

Book of Mormon and DNA Studies

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Do you remember when the Book of Mormon told the story of Jaredites and Nephites arriving at the shores of a fresh, new Promised Land that God had preserved for them and their descendents? Do you remember when the Native Americans were the remnants of those people, and that the church leaders once called them Lamanites? All of that was in a more naive time, before archaeology, anthropology, genetics, linguistics, and biology revealed a New World that didn't bear much of a resemblance to the one we read about in the Book of Mormon. The origin of Native American peoples was still an intriguing mystery when the Book of Mormon first made its claims, a topic of much intellectual and fireside discussion. Everyone had a theory and most Americans, scholars and laymen alike, held the generally now-embarrassing misconception that the mounds and pyramids of the New World must have been built by a superior race of white people who had been annihilated by the dark-skinned "savages" that Columbus discovered when he arrived at the end of the 15th century. These ideas did not originate with the Book of Mormon, they were already the common understanding of frontier Americans at the time the book first made its appearance. With the benefit of hindsight we can now recognize that this was a blatantly racist idea; in the cultural milieu of the 19th century it was accepted that a dark-skinned people, devoid of European table manners, could never have produced such impressive works, and this justified the white colonists from removing the natives from their land. After all, they were just taking back what was rightfully the property of the white race. Fortunately,

20th and 21st century science has presented us with a much clearer picture of what went on in the American continents before the advent of the European invaders.

If you are bothering to read this essay you probably know all about the problem it addresses, but just in case you don't, here it is in the simplest terms possible: The Book of Mormon, the Doctrine and Covenants, and the Modern Prophets all agree that the Native Americans alive today are the Lamanites spoken of in the Book of Mormon, but modern genetic science clearly and unquestionably demonstrates that this is not the case; they are Asians who migrated from Siberia many thousands of years before Book of Mormon times. Today we find ourselves between a rock and a hard place: what the book itself says and its reinvention by modern apologists in an effort to force it to fit the facts.

Balancing the story presented in the Book of Mormon against the stream of constantly emerging facts is becoming a very difficult task for the LDS church and a full time job for some of its apologists. Our spiritual leaders have stopped even trying to answer the questions themselves, since their answers have fallen short time and time again in the light of empirical investigation, as I will demonstrate. Instead, they have turned the task over to apologists who have attempted to rewrite the Book of Mormon narrative in an attempt to patch the holes just enough to keep members from looking too deeply into the problems, and to reassure them that someone smarter than them has figured it all out. This essay is one such effort. As you read it you may want to ask yourself why this and the other recent Gospel Topics essays are anonymous. You may also want to ask yourselves why such efforts are necessary in an organization led by prophets, seers and revelators, and why there aren't satisfactory answers to these questions coming across the pulpit from the church leaders themselves.

The LDS church differs from many other belief systems in its literalness. It puts forth testable claims about real world places and things. This is an exciting prospect, but when those claims are tested and fail the apologists are called in to throw up a smokescreen of redefining, reinventing and cherry-picking both scripture and science to explain away the often disappointing *real* facts. Some critics refer to this tactic as

“moving the goalposts.” Once a claim is demonstrated to be false, the apologists simply change the story and kick the ball a little further down the field, which is exactly what this essay attempts to do. Please be aware that the church does not *officially* support the hypotheses presented here any more than anyone else’s fanciful machinations. Yes, they published it on LDS.org, the official church website, and Steven E. Snow, the church historian at the time, assures us that these Gospel Topic essays "have been approved by the First Presidency and the Quorum of the Twelve Apostles" (<https://www.lds.org/topics/essays>), so we must assume they have given it some sort of approval, but not to the degree that any of them are willing to attach their names or ecclesiastic reputations to it. This is a bandaid to be applied when someone asks difficult questions, assuming they can find it at all. You probably needed someone to show you where in the deep recesses of lds.org this essay had been quietly deposited.

So why do they bother to put it out there at all? Because some kind of answer is better than no answer. If they do not make some attempt, the only answers you’ll have are the ones from actual scientific investigators with no agenda apart from getting to the truth. Remember, apologetics is a tactic only required when the facts are not in your favor. If the prophet and apostles really do stand behind these ideas I would hope to hear them actually make such claims themselves and back them up with solid explanations. What is presented in this essay is basically an intellectual distraction from the pesky facts that are coming in from the world of scientists and scholars who are out to find the truth, with no interest at all in whether or not the Book of Mormon is true. This essay remains anonymous precisely so the church and its leaders can maintain a safe distance and, as with other essays (and apologetics in general), maintain a safe retreat to plausible deniability.

