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## The Usumacinta/Sidon Correlation

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On November 5, 2011, the afternoon session of the 9th annual Book of Mormon Archaeological Forum (BMAF) "Lands of the Book of Mormon" conference held at the Sheraton Hotel in downtown Salt Lake City focused on the river Sidon. Presenters advocated for both the Grijalva and the Usumacinta rivers. I participated in the panel discussion after the presentations. Doug Christensen, BMAF webmaster, asked me to author a piece summarizing the Usumacinta position. What follows is an online version of the article I wrote for Doug to publish as part of the conference proceedings.

## The Usumacinta/Sidon Correlation

(Kirk Magleby, last updated 04/18/2013)

The New World portions of the Book of Mormon text do not contain unambiguous geographical referents. Therefore, the problem of correlating Nephite writings with the modern map requires best fit analysis. It is much more like a multivariate calculus problem than a simple linear algebraic equation. Accurate textual exegesis is critical because, ultimately, one can correlate Book of Mormon toponyms with any number of geographies based on how one interprets certain scriptural passages. Book of Mormon students who correlate the river Sidon with the Usumacinta are simply saying they read the text in such a way that the largest river in Mesoamerica (southern Mexico and northern Central America) and one of the 50 largest rivers in the world best fits their interpretation.

Consider one question that illustrates the nuances and complexities involved: Were the city and land of Ammonihah west or east of the Sidon? A cursory, proof-texting approach would reason:

- The land of Melek was west of the river Sidon Alma 8:3.
- The city of Ammonihah was 3 days travel (approximately 45 air kilometers – see the article “Land Southward Travel Times” in this blog) north of the land of Melek Alma 8:6.
- The river Sidon flowed generally from south to north (see the article “River Sidon South to North” in this blog).
- Therefore, the city and land of Ammonihah were west of the river Sidon.

Students of the text who subscribe to this interpretation envision a map (click to enlarge) that looks more or less like this:



Hypothetical map showing Ammonihah north of Melek

The base map in this illustration is an image from Google Earth showing the Mississippi River between Hannibal, Missouri, on the south and Argyle, Iowa, on the north. This interpretation of Ammonihah west of the river because Melek is west of the river has been conventional wisdom in LDS circles for decades. In fact, it is so entrenched you will find it in the index to the 1981 LDS edition of the triple combination. (See index entries for "Ammonihah, City of" and "Ammonihah, Land of".) Note: the 2013 LDS edition thankfully removed the wording "to the west of river Sidon" from the index entry for "Ammonihah, Land of."

But, rivers do not run in straight lines and they certainly do not follow cardinal directions. Using the simplistic logic outlined above, we could go 15 kilometers east of Argyle, Iowa and propose the following:

- Nauvoo, Illinois, is east of the Mississippi River.
- Many cities in the state of Iowa are north of Nauvoo.
- The Mississippi River flows in a general north to south direction.
- Therefore, the state of Iowa is east of the Mississippi.

Of course, this is utter nonsense. Such absurdity fails to take into account the fact that Nauvoo is right on the river which is flowing generally southwesterly when it reaches this point in its course.



Relative locations of Missouri, Iowa, and Illinois  
in the tri-state area near Nauvoo

So, if one can't trust simple little east-west north-south syllogisms, how will we ever figure out The Book of Mormon map? We must read the text with precision and consistency, the same way Mormon and the other Nephite authors wrote it.

For example, how far west of the river Sidon was the land of Melek? Could it have been 50 or 100 kilometers west of the river? No. It was right on the river. The text describes 8 places as either east or west of Sidon (there are no references to any places north or south of the river):

1. Hill Amnihu was east of Sidon Alma 2:15.
2. The land of Zarahemla was west of Sidon Alma 2:15.
3. The battlefield where Alma<sup>2</sup> slew Amlici was west of Sidon Alma 2:34.
4. The valley of Gideon was east of Sidon Alma 6:7.
5. The land of Melek was west of Sidon Alma 8:3.
6. The south wilderness where Zoram<sup>2</sup> intercepted the Lamanites was east of Sidon Alma 16:6.
7. The valley south of Manti where Moroni<sup>1</sup> met Zerahemnah was west of Sidon Alma 43:27.

8. The valley south of Manti where Lehi<sub>2</sub> fought Zarahemnah's army was east of Sidon Alma 43:53.

In 7 of the 8 cases, contextual reading makes it clear that the geographic referent was right on the river. Decades of research show that Mormon and the other Nephite authors were remarkably consistent in their use of certain deliberate word patterns ("round about" and "encircle about" for instance). Royal Skousen calls this "systematic phraseology." Therefore, we can assume that the land of Melek adjoined the river just as the lands of Zarahemla, Minon, Gideon and Manti did. Throughout recorded history, national and regional polities for obvious reasons frequently border major rivers.

The Book of Mormon text contains several indicators that consistently place Ammonihah east of Sidon.

- Where was Nehor going when he slew the elderly Gideon? He was going to preach to his followers, those who had joined his church Alma 1:6,7.
- Where were Nehor's followers located? The Nehorites lived in the land of Ammonihah Alma 14:16 – 18, Alma 15:15, which was also called "Desolation of Nehors" Alma 16:11.
- Where did Gideon settle when he came with Ammon<sub>1</sub> & King Limhi down from the land of Nephi into the greater land of Zarahemla? Gideon settled the city and valley of Gideon Alma 2:20, Alma 6:7 which were named after him according to the Nephite pattern described in Alma 8:7.
- The valley of Gideon is explicitly east of Sidon Alma 6:7, so Nehor was headed east toward Ammonhiah when he murdered Gideon. Thus, Ammonihah was east of Sidon, beyond Gideon.

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- Nehor's execution did not put an end to his apostate and seditious belief system. The Nephites' arch nemesis, Amlici, succeeded Nehor, built up Nehor's church, and had himself consecrated king Alma 2:1-2, Alma 2:9. The Nephites divided into two groups: Nephites and Amlicites Alma 2:11. This was one of the reasons Amulek in Ammonihah announced to Alma<sub>2</sub> "I am a Nephite" Alma 8:20. See point #27 near the end of this article for additional information about the Amlicites that is germane to this discussion.

- When the Amlicites came to battle against the Nephites, they came from the east Alma 2:15-17 before crossing the river Sidon and joining with their Lamanite allies in the land of Minon west of the river Alma 2:24.
- Again, Ammonihah, locus of Amlici's power base, was east of Sidon.

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- After being rejected at Ammonihah, Alma<sup>2</sup> took his missionary journey toward the city of Aaron Alma 8:13 which was near Nephihah and Moroni Alma 50:14.
- Moroni was on the east coast Alma 50:13, in the southeast corner of Nephite territory. I'll not lay out the entire geography of the Nephite east coast at this time, but the basic internal map of the region was structured like this:

		City of Bountiful
		City of Mulek
	Land of Jershon	City of Gid
	Land of Antionum	City of Omner
	Land of Siron	City & Land of Morianton
		City & Land of Lehi
City of Aaron	City, Land & Plains of Nephihah	City & Land of Moroni

- Once again, Ammonihah, associated with Aaron, was east of Sidon.

The Ammonihah/Aaron/Nephihah/Moroni relationship is logical and can be reconciled with every textual reference when all 4 polities are east of Sidon.

Ammonihah and Sidom were not far from each other Alma 15:1. After organizing a church in Sidom Alma 15:13 Alma & Amulek returned to Alma's house in the local land of Zarahemla. They "came over" from Sidon to Zarahemla Alma 15:18. In the text the word "over" in a geographic context refers to a barrier to be crossed such as a mountain range or river. The local land of Zarahemla was west of Sidon, so the thing Alma & Amulek came over must have been the river. This same terminology is found in Alma 35:13 where the people of Ammon (aka people of Anti-Nephi-Lehi) indisputably came over Sidon to get from Jershon in the east Alma 27:22 to Melek west of the big river Alma 8:3. This is yet another indication that Ammonihah and Sidom were east of Sidon.

Here is one proposed map that shows the relationships:



Proposed Nephite east coast polities in relation to Ammonihah

Note how the river Sidon (Usumacinta) flowing past the Land of Melek on this map runs northwesterly in this portion of its course which nicely accommodates the city of Ammonihah (El Hormiguero II) three days travel to the north while keeping Ammonihah east of Sidon as the text requires.

The hoary tradition that puts Ammonihah west of Sidon is so problematic and contradictory that the editors of the 1981 edition of The Book of Mormon had to settle for a clumsy improvisation to make it fit the text. In the index to the triple combination, they suggested that perhaps there were two cities of Aaron (see index entry for "Aaron, city of"), two cities of Nephihah (see index entry for "Nephihah, city of") or both! Note: the 2013 LDS edition thankfully removed the wording "possibly two cities by this name" from the index entry "Nephihah, city of." Most attempts to correlate New World geographies with The Book of Mormon do this kind of egregious violence to the text. The "two city" idea offends reason and is highly unlikely, but many proposed text to map correlations commit far worse blunders, even going so far as to say that certain textual verbiage should be considered figurative and metaphorical rather than literal. In contrast, students of the Nephite scripture who embrace the Usumacinta/Sidon correlation assert that when one reads the record precisely in historical context, the text and the modern map fit together like a hand in a glove.



Here is a simplified map showing likely Nephite lands and cities in the greater land of Zarahemla mentioned in the text during the time period ca. 200 B.C. to ca. 67 B.C. Some map notes:

- The rivers traced in red form the Usumacinta (Sidon) drainage basin which empties into the Gulf of Mexico.
- The various rivers traced in yellow flow eastward into the Caribbean.
- The mountainous green band represents the narrow strip of wilderness that separated the greater land of Zarahemla on the north from the greater land of Nephi on the south.
- The head of Sidon was in the narrow strip of wilderness.
- As with all graphics on this blog, [click to enlarge](#).



