Book of Mormon*.⁴ This paper accepts Sorenson's invitation to probe deeper and presents models that finely detail the Manti area and the Sidon river downstream to Zarahemla. We hope that this "fine-tuning" and corresponding identification of a physical area can help advance Book of Mormon geography.

This paper considers Book of Mormon hydrology and its implications on river size. We interpret the crossing of the river Sidon just above Manti (Alma 43:39–40; 44:22) to require not only a restricted water flow consistent with an army hurriedly wading across the river but also a river that could carry thousands of bodies out to sea. Calculated field measurements⁵ verified a minimum and maximum estimate of the needed water flow rate. To carry thousands of bodies out to sea, the needed water flow rate would measure about 10 cu m/sec or greater; for a river to accommodate pedestrian fording, we estimate the water flow to measure less than about 72 cu m/sec (for a river of perhaps 25 to 60 meters wide with a hard, flat bottom).

³ John L. Sorenson, "The Geography of Book of Mormon Events: A Source Book," F.A.R.M.S., 1990.

⁴ John L. Sorenson, *An Ancient American Setting for the Book of Mormon* (Salt Lake City: Deseret Book and F.A.R.M.S., 1985).

⁵ Among the participants in the 1991 field exploration were Ronald W. Lowe of the New World Archaeological Foundation, Janet F. Hilton, and John L. Hilton. Participants in the 1992 exploration included Ronald W. Lowe, Noel B. Reynolds, and John L. Hilton.

Of course, numerous other sets of assumptions have been and might be postulated to interpret this text. Other modern locations (unknown to us) might also correspond to a textual interpretation in the detail that we see here. Therefore, whether the modern physical location of the Nephite sites of 80 B.C. has been actually identified on our physical map must, of course, be established by further studies. Because this geographical model predicts very restricted site locations, thorough archaeological investigation might presumably establish whether Nephite-type peoples occupied these sites at approximately 80 B.C.

Three Assumptions for the Models

- a. We assume that in 80 B.C. the Nephite homeland was in Mesoamerica.
- b. We assume the seas have names.
- c. We assume the directions stated in the English text correspond loosely to the normal vernacular usage.

Repeated, careful readings of the text persuade us that the terms *east sea* (or *sea east*) and *west sea* (or *sea west*) are likely designated names rather than ones that give local directions, similar to the *North Sea*'s present name, which names a sea *south* of Scandinavia and *west* of central Europe. Perhaps the Nephite historians derived the east sea and west sea names from the names the Mulekites gave the ocean they had just crossed when they first came to America (presumably first landing somewhere in the Gulf of Mexico) and from the name Lehi's colony gave the Pacific Ocean that they had crossed (consistent with Helaman 6:10). Therefore, the seas' names could have a correct directional meaning in only a few locations. As one moves about in Mesoamerica, the names *west sea* and *east sea* would lose all directional meaning. This concept helps when we read "that Helaman did march [to] the borders of the land on the *south by the west sea*" (Alma 53:22). We understand this to mean that he marched south to the borders of the Nephite lands by the Pacific Ocean.

This model accepts that the directions stated in the text equate to typical modern usage (as understood by the translator): that is, when the text reads the "wilderness to the west," it means more or less west (as in, "the sun goes down in the west"). Nonetheless, it must be remembered that in the Americas (unlike directions specified in the text for travels in the Arabian peninsula, e.g., 1 Nephi 16:13), the Book of Mormon only

gives directions by specifying one of the four cardinal names with no intermediate directional differentiation. Therefore, our text-derived models will always have rather large absolute directional uncertainty (e.g., at least up to plus or minus 45 degrees). In some cases the text uses terminology like “northward” and “southward,” presumably trying to make it clear that directly north or directly south was not necessarily intended.

The remainder of this paper will consider three topics: (1) a complete examination of relevant Book of Mormon references and the construction of our model, (2) the matching of the text model to the locations on the modern map, and (3) the detailed comparison between the text and physical models for the battle across the Sidon river immediately above the land of Manti in 74 B.C.

Construction of the Text Model Using Our Assumptions

Figure 1 shows a map which roughly illustrates the derived relative locations of the key regions: Manti, the river Sidon, and Zarahemla.

A. *The city and land of Zarahemla and the city of Gideon.* Families with herds could travel in approximately 21 to 22 days from the city Nephi to the large population center of Zarahemla (Mosiah 18:4, 30–32; Mosiah 23:1–3; Mosiah 24:18–20; Mosiah 24:25).