Before you read what follows please ask yourself this question: if the church had a single piece of convincing evidence for the Book of Mormon wouldn’t every seminary kid know about it? Wouldn’t there be *Ensign* articles about it and visitor centers built around it? Would they need to resort to this level of excuse making? The problem is that the Book of Mormon makes specific, testable claims about the world of the Jaredites

and Nephites, but when these claims are tested and found to be inaccurate the apologists, since they can't change the evidence, attempt instead to change the story in the attempt to convince us that we never understood what the Book of Mormon said in the first place, that we need them to hold our hands as they reinvent the story to something more palatable in the light of incriminating evidence.

Now, on to the essay:

The Church of Jesus Christ of Latter-day Saints affirms that the Book of Mormon is a volume of sacred scripture comparable to the Bible. It contains a record of God's dealings with three groups of people who migrated from the Near East or West Asia to the Americas hundreds of years before the arrival of Europeans.¹

Although the primary purpose of the Book of Mormon is more spiritual than historical, some people have wondered whether the migrations it describes are compatible with scientific studies of ancient America. The discussion has centered on the field of population genetics and developments in DNA science. Some have contended that the migrations mentioned in the Book of Mormon did not occur because the majority of DNA identified to date in modern native peoples most closely resembles that of eastern Asian populations.² (This is the big, important admission of this essay. Native Americans did **not** originate in the Middle East. They are not Lamanites. They came from Asia. But the Book of Mormon seems unaware of this fact that is now accepted by the church. It claims that a ship of Israelites arrived in the Americas to find an empty land, then multiplied to fill that land, broke into factions and eventually committed genocide (twice). It does not mention them finding vast numbers of Siberian immigrants already occupying the land, as this essay will try to convince you. Making room for this entire separate population is a recent reinventing of the Book of Mormon narrative that was never proposed until the Native American peoples were scientifically demonstrated, through DNA sequencing and population genetics, not to be the Lamanites that our scriptures and prophets formerly claimed they were).

Basic principles of population genetics suggest the need for a more careful approach to the data. The conclusions of genetics, like those of any science, are tentative, and much work remains to be done to fully understand the origins of the native populations of the Americas. (actually, since their origins are well understood now, it is more accurate to say that much work needs to be done by the church to create workarounds for the problematic evidence) Nothing is known about the DNA of Book of Mormon peoples (I don't understand how they can make this claim. The Book of Mormon tells us exactly where the three founder groups came from, and in the case of the Lehites and Mulekites we have a very precise date and a specific city or origin) and even if their genetic profile were known, there are sound scientific reasons that it might remain undetected. For these same reasons, arguments that **some** defenders of the Book of Mormon make based on DNA studies are also speculative (imaginary?). In short, DNA studies cannot be used decisively to either affirm or reject the historical authenticity of the Book of Mormon. (I agree with half of this statement. DNA studies certainly don't affirm the Book of Mormon's authenticity claims, but they absolutely can and do refute them. Otherwise, this essay would never have been written in an attempt to convince you otherwise. It just depends on whether you choose to believe 1) the words of the book itself and what the modern prophets - and the Lord himself in restoration scripture - have said about it , 2) the latest scientific evidence, or 3) a third option presented in this essay, the one invented by LDS apologists, the one that fits neither the empirical evidence nor the scripture-and-prophet-supported story).

The Ancestors of the American Indians

The evidence assembled to date suggests that the majority of Native Americans carry largely Asian DNA.³ Scientists theorize that in an era that predated Book of Mormon accounts, a relatively small group of people migrated from northeast Asia to the Americas by way of a land bridge that connected Siberia to Alaska.⁴ (Thank you for this admission! This is the most important declaration of this entire essay. Notice it says "scientists theorize," not "the scriptures tell us," because the actual scientific discoveries

do not align with the stories told in either the Bible or the Book of Mormon. The first Americans probably arrived around 15,000 years ago (and possibly much earlier), which is 9,000 years before the fall of Adam and Eve. So, if these people arrived before the human race began we must ask who were they?) These people, scientists say, spread rapidly to fill North and South America and were likely the primary ancestors of modern American Indians.⁵ (A specific example of the people mentioned here is a teenage girl known as Naia whose skeleton, along with 8 others, was found in a cave on the Yucatan peninsula. Collagen in her bones was securely dated to ~13000 years ago and her DNA is fully Native American. (*Science*, 16 May 2014). The age and genetic makeup of Naia is also consistent with the recent discovery in Montana of the remains of a 12,700 year old boy known as the Anzick Child.