Simplified map of likely Nephite lands ca. 67 B.C.

When the Sidon is the Usumacinta as the previous map indicates, the text and the map fit together like a jigsaw puzzle. Every “up”, “down,” and “over into” work with the topography. Every reference to north, south, east, or west makes sense without having to forcibly skew the compass. Relative distances are plausible. Rivers play a major role in settlement and travel patterns as one would expect. There are hills where there should be hills and many embedded wilderness areas just as the text requires. Every narrative in the relevant parts of The Book of Mormon plays out logically in this setting. We don't have to speculate about two cities of Aaron or two lands of Bountiful. Hundreds of scriptural passages with precise readings and contextual nuances can be quickly vindicated by anyone who learns to use the formidable power of geographic information



systems such as Google Earth. With the Usumacinta/Sidon mental map as our frame of reference, every passage in the text becomes clear, even approaching Nephi's high standard of "plainness in the which ... no man can err" 2 Nephi 25:7.

If the text says "up," we calculate vertical rise. If the text says a land or city had a "wilderness side," we look for a topographic feature obvious enough to show up in satellite imagery. If the text says one had to cross "over" something, we look for a mountain or river barrier. If the text says someone traveled "round about," we look for some degree of circularity in their route. If the text says "north," we expect a heading in the neighborhood of 360 degrees true north. If the text says "northward" we are more lenient in the directionality, but a heading of 270 degrees (due west) will not work. If the text says some person or group "took their journey," we expect travel beyond a day trip. In other words, we take the text at face value and try to understand it in clear historical context with occasional variant readings implying multiple correlation alternatives. And the end result? The degree of fit between the text (our interpretation) and the Usumacinta/Sidon correlation as rendered in Google Earth approaches 100%.

With all this emphasis on accurate readings of the text, which text should we use? The original and printer's manuscripts, 1830 Palmyra, 1837 Kirtland, 1840 Nauvoo, 1879 Liverpool, 1920 Salt Lake City and 1981 Salt Lake City editions are all different. Furthermore, Mormon himself was not perfect as his son, Moroni, readily acknowledged Mormon 9:31. See the article "Scribal Error" in this blog for examples of known problems in the 1981 LDS text that all would-be Book of Mormon geographers must take into account. The best text for careful exegesis is Royal Skousen's 2009 Yale University Press edition entitled *The Book of Mormon: The Earliest Text*."

I return to my opening statement – The Book of Mormon is not unambiguous in its geographical referents, so an accurate correlation between the Nephite scripture and any contemporary map will come from best fit analysis using multiple imperfect data sets. Our most reliable data source is the text. Other highly reliable sources include various geo-coded spatial data sets rendered in Google Earth. This article summarizes the first serious attempt at a comprehensive correlation between the text (taking into account the emendations suggested by Royal Skousen's critical text) and a powerful geographic information system (in our case, Google Earth). The results are exciting. If our methodology is sound, then the Usumacinta/Sidon correlation is a very good fit, even the best fit depending on one's interpretation of the text.

It is important to note the methodology at work here:

- Read the text with precision, giving the Nephite authors the benefit of the doubt. This means taking their words at face value as they would have been generally understood in Elizabethan (King James) English without applying filters based on semantic or cultural exotica.
- Intuit historical context based on what is explicit as well as implicit in the text.
- Build plausible models that fit this historical context.
- Fit the models to the terrain using a geographic information system (i.e. Google Earth), paying particular attention to mountains and rivers.
- Propose correlations based on the models with the best fit.
- Test the proposed correlations rigorously against the text.
- Identify known archaeological sites with pre-classic and early classic (Book of Mormon time period) occupation layers in reasonable proximity to the proposed correlations.

For modest examples of this methodology at work, see the articles "Hermounts" and "Melek" in this blog. For more sophisticated examples, see the articles "Ammonihah," "Gideon" and "Manti."

It is also important to note what is NOT going on here. We do not begin with some pet archaeological sites and then try to shoe-horn The Book of Mormon text to fit. In the mid 1970's, I was a research assistant to Dr. Paul R. Cheesman of the BYU religion faculty. In those days, Professor Cheesman's office was ground zero for the mind-boggling array of Book of Mormon exotica that has swirled around the Church since the days of Joseph Smith. We had copper plates from Illinois, incised stones from Ohio, slate tablets from Michigan, tiny gold plates from Mexico, lead plates from central Utah, and brass plates, purportedly from Peru, that turned out to actually be from Birmingham, England. One day I was complaining to my boss about the steady stream of fakery and quackery we had to deal with. He turned to me with his irrepressible smile and replied, "They can't all be fakes." In the business world, this kind of unscientific naiveté has spawned a number of colorful metaphors:

- Kiss enough frogs and you are bound to find a prince.
- Throw a bunch of stuff on the wall and see what sticks.
- Raise the flag and see who salutes.

In the world of Book of Mormon New World geographical correlations, we find similar attitudes that remind one of Nibley's stern warnings in his classic 1975 essay "Zeal without Knowledge". In the study/faith dichotomy characteristic of mortality (D&C 88:118, D&C 109:14) most ardent Book of Mormon students err on the side of too little study:

- Here is a long, skinny place on the map, so the narrow neck of land must be Panama, or Baja California, or the Niagara Falls area, or the Rivas Isthmus in Nicaragua, or the Nicoya Peninsula in Costa Rica.
- Here are a whole bunch of archaeological sites dating to Book of Mormon times, so they must be related somehow.
- Here is a curious artifact, a cultural outlier that somehow supports The Book of Mormon.
- Here is an old Indian legend that obviously ties in with The Book of Mormon in some way.
- Here we find advanced metallurgy, just as The Book of Mormon describes.
- Here is a prophecy that obviously refers exclusively to one modern nation.
- Here is a place name on the modern map that sounds like a word in The Book of Mormon.
- The BYU New World Archaeological Foundation (NWAf) has been excavating in Chiapas since the 1950's. Elder and then President Howard W. Hunter visited their projects many times, so the sites they have worked must have some connection.

In his excellent 2011 article, "Revisiting A Key for Evaluating Nephite Geographies," John E. Clark argues persuasively that we don't start with artifacts or sites or maps or prophecies of any particular place. We start with the text and then build internal models that reconcile back to the written record. The text is primary. There are multiple models because the Nephite nation was a very different geographic entity in ca. 200 B.C. when Mosiah<sup>1</sup> discovered Zarahemla than it was in ca. 65 B.C. during the Nephite territorial maximum or ca. 34 B.C. when Lamanites began permanently displacing Nephites from their traditional homelands. When our models overlay the terrain successfully, then and only then are we ready to examine the relevant archaeology. The Usumacinta/Sidon correlation follows this recommended methodology.

The Usumacinta/Sidon theory rests on four key assumptions:

- The New World portions of The Book of Mormon took place in Mesoamerica. Anyone who questions this fundamental tenet is advised to consult John L. Sorenson's forthcoming (September, 2013) magnum opus *Mormon's Codex: An Ancient American Book* (Provo, Utah: Maxwell Institute & Deseret Book) which in 800+ heavily footnoted pages details over 400 significant points of tangency between the text and the region comprised of southern Mexico and northern Central America.
- The working consensus map currently circulating among Mesoamericanist Book of Mormon scholars is reasonably accurate (See the article "The Book of Mormon Map as of September, 2011" in this blog):
  - Ramah/Cumorah is in the Tuxtla Mountains of southern Veracruz.
  - The Isthmus of Tehuantepec is in the general vicinity of the narrow neck of land separating the lands northward and southward.
  - The land of Nephi is in highland Guatemala with Kaminaljuyú as a leading candidate for the city of Nephi.
- The catastrophism that occurred at the Savior's death came from volcanoes, earthquakes, hurricanes, tornadoes, tsunamis, mudslides, ground subsidence and other natural phenomena that caused widespread local destruction but did not significantly alter the continental land mass. Evidences from the text and from geology are conclusive that coastlines and plate tectonic configurations have changed little from earliest Book of Mormon times to the present.
- The Jaredite civilization described in The Book of Mormon is roughly analogous in time and space to Mesoamerican Olmec culture, although the Jaredites must be seen as a subset of the Olmec (see the blog article entitled "Book Notice - Exodus Lost by Stephen C. Compton" for information about a persuasive treatment of Egyptian Fifteenth Dynasty (Second Intermediate Period) influence on the Olmec and subsequent Mesoamerican civilizations).

Only two Mesoamerican rivers have been seriously considered as candidates for the Sidon. The Grijalva is known as the Rio Grande de Chiapas during part of its course and in Tabasco it is generally called the Mezcalapa. See the article "Wandering River" in this blog for fascinating background on the Mezcalapa-Grijalva. The Usumacinta begins as the Chixoy-Negro which becomes the Chixoy at its confluence with the Salamá, then the Salinas at the Mexican border, and finally the Usumacinta at its confluence with the Pasión. Other major tributaries include the Lacantún, the San Pedro, the Teapa, the Tacotalpa, the Chilapa and the original Grijalva. Tributaries of the Usumacinta include

the Palizada and the San Pedro y San Pablo. Distant tributaries of the Mezcalapa-Grijalva and the Usumacinta pass within a few kilometers of each other near Huehuetenango, Guatemala, and ever since a man-made diversion in 1675, the Mezcalapa-Grijalva at Villahermosa, Tabasco flows into the original Grijalva which is itself a tributary of the Usumacinta. So, in modern times both rivers share a common mouth at Frontera, Tabasco. The two rivers are very different, though, in many ways as the article “Sizing up the Candidates” in this blog demonstrates. Any evidence, therefore, that the Mezcalapa-Grijalva is unlikely to be the Sidon should be seen as evidence favoring the Usumacinta and vice-versa.