After having been isolated from Zarahemla in the city of Nephi for fifty or sixty years, King Limhi sent a scouting party of men to contact their former countrymen in Zarahemla (Mosiah 8:7–9). They apparently unknowingly bypassed the whole Nephite homeland area of Zarahemla and in some way mistakenly overshot it through the “narrow neck of land” all the way northward to the Jaredite ruins, “and they having supposed it to be the land of Zarahemla returned to the land of Nephi” (Mosiah 21:26). Therefore, when traveling from Nephi to Zarahemla with only sketchy instructions, people could unknowingly bypass the Sidon river valley and Zarahemla and still think they were on course.

The Mulekites occupied Zarahemla long before 130 B.C. when the text first described it as the Nephite city-state of Zarahemla. Within fifty years, Zarahemla had become the capital



Figure 1. A hypothetical map showing the Manti-Sidon-Zarahemla area of about 80 B.C. derived from a complete study of the Book of Mormon text, where: (a) the area is in Mesoamerica, (b) the seas have names (i.e., the east sea or sea east, etc.), and (c) the text's directions are taken to be consistent with the common English vernacular of the translator.

of the Nephite nation which had gained control from sea to sea (c. 80 B.C.). Therefore, the name *Zarahemla* can designate the local area about the city or the whole nation governed from the city; this paper most concerns itself with the local area of the city.

During the campaigns of Helaman and his 2000 sons (about 63 B.C.) near Manti “in the borders of the land on the south by the west sea” (Alma 53:22), Zarahemla was the only place mentioned where prisoners of war could be safely kept, and “Zarahemla and the land round about” (Alma 57:6) provided food, military supplies, and reinforcements during the years of these Manti area battles.

Later (about 50 B.C.), without warning, a fast-moving Lamanite army that managed to slip through the Nephite border-defense cities undetected (i.e., militarily unimpeded) waged a surprise attack on “the great city” Zarahemla. Zarahemla is contrasted to the border-defense cities “round about in the borders . . . where the strong armies” of the Nephites were deployed, while Zarahemla itself was “in the heart of their lands,” “center of the land,” and “the most capital parts of the land” (Helaman 1:15–27). When Zarahemla was thus unexpectedly attacked, a guard was at the “entrance of the city” and the “wall of the city” is first specifically mentioned (Helaman 1:19–27). Again, the walls of the city are mentioned in conjunction with Samuel the Lamanite’s prophesying at Zarahemla another fifty years later (Helaman 13:4; 16:2, 7).

The capital city Zarahemla lay near the west bank of the Sidon river (Alma 2:25, 27, 34). A major battle was fought on the river’s west bank (likely a little upstream from the city Zarahemla)—which required the hurried crossing of the river by a well-organized Nephite army of tens of thousands of fully armed men (Alma 2:12) at about the same time that the enemy dead were cast into the river for sea burial (Alma 2:34; 3:3). At the time of Christ’s crucifixion, Zarahemla was burned and later rebuilt (3 Nephi 8:8; 4 Nephi 1:8). Centuries after the destruction at the time of Christ’s death, Mormon wrote much of the geographical description based on personal knowledge.

Upstream from Zarahemla, within hours’ travel on the other side of the river, lay the “hill Amnihu” adjacent to which lay the valley of Gideon (see Alma 2:15–37). A few years after the battles recounted in Alma 2, the Nephites built “the city of Gideon in the valley that was called Gideon” (Alma 6:7). Probably a little further upstream and across the river from the

hill Amnihu was the land of Minon, on the same west side of the river as Zarahemla (Alma 2:24–25).

B. *Manti's direction and distance from Zarahemla and its relationship to the river Sidon.* The text lacks adequate information to specify a distance between Zarahemla and Manti; it only establishes generally that these two cities were close enough to depend on each other for supplies but far enough apart to isolate themselves militarily at times.

1. Manti was far enough from Zarahemla to be militarily isolated. Full communication between the “strongholds” of the city Manti and the capital city Zarahemla was at times a serious problem. When politics divided the government at Zarahemla (Alma 58:1–9), Helaman’s embassy from Manti to Zarahemla took months to produce even a token show of support from the capital. Zarahemla’s governmental instability delayed reinforcements and provisions. These delays were not surprising and likely would have had little to do with the distance between the two centers. At other times the two centers appeared close enough together to allow soldiers, supplies, and prisoners to be transported from one place to the other within days (for the general setting, see also Alma 16:5–6; 56:24–25, 28, 35–42, 57; 57:6, 11, 15–17).

The text mentions no other Nephite centers on the river Sidon between Manti and Minon, which was but hours’ travel upstream from Zarahemla (Alma 2:24). We conclude, therefore, that traveling between Manti and Zarahemla normally took days.