The Book of Mormon provides little direct information about cultural contact between the peoples it describes and others who may have lived nearby (Actually there **no** overt mention of any such contact in the Book of Mormon. Not too surprising since the Book of Mormon itself, without some between-the-lines apologetic editing, doesn't seem to be aware of these "others"). Consequently, most early Latter-day Saints assumed that Near Easterners or West Asians like Jared, Lehi, Mulek, and their companions were the first or the largest or even the only groups to settle the Americas. Building upon this assumption, **critics insist that the Book of Mormon does not allow for the presence of other large populations** in the Americas and that, therefore, Near Eastern DNA should be easily identifiable among modern native groups. (I find it fascinating that when they use the word critics they are not talking about critics of the Book of Mormon, they are talking about critics of these apologetic explanations. They are talking about the vast majority of members and leaders of the church. You may be surprised to find yourself among those who this essay disparages as critics. And how do people get such ideas? Because that is what the Book of Mormon says. I believe Nephi would be as surprised as anyone by this talk of other people already in the Promised Land when he arrived. God also seems to be unaware that he was sending his chosen people to a place that was already overrun by previous settlers. He

told Nephi, “it is wisdom that this land should be kept as yet from the knowledge of other nations; for behold, many nations would overrun the land, that there would be no place for an inheritance.” (2 Nephi 1:8) He told the Jaredites that he would send them to “that quarter where there never had man been,” to a land of promise “reserved for a righteous people.” (Ether 2:5-7) In Helaman we read: “And it came to pass that they did multiply and spread, and did go forth from the land southward to the land northward, and did spread insomuch that they began to cover the face of the whole earth, from the sea south to the sea north, from the sea west to the sea east” (Helaman 3:8) Does this sound to you like they were merely moving in with the people who had already filled the land? Or were they explicitly told that the land was not already overrun by others?

The Book of Mormon itself, however, does not claim that the peoples it describes were either the predominant or the exclusive inhabitants of the lands they occupied . In fact, cultural and demographic clues in its text **hint** at the presence of other groups.⁶ At the April 1929 general conference, President Anthony W. Ivins of the First Presidency cautioned: “We must be careful in the conclusions that we reach. The Book of Mormon ... does not tell us that there was no one here before them [the peoples it describes]. It does not tell us that people did not come after.”⁷ **The best they can do here is to suggest that the Book of Mormon “hints” about the fact that the land was already teeming with people when the Book of Mormon settlers arrived. How many of those “hints” have you noticed while reading the book without having them pointed out to you by apologists? It would be more than a little surprising if the Lehiters failed to mention that they landed in a heavily populated land, densely settled by existing chiefdoms and empires. By the time of the Nephite/Lamanite final war the Maya civilization had completely occupied the entire area that modern LDS apologists claim to be Book of Mormon lands and, having filled the land, they continued to intensify their agriculture to feed the dense population, which reached its peak centuries after the final Nephite/Lamanite war, apparently unaware that all of this great Nephite/Lamanite epic playing out right under their noses. They were also unaware that the land had been destroyed by earthquakes, the cities dumped into the sea and covered up by falling mountains, and that Jesus had paid**

them a visit after three days of darkness. Since the Book of Mormon was written we have deciphered Mayan writing and we now have the words of the actual occupants of the land at that time and they didn't mention any of these things.

If the land was already massively populated by other people during Book of Mormon times why would Nephite explorers get so excited when they found the remains of the Jaredite nation, or the isolated city of Zarahemla with its Mulekite inhabitants? It certainly sounds like the Nephites were under the impression that the only people in the land were the ones that the Book of Mormon claims came, like themselves, from the Old World.