In the map below, the Usumacinta & some of its tributaries are in red. The Mezcalapa-Grijalva (as it flowed in early Nephite times) & some of its tributaries are in blue. The two respective drainage basins are in white. Other major rivers in southern Mesoamerica are in yellow.



The Mezcalapa-Grijalva in blue and the Usumacinta in red with their respective drainage basins

Largely due to the prodigious efforts of John L. Sorenson, the Mezcalapa-Grijalva/Sidon correlation enjoyed most-favored theory status within the LDS community from about 1975 to 2000. The article, “Book of Mormon Lands 1830 – 1985,” in this blog explains some of the history behind this correlation and its rise to prominence. The article, “Book of Mormon Lands 1986 – 2011,” describes some of the reasons why the Usumacinta/Sidon correlation has been gradually gaining momentum in recent years. In a nutshell, the Grijalva theory has been around for decades and many people have found

it unpersuasive, requiring too many improbable textual accommodations, so they are re-examining the older (Louis Edward Hills advocated an Usumacinta correlation in 1917) alternative.

With that background, here are 28 reasons (with the numbers 1 - 28 highlighted in aqua) why a growing number of Book of Mormon scholars now favor the Usumacinta as the river Sidon:

1. Mulek's transoceanic voyage made landfall in the land northward Helaman 6:10 but his colony did not remain there long. At the time Mosiah<sup>1</sup> discovered them, ca. 200 B.C., the people of Zarahemla had occupied the same general area in the land southward for centuries Omni 1:16. The text indicates that the people of Zarahemla lived on the periphery of the declining Jaredite nation, not near the earlier civilization's culture core. See the blog articles "Asking the Right Questions" and "Water Fight on the River – Round One." A map of known Olmec locations shows 28 sites in the Mezcalapa-Grijalva drainage basin. The much larger Usumacinta basin has only 5 Olmec sites. Furthermore, recent excavations directed by BYU's Bruce R. Bachand show that Chiapa de Corzo in the central depression of Chiapas was a powerful regional Olmec (Zoque) center from ca. 900 B.C. to ca. 400 B.C. See the blog article "Zoque Sites." It was upriver from La Venta, then the Olmec capital. See the blog article "Wandering River" for data showing that the Mezcalapa-Grijalva River emptied into the Blasillo & the Tonalá (as the map below shows) in early Book of Mormon times. Conclusion: The nature of the Jaredite/Mulekite relationship described in the text fits better in the Usumacinta river basin.



Olmec and Olmec-influenced sites in the Mezcalapa-Grijalva and the Usumacinta river basins



2. When ocean-going voyagers settle a new land, where are they most likely to site their principal city? Dozens of examples throughout history show that the coastal plain, along a major river, downstream from the fall line is prime territory. Newly-arrived colonists tend to maintain their maritime culture for generations. The Mezcalapa-Grijalva is problematic in this regard because the river has moved around a great deal in its coastal plain since Book of Mormon times. See the article “Wandering River” in this blog. The Usumacinta, on the other hand, is a mature river whose course has remained fairly constant for millennia. Most adherents of the Mezcalapa-Grijalva correlation place the city of Zarahemla in the central depression of Chiapas. The most often-mentioned candidate is John L. Sorenson’s suggestion – the site of Santa Rosa south of the river (now submerged under the waters behind Angostura Dam). If the Mulek colony settled at Santa Rosa, they followed more or less this scenario:

- Make landfall near the mouth of the Papaloapan River in southern Veracruz;
- Coast southward to the mouth of the Coatzacoalcos;
- Sail up the Mezcalapa-Grijalva-Tonala (at this point in time, they were all the same river) past the Olmec site of La Venta;
- Abandon the ship – the river is no longer navigable;
- Move several hundred kilometers inland;
- Skirt around the impassable Sumidero Canyon;
- Pass by the flourishing Olmec (Zoque) regional center Chiapa de Corzo;
- Build Zarahemla on the south bank of the Mezcalapa-Grijalva near many Mixe-Zoque settlements.

An astute observer naturally questions why would they go to all this trouble? What was so compelling about the upper Mezcalapa-Grijalva in the central depression of Chiapas?

Now consider V. Garth Norman’s suggestion that the city of Zarahemla is one of the pre-classic sites west of the middle Usumacinta in the general vicinity of Palenque. The large double site complex of Nueva Esperanza II & Calatraba is a leading candidate. If the Mulek colony settled at Nueva Esperanza II, they followed more or less this scenario:

- Make landfall near the mouth of the Papaloapan River in southern Veracruz;
- Coast southward to the mouth of the Coatzacoalcos;
- Coast eastward to the mouth of the Mezcalapa-Grijalva-Tonala;

- Sail up the Usumacinta past the wetlands to higher ground;
- Dock the ship;
- Build Zarahemla on the west bank of the still navigable Usumacinta River, upstream from the permanent flood plain but downstream from the fall line (Boca del Cerro near Tenosique, Tabasco).

The text, logic, and abundant historical precedent favor the far simpler and more likely Usumacinta scenario. See the blog articles “Asking the Right Questions” and “Water Fight on the River – Round Two.”



Two candidates for Zarahemla shown relative to the head of navigation on their respective rivers

3. The Book of Mormon text is quite clear that the Mulek colony founded their city, Zarahemla, in a wilderness. See the articles “Asking the Right Questions” and “Water Fight on the River – Round Three” in this blog. The text uses the term “wilderness” over 200 times in a variety of contexts, so careful exegesis is vital. See the blog article “A Note about Wilderness.” Wilderness does imply limited human populations and that is a metric Google Earth can map. Relative population density data from the Earth Institute at Columbia and NASA satellite images of earth’s lights at night give us a good idea of contemporary population levels in a given area. The Electronic Atlas of Ancient Maya Sites (EAAMS) is a geo-coded database of over 6,000 known archaeological sites in southern Mesoamerica. The EAAMS project is closely affiliated with the Middle American Research Institute (MARI) at Tulane. Plotting EAAMS sites spatially gives us a good idea of settlement patterns in antiquity. If an area of interest has a sparse

contemporary population and few archaeological sites, that area is a prime candidate for Book of Mormon wilderness. These techniques demonstrate empirically that the middle Usumacinta fits the text much better than does the upper Mezcalapa-Grijalva.



Relative population densities and archaeological site distributions along the two rivers

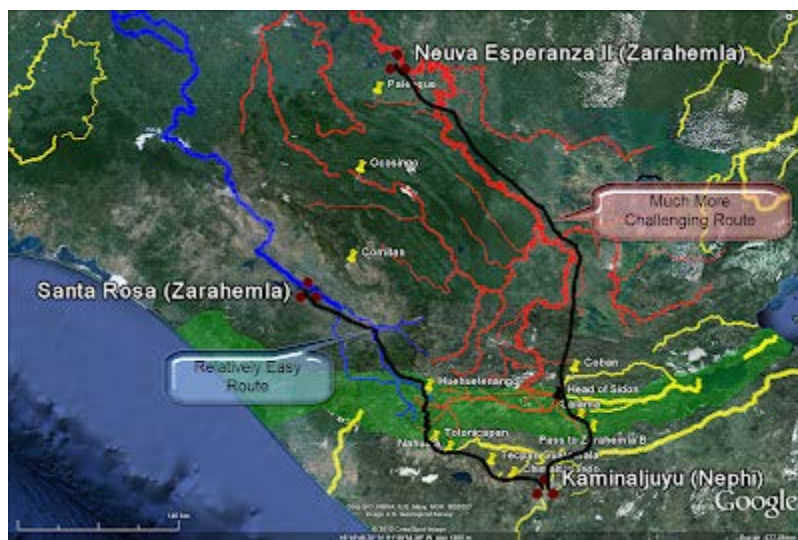
4. Several hundred years elapsed from the time the Mulek colony founded Zarahemla until Mosiah<sub>1</sub> led a mass migration of Nephites north to the lowlands and discovered them ca. 200 B.C.

**Question:** What was the nature of the relationship between the two groups during all those centuries?

**Answer:** They had no relationship. They were unaware of each other's existence. See the articles "Asking the Right Questions" and "Water Fight on the River – Round Four" in this blog. If Nephi is Kaminaljuyú in highland Guatemala and Zarahemla is Santa Rosa in the central depression of Chiapas, this complete isolation for centuries simply does not work. Can you get from Guatemala City to Chimaltenango to Tecpan, Guatemala, to Nahuala to Totonicapan and then on up to Huehuetenango? Yes you can, quite easily. Today, you follow the Pan American Highway – Central America

1. The ancients used somewhat different routes between waypoints, but this was a well-travelled road through heavily-populated country in Nephite times. And from Huehuetenango? You follow the Selegua River that flows along the southern edge of town and it's a straight shot downstream right into Santa Rosa. The Nephites ca. 400 B.C.

had already expanded far beyond the local land of Nephi Jarom 1:6, Jarom 1:8. The people of Zarahemla were also increasing their numbers dramatically Omni 1:17. It strains credulity to think these two peoples could have remained in complete isolation for over 350 years when travel between them was commonplace. On the other hand, if Zarahemla is located west of the middle Usumacinta, The Book of Mormon text makes perfect sense. Even today, if you want to go from Guatemala City to Emiliano Zapata, Tabasco, you will probably take the Pan American Highway past Huehuetenango to Comitán, Chiapas (a mere 40 air kilometers from the submerged site of Santa Rosa), before dropping down into the jungle to Ocosingo and then on to Palenque and beyond. The Nephites and Lamanites would have gone down the Motagua River valley, up over a pass in the Sierra de las Minas into the Salamá Valley, and then over past Cobán and from there into the howling jungle of the Usumacinta basin (the name “Usumacinta” means “howler monkey” in one of the Mayan dialects). One small example illustrates how tough this country can be. The Spaniards, no wilting violets they, subdued most of Guatemala between 1524 and 1530. Even though Hernán Cortés himself went through the Petén jungle area with a large military force in 1525, the Itza Maya around Lake Petén Itza were not conquered until 1697. On the other side of the Usumacinta River, despite numerous punitive military expeditions, the Lacandón were never really subjugated by the Spanish. They were simply assimilated as modernity invaded their jungle fastness. The Usumacinta/Sidon correlation fits the text beautifully. The Mezcalapa-Grijalva/Sidon correlation does not fit the text at all.