2. Manti was one of the cities on the south by the west sea. The text named Manti as the first of four Nephite cities to be captured by the Lamanites (and later the last to be liberated), according to Helaman when he arrived with his 2000 sons “in the borders of the land on the south by the west sea” (Alma 53:22). Apparently at the time of the invasion, the land of Manti was not well defended, since the Lamanites chose Manti to “commence an attack upon the weaker part of the people” (Alma 43:24). During the years of Helaman’s large military campaign in the area, the garrison about Manti likely grew to perhaps ten thousand men or more, who depended on Zarahemla or Melek for provisions (Alma 56:27; 57:6). Therefore, we conclude that normally a comparatively small Nephite population inhabited the Manti area, that the terrain was unsuited for the raising of enough food to sustain the large army around Manti, that the closest significant population center where appreciable food could be raised was likely the Zarahemla area, and that the

distance to Zarahemla did not preclude transport of the needed provisions.

3. Manti lays southward from Gideon and Zarahemla. Gideon was located just across the river Sidon within hours' travel from Zarahemla (Alma 2; 6:7–8 discussed above) and was much closer to Zarahemla than Manti was. It follows then that the general direction from Zarahemla to Manti was "southward," the same as it was from "Gideon southward, away to the land of Manti" (Alma 17:1).

4. Manti was on the west side of the river Sidon, near the "*head* of the river Sidon." The Lamanites under the command of Zerahemnah, as they withdrew from the Nephite cities near the east sea coast, "took their journey round about in the wilderness, away by the head of the river Sidon, that they might come into the land of Manti" (Alma 43:22).

Captain Moroni organized a large army to defend Manti. After the spies he assigned to watch the movements of the Lamanite invaders informed him when and from where the enemy was coming, he deployed troops just upstream from Manti on the east of the river Sidon; then "the remainder he concealed in the west valley, on the west of the river Sidon, and so down into the borders of the land Manti" (Alma 43:32).

5. The south wilderness continues "away up beyond the borders of the land of Manti." Zoram the Nephite military leader asked for prophetic information about where he might rescue the Nephites taken captive by the Lamanites as they destroyed the city of Ammonihah. He was instructed by the prophet Alma who lived in Zarahemla that "the Lamanites will cross the river Sidon in the south wilderness, away up beyond the borders of the land of Manti . . . and behold there shall ye meet them, on the east of the river Sidon" (Alma 16:6). And they took their army "over the river Sidon . . . and marched away beyond the borders of Manti into the south wilderness, which was on the east side of the river Sidon" (Alma 16:7).

6. The city Manti had a side that faced the wilderness from which Lamanite reinforcements came. A wilderness flanked the side of the fort-city Manti, from which Lamanite supplies could be expected and on which side Helaman camped and decoyed the enemy army out of the city for a day-long march. When he finally turned toward Zarahemla, the pursuing Lamanites anticipated an ambush and started back before camping for the night. Helaman continued on through the night "forward by another way towards the land of Manti. . . . And

behold, on the morrow we were beyond the Lamanites, insomuch that we did arrive before them at the city of Manti. . . . And when the armies of the Lamanites did arrive . . . they did flee into the wilderness . . . out of all this quarter of the land. . . . And the Lamanites have fled to the land of Nephi” (Alma 58:19–30, 38).

C. *The river Sidon.* The river Sidon was the only American river identified by name in the Book of Mormon. Yet we have no description of the river downstream farther than Zarahemla other than that it empties into the sea.

A description of the geographical locations on the river Sidon, starting from its highest headwaters and moving downstream, follows:

1. “Away above Manti” in the south wilderness the river can still be called Sidon.

2. “Away above Manti” the river still has an east (and a west) side (Alma 16:6).

3. There is a northward-flowing river identifiable as the Sidon comparatively near to the west sea coast (Alma 16:7; 53:22; 56:31).

4. Just upstream from the land Manti, there is an east and a west side of the river (Alma 43:31–32).

5. Just upstream from the land Manti, open valleys flank either side of the river (Alma 43:31–32).

6. Just upstream from the land Manti, the river was readily fordable by a large army fleeing under enemy attack, yet it was also large enough to wash away thousands of dead bodies.

7. Near Zarahemla, it has an east and a west side (Alma 2:34).

8. Near Zarahemla, the river could be crossed by an army of tens of thousands of men to engage the enemy immediately, while it could also wash away a multitude of dead bodies (Alma 2).

9. The river generally flows northward (Alma 17:1).

10. The river Sidon empties into the sea downstream from Zarahemla (Alma 3:3, 44:22).

Therefore, the text describes the river Sidon as flowing northward with its high headwaters relatively near to the west sea. Assuming a Mesoamerican location, the Sidon must then flow inland from near the Continental Divide, which is relatively near the Pacific Ocean. Then, as a good-sized river, it flows past

Manti, down past Zarahemla, and with unknown variations continues on to the sea.