But let's consider the things the Nephi said he **did** find in his new home. 1 Nephi 18: 25 says "And it came to pass that we did find upon the land of promise, as we journeyed in the wilderness, that there were beasts in the forests of every kind, both the cow and the ox, and the ass and the horse, and the goat and the wild goat, and all manner of wild animals, which were for the use of men." But **NO** mention of people. Could Nephi have been such a detailed observer of the animals he found in his new home but totally fail to notice, or think it worth mentioning, that there were swarms of people, with their cities, cultures, militaries and agriculture? For some perspective let's consider the Bible. The Children of Israel entered the Promised Land only to find it already populated in exactly the way that this essay claims the Americas were already populated when the Lehites arrived. Imagine how different the Bible would be if its authors had failed to mention the Hittites, Gergashites, Amorites, Canaanites, Moabites, Edomites, Philistines, Perizzites, Hivites, Jebusites, Amalekites, Babylonians, Assyrians, Persians, Romans, Egyptians, and many others.

As an aside, it should be mentioned that none of the animals mentioned in the Book of Mormon existed in the precolumbian Americas either; they were all Old World domesticates that were brought to the Americas much later by the European conquerors. Nephi also completely fails to mention any of the animals that he would have actually encountered in the Americas. In addition, the Nephites had wheat, barley and other Old World crops. The problem is that these things never existed in ancient

America. There is overwhelming evidence that the current New World flora and fauna go back uninterrupted to very ancient times, while there is no trace of the animals and crops mentioned in the Book of Mormon. These Nephite plants and animals apparently left no descendants, no DNA, no bones, no pollen, seeds, starches or phytoliths, as did the native American flora and fauna. All of these things must have vanished just as mysteriously as the Nephite/Lamanite DNA, while their New World counterparts continued to deposit abundant evidence of their existence across the timeline. The only domesticable animals in the New World at the time were dogs and, in some locations turkeys and the occasional duck, plus llamas and alpacas in South America (which is outside of any modern theory of Book of Mormon geography). The presence of large domesticable animals like cattle, sheep, horses and pigs would have entirely revolutionized the agriculture and economy of the New World and, even if the Lehtes did manage to die off without a trace, their neighbors would certainly have made extensive use of these highly prized domesticates. They would also have represented them in their art and mentioned them in their writing, as they did the many animals and plants that actually did exist in their environment.

Joseph Smith appears to have been open to the idea of migrations other than those described in the Book of Mormon,⁸ (Oops, the author is either confused here or is trying to confuse us. This endnote cites a Times and Seasons article (Joseph Smith editor) that includes excerpts from the 1842 printing of John Lloyd Stephens' *Incidents of Travel in Central America*, which proclaims, "it will be seen that the **proof of the Nephites and Lamanites** dwelling on this continent, according to the account in the Book of Mormon, is developing itself in a more satisfactory way than the most sanguine believer in that revelation, could have anticipated." So the cited source is *NOT* saying that those ruins were built by "others," it's saying the exact opposite, that they were really were built by Lamanites and Nephites themselves. Why even cite an article that disputes your own claims? I will give them the benefit of the doubt and suggest that they are merely being distracted by their own preconceptions rather than being intentionally deceptive in using this reference. But even the most sanguine BYU

archaeologist today will tell you that the described ruins are purely Maya, without any possibility of connection to the Book of Mormon. In fact, most of them were built after the Book of Mormon timeline) and many Latter-day Saint leaders and scholars over the past century have found the Book of Mormon account to be fully consistent with the presence of other established populations.⁹ (Should we be impressed that many LDS leaders and scholars are satisfied with the Book of Mormon's claims? The endnote directs us to an article written by a Book of Mormon apologist and published by BYU. It talks about the opinions of people like Joseph Smith and Parley P. Pratt. Why can't they produce a single non-LDS archaeologist or scholar who finds merit in the book's claims? I might also add that real LDS archaeologists are extremely careful to **never** mention anything about the Book of Mormon in their professional publications precisely because it does not stand up to the scientific rigor required for the excellent work they do) The 2006 update to the introduction of the Book of Mormon reflects this understanding by that Book of Mormon peoples were "among the ancestors of the American Indians."¹⁰ (And why did they change it? Because DNA evidence showed that the previous statement that the Native Americans **are** Lamanites was patently false. If you're looking for an example of what moving the goalposts looks like when science is breathing down your neck, you need look no further) Nothing is known about the extent of intermarriage and genetic mixing between Book of Mormon peoples or their descendants and other inhabitants of the Americas (Objection! Counsel is leading the witness! Nothing is known about this intermixing with "others" because the Book of Mormon fails to mention them, remember?), though some mixing appears evident, even during the period covered by the book's text.¹¹ (this endnote refers to an article by LDS apologist John Sorenson who makes unsupported and unsupportable non-scientific claims of his opinion about this supposed mixing) What seems clear is that the DNA of Book of Mormon peoples likely represented only a fraction of all DNA in ancient America. Finding and clearly identifying their DNA today may be asking more of the science of population genetics than it is capable of providing. (one of the fundamental

tenets of apologetic argument: science is strong when it supports your claims, but weak when it doesn't)