Relative travel difficulty between the proposed Nephi and the two candidates for Zarahemla



5. During the reigns of Mosiah<sub>1</sub>, Benjamin and Mosiah<sub>2</sub>, travel between the lands of Zarahemla and Nephi was sporadic and unpredictable. Many groups got lost. See the blog articles “Asking the Right Questions” and “Water Fight on the River – Round Five.” In which of the two river basin environments under consideration were groups of travelers more likely to get lost? Consider these ten factors:

- How many people lived along the travel route? Groups were less likely to get lost if they encountered people living along the way.
- How evenly distributed were the human populations along the travel route? Groups were less likely to get lost if there were fewer pockets of wilderness en route.
- Could travelers orient to mountain peaks visible on the horizon? Groups were less likely to get lost if they had conspicuous mountain landmarks to follow.
- What was the distance from origin to destination? The shorter the distance, the less likely travelers would get lost.
- How tall was the forest canopy along the travel route? Groups were less likely to get lost if they were traveling through scrub land or savanna rather than dense jungle.
- How dry did it get in the dry season? Groups were less likely to get lost if ground cover receded or died back and paths were not muddy six months out of the year.
- How many rain days were there annually? Groups were less likely to get lost if the sun was shining.
- What was the average annual relative humidity? Groups were less likely to get lost in drier air with greater long-range visibility.
- How swift was the current? Groups were less likely to get lost if it was always obvious which direction the water was flowing in a river channel.
- How wide was the flood plain? The fewer swamps and lagoons alongside a river, the less likely travelers would get lost.

All ten of the factors described above can be measured using spatial data sets rendered in Google Earth. In all ten cases, travelers are less likely to get lost going from highland Guatemala to the central depression of Chiapas and more likely to get lost going from highland Guatemala to the middle Usumacinta. The Usumacinta/Sidon correlation is a decisively better fit to the text.

6. During the Nephite/Lamanite wars in the first century B.C., Lamanite armies staged multiple surprise attacks on Nephite cities before the Nephites could muster their troops and mount a defense. See the blog articles “Asking the Right Questions” and “Water Fight on the River – Round Six.” In which of the two river basin environments under consideration could a large invading infantry army have more easily evaded detection? Consider these five factors:

- Population en route. The fewer the number of people along the way, the easier it would have been to avoid detection.
- Population distribution. The more pockets of wilderness along the way, the easier it would have been to remain hidden.
- Ground cover. An army traveling through jungle was more likely to escape notice than one traveling through relatively open country.
- Established roads. The fewer the well-traveled paths, the more likely travelers would have gone unnoticed.
- Lookout points. The fewer the high places with wide-ranging views, the more likely an army could have passed without being spotted by a sentry.

Google Earth, with appropriate specialized spatial data sets, can help us empirically analyze these five factors. In all cases, an army is more likely to travel hundreds of kilometers undetected by its enemy in the Usumacinta basin than in the Guatemalan highlands and the central depression of Chiapas. The Usumacinta/Sidon correlation better fits the text.

7. The Book of Mormon text has dozens of indications that the Nephites in Zarahemla and the Lamanites in Nephi spoke the same language. See the articles “Asking the Right Questions” and “Water Fight on the River – Round Seven” in this blog. If the Lamanites were in highland Guatemala in 90 B.C. as most LDS Mesoamericanists believe they were, they were probably speaking some form of Mayan. If the Nephites were living in the central depression of Chiapas at the same time period, they were most likely speaking Zoque. On the other hand, if the Nephites were living in the Usumacinta river basin in 90 B.C., Mayan would have been the principal oral folk language in their environment. The Nephites did maintain an esoteric scribal tradition based on imported Near Eastern languages Mormon 9:32, but that was not their quotidian tongue. A scenario where the Lamanites were primarily the late pre-classic highland & lowland Maya and the Nephites were an ethnically & religiously distinct group within the late pre-classic lowland Maya



fits comfortably with the text. A contrary scenario where the Nephites were an ethnically & religiously distinct group within the late pre-classic Zoque does not work with the text. The Usumacinta has always been the quintessential Maya river. The Mezcalapa-Grijalva, on the other hand, was a Zoque river along much of its length during Book of Mormon times. See the blog article "Linguistic Littorals." The Usumacinta/Sidon correlation better fits the text.

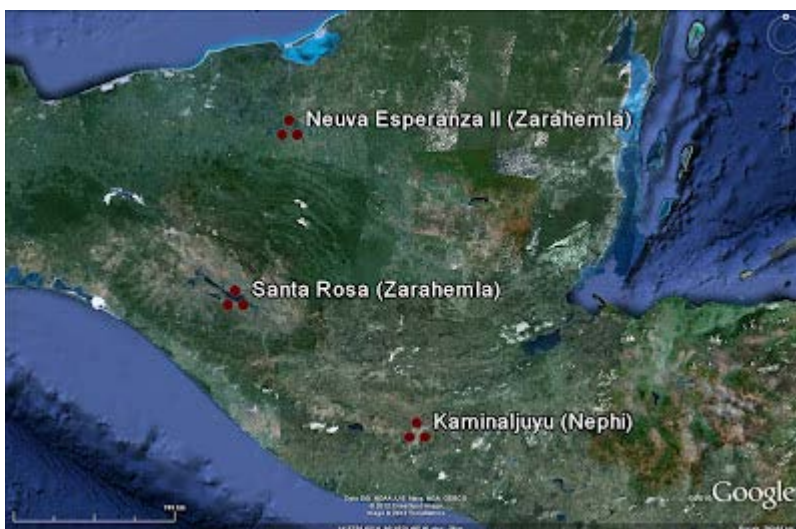
8. The Book of Mormon gives no indication that the Nephites were linguistically partitioned like modern Switzerland, Canada or Belgium. According to the text, people on both sides of the river Sidon had no trouble interacting linguistically, culturally or politically. See the blog articles "Asking the Right Questions" and "Water Fight on the River – Round Eight." The Usumacinta river basin fits this scenario. Some dialect of Proto-Mayan or Mayan was spoken throughout most of the region during Book of Mormon times. The Mezcalapa-Grijalva river, on the other hand, once it left the Guatemalan highlands, was a significant linguistic and cultural littoral during much of The Book of Mormon time period. Oto-Manguen (Zapotec) and Mixe Zoquen (Mixe, Zoque & Popoluca) languages and cultures predominated south, west and to a certain extent east (in later time periods) of the river. La Venta, which is now known to have shared large numbers of cultural affinities with Chiapa de Corzo, was likely a cosmopolitan linguistic melting pot in the 600 – 400 B.C. era. See Bruce R. Bachand, "Chiapa de Corzo: Rise of a Zoque Capital in the Heart of Mesoamerica" in *Popular Archaeology*, Vol. 3, June 2011. Keep in mind that in Book of Mormon times, the Mezcalapa-Grijalva River emptied into the Gulf of Mexico where the Tonalá River runs today. It flowed right past both Chiapa de Corzo and La Venta. See the blog article "Wandering River." The Maya area was culturally and linguistically miscible to a large degree, which makes the Usumacinta/Sidon correlation a better fit to the text.

9. The Book of Mormon text is scrupulously consistent in its use of the elevation prepositions "up" and "down". Nephi was up, Zarahemla was down, and wilderness lay at an intermediate elevation between them. The only time one goes down to Nephi is from the very elevated hill north of Shilom Mosiah 7:6 which was en route between the Lamanite and Nephite capitals. See the articles "Asking the Right Questions" and "Water Fight on the River – Round Nine" in this blog. The relative elevations of Nephi, the wilderness, and Zarahemla are shown as stair steps in this handsome illustration by Fernando Vazquez, graphics artist of Puebla, Mexico:



Relative elevations of Nephi, Zarahemla,  
and the wilderness in between

Kaminaljuyú in highland Guatemala, the leading candidate for the city of Nephi, sits at 1,540 meters elevation. If we can go down from there into the wilderness, and then down again to Zarahemla, our travel will precisely conform to the text. If we have to go up from Nephi into the wilderness, our route will contravene the Book of Mormon text. We will let Santa Rosa in the central depression of Chiapas represent Zarahemla in the Mezcalapa-Grijalva/Sidon correlation and Nueva Esperanza II represent Zarahemla in the Usumacinta/Sidon Correlation. The three key points are shown on this map:



Proposed Nephi with 2 candidates for Zarahemla

Google Earth makes it easy to set a terrain plane at an absolute altitude so only points higher than that elevation project above the plane. We set a plane at 1,540 meters, the precise height of Kaminaljuyú. Territory lower in elevation than Kaminaljuyú is white. Looking at the terrain between Nephi and Zarahemla on the Usumacinta, it is easy to spot a route that is all downhill from Nephi. You go down the Motagua River, over a pass in the Sierra de las Minas, down the Salamá River, over another pass into the Cobán area, and then down the Chixoy/Salinas/Usumacinta river to the Tabascan coastal plain. The general route is shown in yellow on the following map:



Route downhill from the proposed Nephi into the wilderness  
and on down to Zarahemla

If you want to go from Kaminaljuyú to Santa Rosa, though, you have nowhere to go but up. You have to get over the Cuchumatanes massif or the Sierra Madre somehow and that is 500 to 1,500 meters higher in elevation than the terrain around Guatemala City. The central depression of Chiapas is rimmed by high mountains that are impossible to square with The Book of Mormon text if Nephi is indeed where we think it is. In this case of the ups and the downs, the Usumacinta/Sidon correlation is not just a better fit. It is the only fit. The Mezcalapa-Grijalva/Sidon correlation explicitly contradicts the text.