D. *The head of the Sidon river.* Five references mention the term *head of the river Sidon* (Alma 22:27 and 29; Alma 43:22; Alma 50:11; Alma 56:25). They all seem to refer to a specific location that constitute a prominent section of the river's headwaters.

1. Apparently, the most significant river crossing for a Lamanite army at Antiparah near the west sea would be the crossing of the *head of Sidon*, not the crossing of the river Sidon itself if they wanted to return back into their own lands to cross the continent and attack the city of Nephiah near the east sea (Alma 56:25).

2. A Lamanite invasion for the purpose of occupying the land of Manti came into the land "away by the *head of the river Sidon*" (Alma 43:22).

3. Mormon gives three of the "head of Sidon" citations as part of his difficult-to-understand general descriptions of where the dividing line between the Lamanites and Nephites was located (Alma 50:11; 22:27, 29).

4. When using our assumptions, we determine the direction of the water flow of the *head of the river Sidon* to be east to west, as understood from the last part of Alma 22:27. This direction of the water flow of the *head* forms, of course, a right angle to the general direction of flow of the Sidon river itself, which was from south to northward.

In the first part of Alma 22:27, the name "land of Zarahemla" appears to designate the overall land of the Nephite nation, which has a frontier against the overall nation of the Lamanites, not the local land of Zarahemla.⁶ In the latter part of verse 27, the term "land of Zarahemla" must mean only the local land about the city, because it is but one of a series of

⁶ The first few lines of Alma 22:27 describe the overall lands of the Lamanite king. When we assume that the seas have names yet that general directions are to be taken in their broadly accepted sense, an ambiguity in interpretation arises here: that is, either the overall Lamanite lands extend from an unnamed sea to the east (i.e., in the Mesoamerican context likely the Gulf of Honduras), or otherwise this "sea on the east" becomes just another translational variation of the name for the regular "east sea." Similar ambiguity in Alma 22:29 surrounds the term "east by the seashore." Under our assumptions, the term possibly describes the seashore of the sea named the "east sea," or otherwise it could mean east of some place where the Nephites had previously been.

enumerated locations, all of which were contained within the overall “land of Zarahemla” nation. As we have assumed that the names of the seas are not directions and, as seen above, that Manti is necessarily southward from the local “land of Zarahemla,” we therefore derive a consistent interpretation of this otherwise quite ambiguous textual geographical description that describes the north to southward relative locations of the east sea, the local lands of Zarahemla and Manti, and the *head of the river Sidon*.

From these involved geographical descriptions, it is difficult at times to identify what part provides the antecedent for some of the description. The latter part of Alma 22:27 describes a “narrow strip of wilderness,” a no-man’s-land separating the Lamanite and the Nephite nations. This narrow strip of wilderness “ran from the sea east to the sea west” and is described from its “east sea” end “on the north by the land of Zarahemla, through the borders of Manti, *by the head of the river Sidon, running from the east towards the west*” (Alma 22:27). Since according to the text Manti is located southward of (local) Zarahemla, we therefore determine that this narrow strip of wilderness indeed ran directionally from “the north” toward the south. Thus, in this description the strip of wilderness ran from the sea east, which from this perspective was to the north, on to the sea west, which from this perspective was to the south. The narrow strip of wilderness then continued on “by Zarahemla, on through the borders of Manti, and by the head of the river Sidon, running from the east towards the west.” The antecedent for “runs from the east towards the west” cannot be the “narrow strip of wilderness” described as running north to south; therefore, it must be the direction the water runs in the “*head of the river Sidon*.”

The fifth reference to the *head of the river Sidon* appears near the end of Alma 22:29, which apparently suggests that the east to west *head of the river Sidon* is itself a part of the dividing wildernesses separating the two nations.

The Modern Physical Model and Its Correspondences to the Text Model

A. *The modern candidate location for the ancient river Sidon.*

1. Have the canyons or water changed? After careful study and measurement, we have not been able to identify

significant geological or climatic changes over the last 2000 years in the southern end of the upper Grijalva (San Miguel) river basin. Unlike some other Mesoamerican locations, this area does not appear to have changed in any way important to this study. Soil erosion here is described as “slight to no erosion.”⁷ Measurements reported in the “The Hydrology of the Book of Mormon Working Papers”⁸ noted several scientific approaches, all of which show the region to be stable for the period of time in which we are interested.⁹

As all objective evidence supports the thesis that there has not been appreciable change that would affect the size or cause major relocation of the rivers over the last 2000 years, we utilize the modern measurements of flow rates (made before the construction of the recent dams or modern irrigation projects) to estimate the water flow in these rivers in 80 B.C. Of course, the exact shape of the river’s meanderings through the alluvial deposits that exist at the bottoms of the geologically “old” canyons are expected to vary a few meters from year to year as the high-water floods cause considerable local rechanneling.

2. A physical model for the Sidon river valley. Figure 2 shows the section of the river that we suggest as a modern candidate for the part of the ancient Sidon (the star and large dot represent the proposed areas for Manti and Zarahemla respectively). This figure locates the key rivers across the southern parts of the frontier between Mexico and Guatemala.

3. The cutoff from the *head of the river Sidon* valley to the north of the hill Riplah. Our study of the topographical maps alone could not explain to us how Zerahemnah’s Lamanite invasion of about 74 B.C. would logically arise from the Lamanite country and go down into the east to west Rio Cuilco

⁷ Michael Brown, Robert Holtz, Clark Gill, James Weiller, and Stanley Arbingast, *Atlas of Mexico* (Austin: Bureau of Business Research, The University of Texas at Austin, 1970).

⁸ Hilton, “Book of Mormon Hydrology Working papers,” 1991

⁹ These include: (a) radioactive carbon-14 dating of river-side habitations before, during, and after the time of interest; (b) tree-ring calibration of the radioactive carbon-14 dating measurements over the time of interest; and (c) the identification of all wild animal bones salvaged from the ancient garbage pits of the sites occupied during the time, which are without exception from the same set of wild animals found in the region when the first Spaniards came and are still found today. These upper Grijalva valleys and mountains are described as geologically “old” (as different from the low lands down near the Gulf of Mexico).

valley into the Nephite lands, i.e., by “the head of the river Sidon, that they might come into the land of Manti and take possession of the land” (Alma 43:22), and yet the text makes it clear that the invaders did not follow the Cuilco valley all the way around its 90-degree turn into the Grijalva or Sidon valley for the attack on Manti, since it says “the Lamanites came *up* on the north of the hill” Riplah (Alma 43:34), from which they descended to the east side of the Sidon river just upstream from Manti.

During our 1992 field exploration, we learned how this could have happened. Our former uncertainty gave way when we learned from the natives who live on the rivers that they often climb up out of the end of the Rio Cuilco canyon, to cut across the end of the east and west Cuilco mountain range, which follows the north side of the east-to-west Rio Cuilco until it makes a 90-degree turn to enter Mexico as a river flowing northward. Our local informants explained that, when they chose to climb up over the north side of the Cuilco canyon, they could come down a mountain pass directly onto the east side of the Grijalva, a little downstream from its confluence with the Rio Agua Caliente as it flows northward. Thus, the western end of the Cuilco mountain range that would be cut off could be identified with the Book of Mormon “hill Riplah,” so the descent down the mountain pass would be around the “north” side of the hill Riplah. After hearing this report from the native informants, we realized that the southern end of the Rio Grijalva really matches topologically as the river Sidon and that the text (as interpreted according to our assumptions) fully corresponds to the terrain.

4. The main part of the river starts at the joining of its two headwater streams. The likely location for the land Manti is just downstream from the confluence of the Rio Cuilco, which had been flowing from east to west, and the northward-flowing Agua Caliente, where they form the southernmost end of what on recent maps is identified as the upper end of the Rio Grijalva, which flows northward. (See the star within the encircled area on the map of figure 2.) The confluence is located just inside Mexico on the Mexico-Guatemala border, about 20 kilometers down the northern slope from the Continental Divide. On fair days the Pacific Ocean, which is another 60 kilometers further to the southwest, can be seen from the Continental Divide.