**10.** The Book of Mormon makes it abundantly clear that Zarahemla was north of Nephi. See the blog articles “Asking the Right Questions,” “Water Fight on the River – Round Ten,” and “River Sidon South to North.” Is Nueva Esperanza II north of Kaminaljuyú? Yes. It is on a heading of 339 degrees where 360 is due north, 315 is north west, and 270 is due west. Is Santa Rosa north of Kaminaljuyú? No. It is on a heading of

308 degrees which is west of north west. Buckets of ink have been spilled wrestling with this problem. Is there a “Nephite north” that differs from our contemporary understanding of the term? Were the four quarters mentioned in The Book of Mormon text Mosiah 27:6 not really 90 degree quarters at all, but rather some exotic notion of a flattened X with unequal quadrants? Royal Skousen, whose critical text is an indispensable tool for careful exegesis of The Book of Mormon text, has demonstrated quite convincingly that the words that fell from Joseph Smith’s lips during the translation process were Elizabethan English, the language of Shakespeare and the King James Bible. The ordinary meanings of “north, south, east and west” have not changed from Elizabethan times until today. If we are going to let the text be our primary source for solving the geography puzzle, as John E. Clark, John L. Sorenson, and others insist we must, then Occam’s razor indicates that Mormon’s north equals Shakespeare’s north which equals Joseph Smith’s north. And that implies that the Usumacinta is the river Sidon if Nephi is near modern Guatemala City.



Northerly and westerly headings from Nephi  
to the two candidate Zarahemlas

Keep in mind that this blog article is only a high level summary of the Usumacinta/Sidon material. A great deal more in depth information is available by following the embedded hyperlinks to the other articles referenced. In particular, the article entitled "Water Fight on the River - Round Ten" illustrates several ways we know the ancient Mesoamericans conceived their world as divided into 4 equal quarters aligned to the same cardinal directions we use today.



11. The Book of Mormon indicates that the Nephite worldview placed the local land of Zarahemla more or less in the center Helaman 1:26, 27 of their territory in the land southward, nearly surrounded by water Alma 22:32. See the Book of Mormon Resources blog articles “Asking the Right Questions” and “Water Fight on the River – Round Eleven.” The following map illustrates a plausible interpretation of that concept. The green band represents the mountainous narrow strip of wilderness that separated Nephite and Lamanite polities. The blue river is the Mezcalapa-Grijalva with its principal tributary, the Selegua. The red river is the Usumacinta with its principal tributaries, the Chixoy Negro, Chixoy and Salinas. The yellow circle represents roughly the maximum extent of Nephite-held territory at their political apogee ca. 65 B.C.



One concept of centrality within Nephite-held territory, ca. 65 B.C.

If the narrow neck of land is near the Isthmus of Tehuantepec, the Sierra de las Minas is the eastern part of the narrow strip of wilderness, and the Caribbean is the east sea, then the circle above is an approximate representation of Nephite-held territory in the political golden age of Parhoran (critical text orthography), Helaman<sub>1</sub> and Moroni<sub>1</sub>. It is obvious that the Usumacinta (red) is much more centrally-located in this sphere than the Mezcalapa-Grijalva (blue). Yet again, the Usumacinta/Sidon correlation better fits the text.

12. The Book of Mormon records the curious incident of the Zeniff colony returning back up to the lands of Shilom and Nephi soon after Mosiah<sub>1</sub> led his mass migration down to Zarahemla. Once back in the highlands, it didn't take Zeniff and his subjects long to realize the enormity of their imprudence. See the articles “Asking the Right

Questions” and “Water Fight on the River – Round Twelve” in this blog. Why did several thousand Nephites follow Zeniff from their new homeland back to war and eventual bondage as a persecuted minority in their ancestral territory? Let’s consider the reasons people pack up and move:

- Economic opportunity. The text offers no justification for this motive. Mosiah 9:9 says that the Zeniff colonists were prosperous, but Mosiah 2:31 says the same thing about the Nephites who remained back with Mosiah<sub>1</sub> and Benjamin in Zarahemla. The Book of Mormon describes income inequality Mosiah 4:24, Alma 32:2, 3 among the Nephites, but never unemployment or economic depression on a macro level. National prosperity was the Nephite norm Jarom 1:8, Alma 1:29. Good land available for homesteading could not have been a factor. The local land of Nephi had been intensively occupied and built up for centuries, and Zeniff had to displace Lamanites who had moved in and taken over immediately after the Nephite exodus Mosiah 9:7.
- Family ties. This one makes no sense, either. When the Nephites left the land of Nephi en masse ca. 200 B.C., departure was strictly voluntary Omni 1:13, so the family groups who wanted to stay together were able to do so. The text makes it clear that Zeniff’s two trips back to Nephi disrupted many family relationships Omni 1:30, Mosiah 9:2 that would have remained intact had everyone stayed in Zarahemla.
- Natural disaster. There is no evidence in the text suggesting this motive.
- Violence. The text describes many wars fought by the pre-exilic Nephites in the land of Nephi Enos 1:24, Jarom 1:7, Omni 1:2, Omni 1:10. Mosiah<sub>1</sub> was divinely warned to flee Omni 1:12 the numerically superior Lamanites Jarom 1:6 who were constantly threatening to exterminate the Nephites Enos 1:20. Upon arriving in their new home, the Nephites were warmly welcomed by Zarahemla and his people Omni 1:14. So, it seems highly counter-intuitive that Zeniff and his followers would so quickly endure a miserable journey Mosiah 9:3 to go back into harm’s way.
- Climate. By process of elimination, this (and Zeniff’s salesmanship) must have been the migrants’ motive. The Guatemala City area is justifiably famous for its cool, temperate high elevation but low latitude climate known locally as “eternal spring.” If Zarahemla were in the hot, muggy tropics that would deftly explain the Zeniff colony’s irrationality. Examining metrics such as average annual relative humidity, annual rain days, mean annual temperature and Koppen climate



classifications, it is clear that the central depression of Chiapas and highland Guatemala are not too dissimilar. The middle Usumacinta, on the other hand, is a jungle climate - hotter and more humid than the mountainous uplands around Guatemala City.

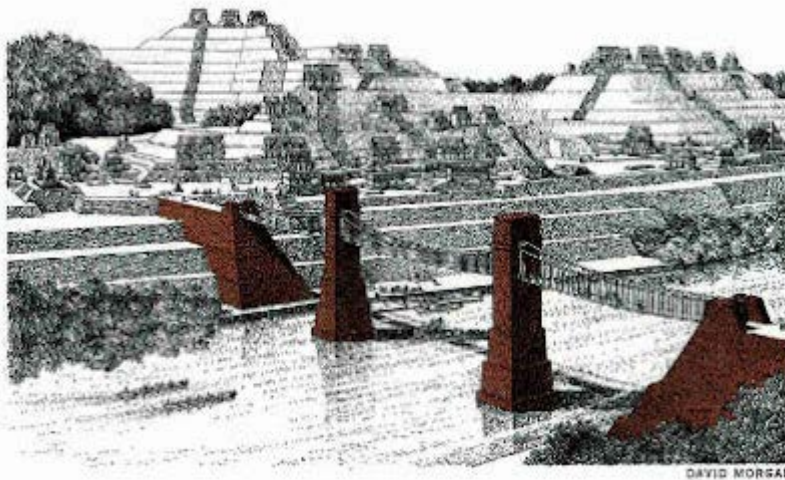
The Usumacinta/Sidon correlation with its less comfortable Zarahemla climate better explains the text.

**13.** According to topographical hints scattered throughout The Book of Mormon, the local land of Nephi was upland and the local land of Zarahemla was lowland. See the blog articles “Asking the Right Questions” and “Water Fight on the River – Round Thirteen.” Kaminaljuyú is in intermontane highlands at 1,540 meters elevation. The central depression of Chiapas is in intermontane highlands at 550 – 700 meters elevation. The middle Usumacinta is in a lowland coastal plain that sits at 5 – 50 meters elevation. The Mezcalapa-Grijalva, even as far downstream as Tuxtla Gutierrez at 400 meters elevation (just before its descent into Sumidero Canyon), is unquestionably in the Chiapas highlands. The Usumacinta, flowing through lowlands in our area of interest, better fits the text.

**14.** The Book of Mormon describes widespread localized destruction through violent hurricanes 3 Nephi 8:6, fires 3 Nephi 8:8, tsunamis 3 Nephi 8:9, volcanoes 3 Nephi 8:10, and earthquakes 3 Nephi 8:14. Nowhere, though, does the text describe a river changing course even though that is a well-attested scriptural motif Moses 6:34, Moses 7:13, D & C 121:33. See the articles “Asking the Right Questions” and “Water Fight on the River – Round Fourteen” in this blog. We know the river Sidon did not change course during Book of Mormon times because the city of Zarahemla was rebuilt in the same place 4 Nephi 1:8 after it burned and the prophet Mormon at 11 years of age visited the local land of Zarahemla Mormon 1:6 which was right on the river Mormon 1:10 where it had always been Alma 2:15. The Usumacinta fits the text on this point. It is a mature river that sometimes spawns new distributaries in the delta, but has not changed course significantly in the Tabascan plains since Book of Mormon times. The Mezcalapa-Grijalva, on the other hand, is a young river that has changed course many times in the last 2,600 years. At the time Mulek and party sailed across the north Atlantic, according to hydrologists in Villahermosa, the Mezcalapa-Grijalva emptied into the Gulf of Mexico where the Tonalá River runs today. This is the border between Tabasco and Veracruz. In 1518, when Juan de Grijalva first sailed along the Tabascan coast, the Mezcalapa-Grijalva

ran in the channel known today as Rio Seco, 100 kilometers east of its course in early Nephite times. Since a man-made diversion between Huimanguillo and Cardenas in 1675 (known locally as "rompido de Nueva Zelandia"), the river now runs into the original Grijalva at Villahermosa and from there joins the Usumacinta to empty into the Gulf of Mexico at Frontera, Tabasco. The mouth of the Mezcalapa-Grijalva today is 160 kilometers east of its outlet in early Nephite times. See the blog article "Wandering River." The geographically stable Usumacinta River better fits the Book of Mormon text.