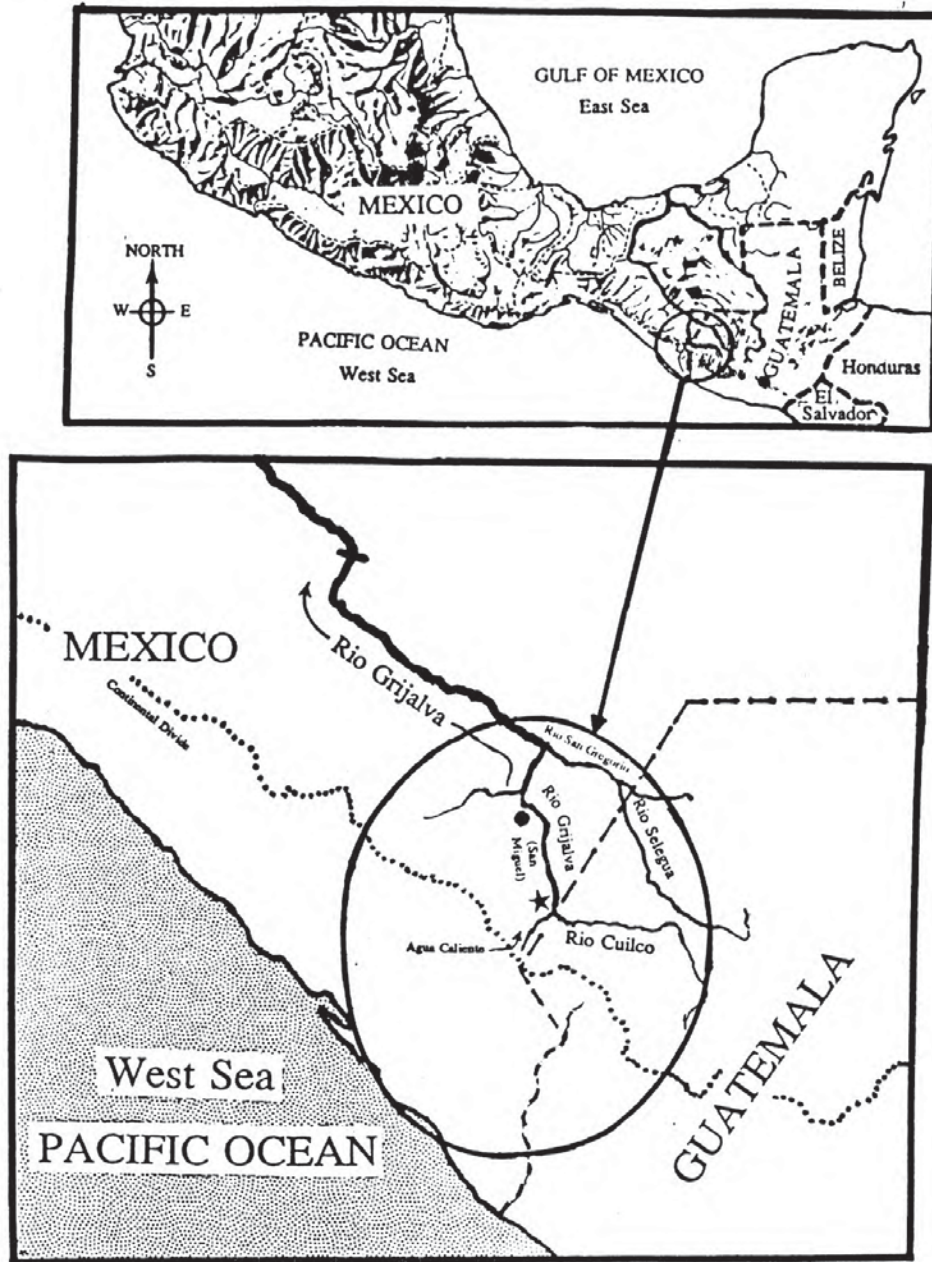


Figure 2. A map showing the southern parts of the frontier between Mexico and Guatemala. The area encircled identifies the river basins recently studied. The star identifies this model's proposed location for the area of Manti, with the upper end of the Rio Grijalva modeled to the main stream of the Sidon river. The Culco river, which flows from east to west, is proposed here as the head of the river Sidon. The area of Zarahemla is proposed here as being near the black dot downriver from "Manti" in the modern Chicomuselo valley area.

B. *The modern candidate for the land of Manti.* A little below the confluence of the headwater streams on the west side of the river could be the location for the land of Manti. It could lie across the river from the modern village of Mexico Nuevo. One kilometer further downstream from the river crossing near Mexico Nuevo on the river's west side is the populated valley of the stream Lincum and the modern village of Cercadillo, which thus becomes a potential site for the city of Manti.

The natives who live in the area describe significant ancient unstudied ruins on both sides of the river and showed us magnificent polished-jade axe heads, which they reported finding in the area, evidence of archaic occupations possibly from this Nephite time period.

C. *Modern candidates for Zarahemla.* If the location of Manti is correct, then by looking downstream from the confluence of the Cuilco and Auga Caliente rivers about 47 km along the river (possibly 35 km in a straight line), we find the first of three likely locations for Zarahemla. Here the valley around this part of the Grijalva opens into a wide area that could support a large population. The large stretches of the flatter, modern farm land flank the west side of the river as the text depicts.

Coming down the river into the open valley area, one can see an unusual hill sufficiently separated from the other hills. This spectacular landmark with its unusual double column of limestone rock rising perhaps 20 or 30 meters above the hill base is located just on the east side of the river. Immediately downstream from the hill is a valley, which could correspond to the valley of Gideon, suggesting that this landmark hill might fit as the ancient Nephite hill Amnihu, which lay across the river and likely a little upstream of the city Zarahemla (Alma 2).