15. Nephite travel upstream, downstream and across the river Sidon was unremarkable enough that The Book of Mormon never mentions the logistical details. Did they use watercraft? Yes. Did they build bridges? Probably. At European contact, native Mesoamericans had large numbers of canoes, some carrying 30 oarsmen, plying inland and coastal waterways. In many places, canoes were community property, stationed strategically at river crossings to be used by any traveler who came along (like the fleets of bicycles one finds in many European cities today). The natives were also adept at building semi-portable pontoon bridges. The October, 1995 issue of *National Geographic* featured an artist's rendition of a sophisticated 7<sup>th</sup> century Maya bridge across the Usumacinta at Yaxchilán:



Artist's concept of Yaxchilán bridge across the Usumacinta

See James A. O'Kon, "Computer Modeling of the Seventh Century Maya Suspension Bridge at Yaxchilán" in Proceedings of the 2005 ASCE International Conference on Computing in Civil Engineering, Cancun, Mexico. We don't mean to imply that the Nephites built suspension bridges across the Usumacinta. The point is that the Nephites

were so well adapted to their riverine environment The Book of Mormon treats the Sidon as a travel corridor. See the blog articles “Asking the Right Questions” and “Water Fight on the River – Round Fifteen.” Obstructions to movement up and down river are never mentioned in the text. In the Mezcalapa-Grijalva basin, the formidable Sumidero Canyon was such a major impediment to travel that the natives and the Spanish in colonial times journeyed long distances to avoid it. On this point the Usumacinta, which is basically passable downstream along its entire length and upstream along most of its length, is better suited to the text.

16. The Book of Mormon takes a *laissez faire* attitude toward the river Sidon, implying a stream with gentle grades and moderate currents. This casual tone makes sense if that big river is the Usumacinta. It is there. You learn to deal with it. I have visited with many people who live, work and play on and around the Usumacinta. It is as much a normal part of their daily routine as highways are to the average American and they hardly give it a second thought. In contrast, steep grades that create swift, dangerous currents make the Mezcalapa-Grijalva a much more challenging river. The fearsome Sumidero Canyon, now partially tamed by the Chicoasén Dam, claimed the lives of many intrepid river runners even after an elite team from the Mexican army became the first to successfully run it in the 1960’s. Drownings and capsizings in the river were frequent in Spanish colonial times and are not unusual today, especially during flood stage. Even stout tour boats occasionally sink, frustrating the Chiapas state government office of tourism (El Sumidero is the second most visited tourist attraction in Chiapas, after Palenque). The more placid, less dangerous Usumacinta is simply a better fit for the nonchalant tone of The Book of Mormon text. See the articles “Asking the Right Questions” and “Water Fight on the River – Round Sixteen” in this blog.

17. The Book of Mormon, explicitly and through contextual analysis, indicates that the river Sidon ran through a number of wilderness areas. See the articles “Asking the Right Questions” and “Water Fight on the River – Round Seventeen” in this blog. Using specialized spatial data sets, Google Earth can help us identify potential Book of Mormon wilderness areas along the rivers in question. The Usumacinta has a number of excellent wilderness candidates (areas with low contemporary population density and few archaeological sites) along its banks. The Mezcalapa-Grijalva has far fewer excellent wilderness candidates, and along much of its length, none at all. Yet again, the Usumacinta/Sidon correlation is a better fit to The Book of Mormon text.

18. Students of The Book of Mormon have divergent opinions about the size and territorial extent of the Nephite nation in the land southward at apogee (ca. 65 B.C.). Is the text describing a very circumscribed area of 40,000 square kilometers (a little bigger than Maryland), a limited area of 70,000 square kilometers (about the size of West Virginia), or a continental (Caribbean to Pacific) area of 200,000 square kilometers (about the size of Utah)? Increasingly, Book of Mormon scholars are opting for the larger size and identifying the Caribbean coast with the Nephite sea east where we would expect to find a string of Nephite polities from Bountiful on the north to Moroni on the south. See the blog articles “Asking the Right Questions” and “Water Fight on the River – Round Eighteen.” If the Caribbean is not the east sea, then the only other oceanic option in southern Mesoamerica is the Gulf of Mexico which is not east but north of Nephite lands at apogee. If the Caribbean is the east sea, as a straight-forward interpretation of the text indicates to most students, then the Usumacinta is the only viable option for the river Sidon. Belize and southern Quintana Roo are linked topographically to the Usumacinta because their watersheds are adjacent, rising in the same Maya Mountains. They are linked culturally to the Usumacinta because both are part of the lowland Maya area. There was a great deal of late pre-classic (Nephite time period) activity going on in this part of the world. A relevant question becomes: did the Nephites live among the Maya? If the answer is yes, then the Caribbean/east sea correlation makes sense and the Usumacinta must be the river. If the answer is no, then a smaller geographic footprint along the Zoque Mezcalapa-Grijalva becomes a possibility. See the article entitled “Zoque Sites” in this blog for more information about Zoque dominance along the Mezcalapa-Grijalva River during Nephite times. The following map shows known Zoque sites according to Gareth W. Lowe and Bruce R. Bachand. The blue-shaded polygon is the region of south-central Chiapas known as “La Frailesca” where Zoque influence was strong in the late pre-classic.





particularly in its early years, consisted of pockets of settlements surrounded by wilderness.

19. I have made some bold statements about the high degree of fit between the Usumacinta/Sidon correlation and the Book of Mormon text (basically, I maintain that this map derived from V. Garth Norman's Usumacinta model reconciles all of the geographic referents in the text through the Nephite territorial maximum ca. 65 B.C.) If this theory is really true, it will have predictive value. That is, one will be able to forecast outcomes based on this model that will bear scrutiny and eventually prove to be correct. The Chama/Manti correlation that is proving highly persuasive to many people (see the blog article "Manti") was a good example of this process. The model predicted Manti would be found right on the river about 1 day's travel distance (approximately 15 air kilometers - see the blog article "Land Southward Travel Times") north of the narrow strip of wilderness. Intensive textual exegesis allowed postulation of 25 criteria the proposed Manti had to satisfy. When looking (via Google Earth) in the area the model had forecast, I found terrain that matched all 25 points to an astonishing degree. When looking for sites, I found Chama at the confluence of the Sachichaj with the Chixoy that could hardly have fit the model any better. I verified that Chama has a documented pre-classic occupation layer and then published the blog article. Some may call this coincidence. I prefer to call it a reliable model that delivers reproducible results. When a theory works consistently, it has predictive value. Testing the Usumacinta/Sidon model with new postulates produces a string of verifiable results:

- The Usumacinta/Sidon model places the land of Melek west of the Usumacinta between the Lacantún confluence on the south and the Añaite rapids on the north. Why these particular points? Relative distance from the proposed Zarahemla is a major factor. Relative distance from the proposed Ammonihah is another. The Lacantún is the major tributary of the Usumacinta coming in from the west. The land of Melek was oriented to the west. The confluence of two rivers is frequently an axial region in any geography in any time period. The Chixoy/Salinas/Usumacinta has a number of natural topographic features that suggest boundaries: Salamá confluence, Pasión confluence, Lacantún confluence, Añaite (aka Chicozapote) rapids, San José Canyon, Boca del Cerro, edge of the permanent flood plain in the delta, etc. The Añaite rapids are an ecological and topographical boundary. Were they also a political boundary anciently? It turns out the answer is yes. The Añaite-Chicozapote rapids were the boundary between



the powerful Maya city states of Piedras Negras on the north and Yaxchilán on the south. Charles Golden of Brandeis and Andrew Scherer of Wagner College have documented this border, complete with extensive defensive fortifications on the Yaxchilán side of the line. Charles Golden & Andrew Scherer, "Border Problems: Recent Archaeological Research along the Usumacinta River" in *The PARI (Pre-Columbian Art Research Institute) Journal*, Vol. VII, No. 2, Fall 2006. Both Piedras Negras and Yaxchilán had significant occupations in the pre-classic era, before they reached apogee in the Maya classic. Furthermore, Golden and Scherer have shown that the boundary itself existed in late pre-classic times.

- This model places the land of Gideon east of the Usumacinta, just across the river from the proposed Zarahemla. This means a prominent valley should be found east of the big river, just south of the fall line (in order to have a valley, you have to have some uplands) that would qualify as the valley of Gideon. Zooming in on this area in Google Earth, one does indeed find a large valley right where the model predicted. It has small streams and a lake – Laguna San Marcos. It opens to the river as the text indicates. Its southeast extremity ends at the Mexico – Guatemala border. Furthermore, it is the only sizable valley open to the river east of the Usumacinta from Boca del Cerro on the north to the Yaxchilán oxbow on the south.
- The model predicts a major gap in Nephite occupation in the northern Petén. This correlation shows Book of Mormon lands and cities along the San Pedro and Pasión Rivers, as well as in Belizean drainages, with a conspicuous blank spot from Calakmul, Campeche on the north to Tikal, Petén on the south. What was going on in this area in late pre-classic times? This is where BYU alumnus Richard D. Hansen directs one of the world's largest archaeological endeavors – the Mirador Basin Project. 52 universities and hundreds of archaeologists are involved. 26 sites are known in the basin, of which 14 have been studied to some degree. Dr. Hansen estimates there may be as many as 30 additional sites in the area not yet known to science (but almost certainly partially looted). El Mirador itself was active from 500 B.C. to A.D. 100. Dates as early as 1,000 B.C. have been documented in the region. Estimated population of El Mirador at apogee currently stands at 100,000. El Mirador is also home to the largest structure yet uncovered in the Maya world – La Danta whose 2.8 million cubic meters of material make it larger than the great pyramid of Khufu (Cheops) in Egypt (2.6 million cubic meters). As a point of comparison in Mesoamerica, the Pyramid of the Sun, largest at Teotihuacan, has a volume of 1.2 million cubic meters. Large causeways linked the huge sites of El

Mirador, Nakbe, El Tintal, Wakna and Xulnal. Informed people are now calling this area “the cradle of Maya civilization”. The Nephite nation, sprawling far and wide from its base in Zarahemla, but spread very thin Alma 58:32, apparently gave wide berth to the contemporaneous Maya juggernaut in the northern Petén. An important point for future research is the pre-classic Maya collapse evident throughout the Mirador Basin at about A.D. 150.



3 mapped features predicted by this Usumactina/Sidon model

20. If the Usumacinta/Sidon correlation is correct, it should stand up to scrutiny as students of The Book of Mormon ferret out meaning from the text like layers peeled from an onion. In other words, scholars should be able to delve deeply into the text and derive new insights based on spatial relationships that were previously obscure. For example, why was Helaman<sub>1</sub> in the south west quarter of the land so uninformed about Moroni<sub>1</sub>'s activities along the east coast? Alma 58:35. Helaman was a military leader on campaign and Captain Moroni was the Nephite commander-in-chief. Alma 43:17. Yet, Moroni did not know how the war was going on Helaman's front until Helaman sent him an epistle chronicling 4 years of battles. Helaman 59:1. Even more astonishing, Moroni did not know that his own government had been overthrown in the capital, Zarahemla, and that Governor Parhoran (critical text orthography) had been forced across the river to Gideon where he had assembled a government in exile. Alma 61:5. Why did Helaman divert captured Lamanite military provisions to Judea? Alma 57:11. How were the pacifist people of Ammon (aka Anti-Nephi-Lehies) safer in Melek than they had been in Jereshon? Alma 35:13. These are just a few of the myriad how and why questions astute students could ask. Maps based on the Usumacinta/Sidon correlation greatly clarify what

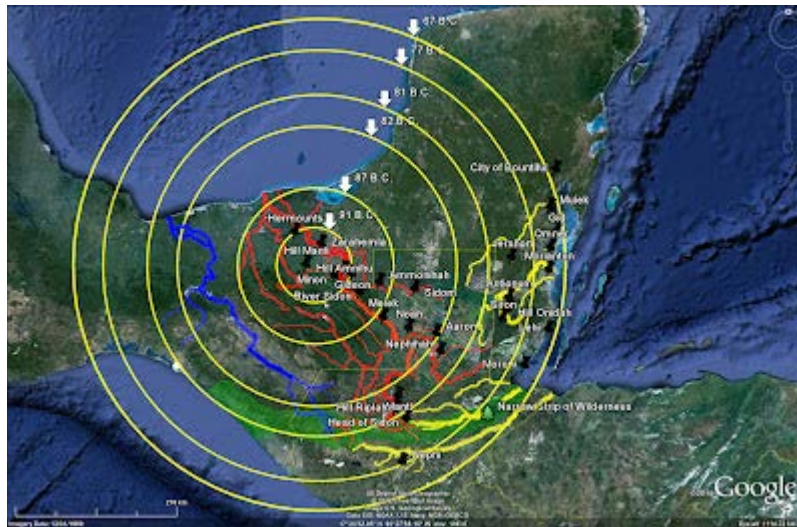
was going on in the textual narrative in these and many other cases. The correlation is validated to the degree those maps help one understand the text in more depth.

One example of understanding the text in more depth comes from Mormon 4:4. Most readers will conclude that by going on the offensive, the Nephites disobeyed God's will for them and therefore no longer merited divine help. But Mormon clearly says that had the Nephites simply stayed home, they would have withstood the Lamanites indefinitely, regardless of their moral probity. Mormon goes out of his way to explain how evil and unworthy the Nephites were at this time in their history (Mormon 1:16-17, Mormon 2:8, Mormon 3:11, Mormon 4:10). Read the commentary about point #12 in the article "The Narrow Pass and Narrow Passage" for a fascinating look into Mormon as a military engineer building highly effective fortifications. Captain Moroni threw up earthen walls topped by wooden parapets. If our spatial correlation is correct, Mormon near the end of his career built hill forts using huge granite blocks fit together without mortar, giving the Nephite armies a nearly impregnable advantage over their enemies as long as they maintained adequate troop strengths.

**21.** If the Usumacinta/Sidon correlation is accurate, it will facilitate a consistent interpretation of words and word patterns in the text. For example, many instances of the phrase "take a journey" with variants (the military version is "take a march") are found throughout the text. When an individual or group takes their journey, it is a long trip requiring advance preparation and some logistical support (tents, etc.) Alma 8:3, Alma 21:1. People in the Book of Mormon do not take their journey for a quick day trip. The phrase "go over" and its variants, on the other hand, are used in many different settings with varying lengths of travel, but there is always something – a mountain, a river – to cross over Alma 6:7, Alma 30:21, Alma 35:1. The maps derived from the Usumacinta/Sidon correlation support consistency in textual interpretation. Up is always up, east is always east, etc.

**22.** Nations and empires grow in logical ways, frequently following rivers and trade routes as they expand out from a central core. If the Usumacinta/Sidon correlation is true, one would expect to see the Nephite nation growing in an orderly, predictable way over time. The text seldom records the precise year a city or land became part of the expanding Nephite polity (Moroni Alma 50:13 and Lehi Alma 50:15 in 72 B.C. being notable exceptions). One can, though, generally determine the date a city or land is first mentioned in the text. See the article "Expansion of the Nephite Nation" in this blog.

Plotting these lands and cities by date of first mention, the logical expansion of Nephite-controlled territory out from the central core of the local land of Zarahemla is obvious. One also sees the important role rivers played in Nephite settlement patterns, just as would be expected from precedents throughout world history.



Logical Expansion of the Nephite nation over time

**23.** If the river Sidon has been identified correctly, corroboration will come from a wide variety of subject matter experts in many disciplines. See the blog article “Observations from a River Runner” for the informed opinion of one such expert, a man who was a river guide for Western River Expeditions in the 1960’s. Jack Curry of Western River Expeditions took groups down the Usumacinta in 1963, 1965 and 1969. See Thomas A. Lee, Jr. and Brian Hayden, “San Pablo Cave and El Cayo on the Usumacinta River, Chiapas, Mexico”, New World Archaeological Foundation Paper No. 53 (Provo: Brigham Young University, 1988). This former river guide’s testimony: “There is no way the kind of things being described in the Book of Mormon could have happened on the Grijalva. It was too fast and too dangerous.”

**24.** In the business world, quick audits (aka reality checks, smell tests) are done frequently to verify that a given idea holds water or is in the ballpark of reasonableness. If the Usumacinta is the Sidon, this correlation will pass any number of reality checks. Here is one. Analysis of many journeys throughout southern Mesoamerica indicates that 15 air kilometers is a reasonable distance for groups to travel in one day. Greater distances are possible under favorable circumstances. Any distance much less than 15 air kilometers per day begins to be problematic. See the article “Land Southward Travel



Times” in this blog for a data-driven derivation of this rule-of-thumb metric. There is a well-known journey in The Book of Mormon that establishes the benchmark for the distance between Nephi and Zarahemla. Alma<sup>1</sup> and his followers departed from the wilderness adjacent to the local land of Nephi, travelled 8 days Mosiah 23:3 to the land of Helam, travelled 1 long day Mosiah 24:20 to the valley of Alma, and then travelled 12 days Mosiah 24:25 to the border of the local land of Zarahemla. On the map below, the distances in blue are the 8 days to Helam. The yellow day represents the long day to the valley of Alma (20 air kilometers are allowed rather than 15 on that day). Then, the red circles represent 12 more days to the local land of Zarahemla.

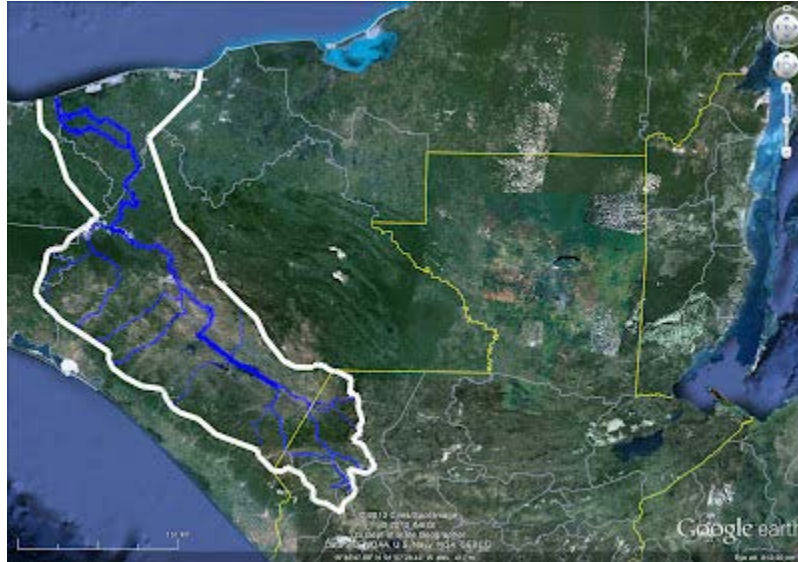


Travel days from Nephi to the local land of Zarahemla

Voilà. Hollywood could hardly have scripted it any better.