The hill Amnihu would have to have been sufficiently different from other nearby hills that during his secret negotiations with the Lamanite king, Amlici could have identified it by description as a rendezvous area for the incoming Lamanite forces sent to join Amlici's rebel army in what turned out to be a very bloody, abortive attempt at a military coup.

Walking down the west side of the river, near the lip of a natural ravine, we found a smooth-sided earthen pyramid perhaps 10 or 15 meters tall. From its top we could see what could have been several man-made earthen mounds, suggesting that a large population inhabited the area at one time.

We crossed the river and climbed the hill with some difficulty (which we tentatively identified as the hill Amnihu) and found at the base of the rock columns a number of discarded potsherds and corn-grinding stones, which had apparently (within hours) been thrown out of a two-foot square, deep excavation pit by artifact looters. These potsherds appear to resemble pottery of the post-Book of Mormon time period. The view of the river and large valley was very impressive and subjectively seemed to compare to what we expected as a candidate area for the city Zarahemla. A native was net-fishing near the middle of the river with water below his waist; he apparently needed no dugout to cross this location during this low-water time of the year (i.e., May 1992).

The Detail Matching of the Modern Candidate Physical Location to the Sidon River above the Land of Manti

The Sidon river battle described in the Book of Mormon (Alma 43:22–44:22) occurred slightly below the part of the river that would correspond to the headwater streams, just above the land of Manti. It was a carefully deployed ambush set up by captain Moroni to repel an attack by a large Lamanite army intent on capturing the land of Manti.

After the Lamanites evacuated their positions in the Jershon-Antionum area near the east sea, captain Moroni requested and received the foreknowledge, through the prophet Alma, that the enemy “took their journey round about in the wilderness, away by the *head of the river Sidon*, that they might come into the land of Manti” (Alma 43:22). We view this entrance into the land of Manti from the *head of the river Sidon* as coming down the beautiful, 40 km long, east-west valley of the Rio Cuilco from the direction of Guatemala City (the presumed direction of the [local] land and city of Lehi-Nephi). “For they did not suppose that the armies of Moroni would know whither they had gone” (Alma 43:22).

Captain Moroni set up his ambush just upstream of the land of Manti to intercept the invaders, as they attempted to cross the Sidon river and attack the land of Manti. See the schematic representation of “Zerahemnah’s invasion route” on figure 1. The location of this ambush corresponds to one of two likely places between 3 to 5 km below the confluence of the Rio

Cuilco¹⁰ and the northward-flowing river Agua Caliente.¹¹ Local informants, who live on both the Guatemala and Mexico ends of the Rio Cuilco valley/canyon, gave us detailed information about the present narrow foot trails that skirt the cliffs on both sides of the downstream end of the Rio Cuilco valley as the river makes its 90-degree turn, as well as the other corner cutoff trail which continues “up over the top” of the end of the Cuilco mountain range. This cutoff is a hard climb but a wider and shorter trail. We were told it could accommodate carrying large packages or taking donkeys. Even today, with good roads elsewhere, the Cuilco valley trails are used by foot travelers traversing the country. Our informants said “wetbacks” from Guatemala looking for work northward in Mexico or the United States continue to use this natural corridor. Because a road has never accessed the area, the informants explained that they regularly used both trail systems. They described that there were optional trail heads if one chose to go “up” from the Cuilco river, maybe 8 km before the canyon’s end, and climb the cutoff trail, “over the top” of the end of the mountain (i.e., modeled for the Book of Mormon as the “hill” Riplah). The best descent from up there would be the easier downhill slope through the mountain canyon pass to the Rio Grijalva near the modern village of Mexico Nuevo, after a 10 or 12 km up and down the “hill” cutoff.

Our model has the invading Lamanites taking the “up over the top” cutoff, “up on the north of the hill,” which likely they would have thought was much wiser militarily. As soon as Moroni, who was waiting with his troops on the west of Sidon just above Manti, was informed by his “spies” that the Lamanites were taking the up over the top cutoff, he divided his troops. He first secreted a part of them, under the command of Lehi, on the east of the river “on the south of the hill Riplah,” which would correspond to the southwest end toe of the Cuilco mountain range. To reach this hiding place would require several

¹⁰ The Rio Cuilco measured a near minimum 1992 water flow rate of 9.4 cu m/sec, just above the confluence. The minimum monthly water flow rate is quite constant with a plus or minus 27% for the 95% extreme years. A near minimum flow is expected for March through May. Maximum flow rates are very irregular and are ten or more times the minimum flow, usually occurring during August or September.