**25.** Reading the text carefully, one realizes that all the geographic referents in the greater land of Zarahemla from ca. 200 B.C. to 67 B.C. are either near the river or east of the river. See point 22 above and the article "Expansion of the Nephite Nation" in this blog. Only with Helaman's war epistle to Captain Moroni beginning in 66 B.C. do we get cities (Judea Alma 56:9, Zeezrom, Cumeni & Antiparah Alma 56:14, the city beyond, in the borders by the seashore Alma 56:31) in the southwestern quarter of Nephite territory between Manti on the river and the west sea. The core Nephite area centered on the local land of Zarahemla had a strong eastward orientation. Which of the two rivers under consideration has natural travel and communication routes coming from the east with obvious links to the east sea? Certainly not the Mezcalapa/Grijalva. It's river basin is wide to the southwest and narrow to the northeast. It has many large tributaries coming in

from the southwest and few coming in from the northeast. The large tributaries that do flow from east to west (Nenton, Selegua, Cuilco) originate in highland Guatemala a long way from any possible east sea.



Westward oriented Mezcalapa-Grijalva

The Usumacinta, on the other hand, fits this criterion beautifully. Major tributaries coming from the east (San Pedro on the north, Pasión on the south) are in close proximity to the Belizean drainages that empty into the Caribbean (likely east sea). Furthermore, the Usumacinta drainage basin extends for more than 100 kilometers east of the river over most of its course. The San Pedro and the Pasión were major arteries of ancient commerce and communication with numerous settlements along their banks.



Usumacinta River basin with major tributaries coming from the east



26. If the big picture strongly favors the Usumacinta/Sidon correlation as we have conclusively shown, then dozens of local or regional correlations (micro geographies) should also demonstrate high degrees of fit to the text. Here are some examples. Each of these Book of Mormon toponyms is linked to an article in this blog:

- Ammonihah. 29 of 29 textual criteria fit comfortably with a middle San Pedro River, Peten, correlation.
- Bountiful Defensiive Line. 3 of 3 textual criteria fit comfortably with a La Polka through Los Horcones, Tonala, Chiapas, correlation.
- Gideon. 23 of 23 textual criteria fit comfortably with an east of the Usumacinta and south and west of the San Pedro River, Tabasco, correlation.
- Hermounts. 11 of 11 textual criteria fit comfortably with a Pantanos de Centla, Tabasco, correlation.
- Hill Manti. 3 of 3 textual criteria fit comfortably with a south of Palenque ruins, Chiapas, correlation.
- Manti. 25 of 25 textual criteria fit comfortably with a Chama, Alta Verapaz, correlation.
- Melek. 14 of 14 textual creteria fit comfortably with a Lacantun confluence to Anaite Rapids, Chiapas, correlation.
- Minon. 7 of 7 textual criteria fit comfortably with a highlands south of Palenque between the Chilapa and Usumacinta rivers, Chiapas and Tabasco, correlation.
- Narrow (Small) Neck of Land. 15 of 15 textual criteria fit comfortably with a Barra San Marcos, Tonala, Chiapas, correlation.
- Narrow Pass. 16 of 16 textual criteria fit comfortably with a flanks of Cerro Bernal and shores of Laguna de la Joya, Tonala, Chiapas, correlation.
- Narrow Strip of Wilderness (includes head of Sidon). 32 of 32 textual criteria fit comfortably with a North American Caribbean tectonic plate boundary (head of the Chixoy, confluence of the Chixoy-Negro with the Salama) correlation.
- Sidom. 13 of 13 textual criteria fit comfortably with an upper San Pedro River, Peten, correlation.

Running totals: 191 of 191 textual criteria for 12 local or regional correlations fit the text well.

27. If the Usumacinta/Sidon correlation is true, then new discoveries will reinforce it. Here is one example. I finally realized recently that Royal Skousen's critical text replaces

all 19 occurrences of the word "Amalekite" or "Amalekites" with "Amlicite" or "Amlicites." See Royal Skousen, *Analysis of Textual Variants of the Book of Mormon*, (Provo, Utah: FARMS, 2007) Part 3, discussion of Alma 2: 11-12. This is significant for The Book of Mormon New World geographical correlation because it means:

- There were Amlicites in both the greater land of Nephi and the greater land of Zarahemla. Alma chapters 2, 21-24.
- Amlicites survived the war described in Alma chapter 2.
- The Lamanites who destroyed Ammonihah sought revenge against Amlicite atrocities committed in the local land of Nephi, so they annihilated Amlicites in the greater land of Zarahemla. Lamanite focus on Ammonihah was not merely capricious or opportunistic. Alma 25:1-2, Alma 27:1-2.
- Amlicites participated in military actions near the east coast and south of Manti as described in Alma chapters 43, 44.

Note: the foregoing scriptural passages are not linked to lds.org because the 1981 LDS edition of the text reads "Amalekite" and "Amalekites." There are many other implications of Skousen's important discovery (presaged by Lyle Fletcher and John A. Tvedtnes) that will keep serious Book of Mormon students busy for years. See the blog article "Peripatetic Amlici" for preliminary analysis. This discovery strengthens and broadens the Nehor - Amlici relationship which in turn further confirms the Nehor - Ammonihah and Amlici - Ammonihah relationships. And those relationships, as we have seen, place Ammonihah eastward from river Sidon, a location nicely accommodated by the Usumacinta/Sidon correlation.

**28.** During the war chapters in the book of Alma, the action takes place in the greater land of Zarahemla. As soon as peace is re-established, though, we see a steady flow of migrations into the land northward where many settlements are so distant from Zarahemla that the emigrants essentially drop off the Nephite radar screen:

- 5,400 men with their wives and children emigrated from the greater land of Zarahemla to the land northward. Alma 63:4 ca. 56 B.C.
- Several emigrant ships left the land southward and sailed generally in a northerly direction. Alma 63:6-8 ca. 55 B.C.
- Many people went forth into the land northward. Alma 63:9 ca. 54 B.C.

- A shipping industry developed to carry provisions to the emigrants newly established in the land northward. Alma 63:10 ca. 53 B.C.
- An exceeding great many left the greater land of Zarahemla and migrated to the land northward. They traveled a great distance and settled in a well-watered area. Helaman 3:3-4 ca. 46 B.C.
- So many people migrated from south to north that the land northward began to be overspread with settlements. Helaman 3:8 ca. 46 B.C.
- Many of the people of Ammon, formerly known as Anti-Nephi-Lehies, migrated from the land of Melek Alma 35:13 to the land northward. Helaman 3:12 ca. 46 B.C.
- Many Lamanites went into the land northward. Helaman 6:6 ca. 29 B.C.
- Jacob fled with his band of outlaws to the northernmost part of the land. 3 Nephi 7:12 ca. A.D. 30 where they settled in the "great" city Jacob-Ugath (critical text orthography) 3 Nephi 9:9.

What was going on in the land northward at this time? Teotihuacan, the colossus of the north, had begun its ascendancy. By the time of the Nephite collapse ca. A.D. 350 - 380, the Teotihuacan empire controlled or heavily influenced vast stretches of territory from central Mexico on the north to Honduras on the south. Here is a map of sites with strong Teotihuacan presence represented by purple pyramid icons.



Sites with known Teotihuacan influence

Many sites with strong links to Teotihuacan are in the Maya area (shown as a white overlay on the map above). The Zoque area south and west of the Mezcalapa-Grijalva

River shows far less influence from the northern empire. Why? because the Maya area was thriving in the early classic period (beginning A.D. 200), while the Zoque area had declined (compared with the middle preclassic Chiapa de Corzo apogee) into a cultural backwater. The Usumacinta/Sidon correlation, siting core Nephite lands in Maya territory, is a decidedly better fit to the text.

A side note. Teotihuacan was not the only large site in the land northward on the rise during the time period (ca. 56 B.C. to A.D. 30) The Book of Mormon reports major northward out migrations. The newly-excavated metropolis of Cantona began ca. 200 B.C. This is where Cantona is located just west of the Puebla - Veracruz line.



The preclassic site of Cantona, Puebla

The huge site extends for at least 1,400 hectares and INAH researchers currently estimate the population at apogee reached 80,000. Notice the warren of ancient walled patios that show up well in satellite photography.



Cantona, Puebla closeup showing densely populated residential areas

Cantona, like Teotihuacan, maintained extensive trade relations with the Maya.

When measured by the 28 criteria specified above, The Usumacinta/Sidon correlation better fits The Book of Mormon text in all cases.

Some may object to the degree of perfection (28/28 big picture criteria and 191/191 local or regional (micro-geographic) criteria per point #26 above) achieved by these analyses. Our results do not fit a typical data pattern with standard deviation around a bell curve. To which I reply "When has revelation from God ever fit a bell curve?" If The Book of Mormon really is truth sprung from the earth Psalms 85:11, D&C 128:19, "the most correct of any book on earth" Joseph Smith, *History of the Church* 4:461, if we have interpreted the text correctly, and if we really are looking in the right places, why wouldn't the data light up like a Christmas tree?

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The article entitled "Book of Mormon Map" in this blog has a series of maps intended for the general public.

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The article entitled "Book of Mormon Model" has a link to download the first comprehensive Book of Mormon model on Google Earth. Most of the images on this blog were created using this Google Earth model.

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The Book of Mormon is factual history written by people who lived and died in Mesoamerica. They knew their land well. Their sacred record comes alive in many new and exciting ways when the ancient text accurately matches the modern map. Identifying the correct river Sidon is a giant step in the right direction.