¹¹ The river Auga Caliente has come northward down from the Continental Divide to contribute about 0.5 cu m/sec of water at near its minimum flow rate for 1992, perhaps a little less than a normal year.

hours of climbing away from where Moroni was stationed on the west of the river, so an independent military leader would have been needed. We would think that once the enemy had reached the top of the cutoff they could have camped for the night if they had wanted to, since there is plenty of room. Then they likely would have come down the easier Mexico Nuevo descent, or they may have chosen one canyon further upstream. As soon as they had committed themselves to which canyon they were coming down “north of the hill,” captain Moroni’s “spies” would again signal where and when to set up the ambush in the Sidon river valley below. Then Moroni divided his remaining troops into two sections that he kept under his own command, secreting them on the west side of the river, hiding either in the undergrowth (if it was not during the driest time of year, when there are few leaves) or in the dry gravel and sand washes along the flowing river bed. His upriver army would prevent any possible enemy escape to the west or up the river, and the other downriver army would stop the enemy from escaping into the land of Manti downstream.

Moroni’s trap worked perfectly and the battle started with a sharp engagement between the rear guard of the enemy column, as Lehi swung his troops in behind them. Lehi’s men with their superior personal armament chased the rear of the invading Lamanite army around the north of the “hill Riplah” across whatever valley was east of the river where the rear of the Lamanites “were driven by Lehi into the waters of Sidon.” Moroni and his army attacked the enemy in the west valley and first turned the Lamanite force down towards the land of Manti, where they recoiled off of the part of Moroni’s army secreted there; all the time Lehi’s men on the east of the river prevented any recrossing. In the end, the battle resulted in the killing of a large number of combatants, “yea, the number of their dead was exceeding great . . . and their bodies were cast into the waters of Sidon, and they have gone forth and are buried in the depths of the sea” (Alma 43:40–44:22).

The matching of the textual and the physical models for this battle “above Manti” are complete from the most general to the most specific details:

1. This battle was fought near Manti which was “in the borders of the land on the south by the west sea.” The Continental Divide is yet some little distance (i.e., 20 km) further south of this proposed Manti. From the Continental Divide on a clear day, one can see the west sea (i.e., the Pacific

Ocean) which is about 60 km (less the lagoons and marshes) further to the southwest.

2. The Lamanites came into this Manti area from what appears to have been the direction of the Lamanite homeland, by way of the east-to-west flowing *head of the Sidon river*, identified as the modern Rio Cuilco.

3. The terrain permitted the enemy to climb “up” over the cutoff across the corner of the mountain (i.e., “the hill Riplah”) just as they were approaching the end of the “head of the river Sidon” before it makes its right angle to join the Agua Caliente river to form the upper end of the Rio Grijalva (San Miguel), the substantial-sized northern flowing river, which corresponds to the main part of the river Sidon.

4. The Agua Caliente corresponds to that small part of the Sidon river headwaters that flowed from the highest part (away above Manti) of the south wilderness, where the smaller river still had an “east” side.

5. The main river just above Manti has an identifiable east and west side, across which this major battle was fought.

6. The valley floors on the sides of the river are large enough to accommodate maneuvering with large armies (e.g. many thousand of combatants).

7. During seven months of a typical year the water flow rate and river size is such that the enemy army could quickly wade across the river, while it is always large and fast enough to wash away the large number of the bodies of the dead.

8. The “over-the-top” mountain cutoff trail was long enough to accept the full enemy column of several thousand men.

9. There was a place to hide Lehi’s men on the “south” of the hill Riplah that would not be discovered by the passing enemy column.

10. The mountain terrain is such that Lehi could easily confine the flanks of the end of the enemy column after they “came up on the north of the hill” Riplah and started down the canyon leading to the Rio Grijalva or Sidon river, while Lehi’s men were chasing the enemy down to the east side of the river valley and into and across the river.

The details of the text’s “up,” “south,” “north,” “east,” and “west”; the order of the deployment of Moroni’s troops; and the appropriate timely information from the “spies” appear to correspond completely to the needs imposed by the terrain.

Conclusion

It has been shown that by assuming that the seas' names (i.e., *east sea*, *sea east*, etc.) are not meant to be statements of local direction but rather the names of the oceans, that the events described in the text took place in Mesoamerica, and that the directions stated in the text are to be understood as commonly used in the English vernacular, we get a consistent internal text-geographical model of the Manti-Sidon-Zarahemla area.

A modern physical area has been identified as a candidate for Manti near the Mexico-Guatemala frontier on the high end of the north side of the Continental Divide. This area appears to correspond completely to our construction of the terrain from the internal text model.

The completeness of the correlation between the topology of the southern end of the Grijalva (San Miguel) River Valley to that of our understanding of the Sidon River Valley described in the Book of Mormon suggests that there is a reasonable probability that they may be one and the same. We feel this possibility is compelling enough to move on to the next step by beginning a rigorous archaeological investigation to determine the dates and characteristics of the ancient inhabitants of the area.