Understanding the Genetic Evidence

A brief review of the basic principles of genetics will help explain how scientists use DNA to study ancient populations. It will also highlight the difficulty of drawing conclusions about the Book of Mormon from the study of genetics.

Let me preface the following section by pointing out that the authors **do not provide a single shred of evidence that supports the Book of Mormon**. The majority of this essay constitutes a primer on population genetics for the purpose of presenting a number of excuses for the **nonexistence** of DNA evidence in support of the Book of Mormon, in an attempt to derail you from seriously considering the devastating consequences to the keystone of our religion, and to downplay the significance of the scientific discoveries. Do not let this take your eyes off the simple fact that all DNA evidence to date suggests that there never were Middle Easterners in the Americas.

Here's a little thought experiment. Imagine the head of NASA had claimed that the moon is made of green cheese, but when astronauts landed they found none. The obvious conclusion would be that the moon is not nor ever was made of green cheese. Now imagine NASA hired some lunar apologists to write an essay to explain away the embarrassing discrepancy. This essay would consist of a series of elaborate explanations and arguments about how, although today we know the moon is primarily made of minerals, there was once a significant deposit of cheese on the moon. They would then go on to give you several hypotheses about how the cheese might have evaporated, transmuted into something else, or otherwise disappeared. They would use a lot of sciency talk to help you feel comfortable that people smarter than you are on top of the cheese problem and that, if you just change your expectations about what the NASA director actually meant, you will be able to satisfy yourself that the complete absence of cheese is somehow just what the really smart cheese-believing people have

been expecting all along, and that somehow the absence of cheese today could be interpreted as evidence that it really was once there. The beauty of it all, from their perspective, is that the answers they give don't have to mesh together very well, they just have to put enough of them out there that you can pick one that works best for you and run with it.

I am not a geneticist, just a guy with a very basic understandings of the biology involved, but neither am I trying to make the science fit my personal faith. Please do your own research before accepting the claims of either myself or this essay.

After the essay's little biology lesson I will present a number of examples that show how the contrary conclusions could be just as valid as those presented here.

DNA—the set of instructions for building and sustaining life—is found in the nucleus of almost every human cell. It is organized in 46 units called chromosomes—23 received from each parent. These chromosomes contain about 3.2 billion instructions. Any two individuals share approximately 99.9% of their genetic arrangement, but the thousands of small differences account for the tremendous variation between people. Genetic variations are introduced through what geneticists call random mutation. Mutations are errors that occur as DNA is copied during the formation of reproductive cells. These mutations accumulate over time as they are passed from generation to generation, resulting in unique genetic profiles. The inheritance pattern of the first 22 pairs of chromosomes (called autosomes) is characterized by continuous shuffling: half of the DNA from both the father and the mother recombine to form the DNA of their children. The 23rd pair of chromosomes determines the gender of a child (XY for a male, XX for a female). Because only males have the Y chromosome, a son inherits this chromosome mostly intact from his father.

Human cells also have DNA in a series of cell components called the mitochondria. Mitochondrial DNA is relatively small—containing approximately 17,000 instructions—and is inherited largely intact from the mother. A mother's mitochondrial

DNA is passed to all of her children, but only her daughters will pass their mitochondrial DNA to the next generation.

Mitochondrial DNA was the first type of DNA to be sequenced and was thus the first that geneticists used to study populations. As technology has improved, analysis of autosomal DNA has allowed geneticists to conduct sophisticated studies involving combinations of multiple genetic markers. (Current autosomal analysis provides an amazing level of detail by making over 700,000 genetic comparisons! Great for finding needles in haystacks. More importantly, autosomal DNA does not merely trace the maternal or paternal line of the individual, as do Y and mDNA, but contains DNA segments inherited from many thousands of ancestors, and so provides a record that is much more robust against lineage loss, and a much broader picture of ancestry. (David J. Metzger, ANTIQUITY, 89 348)

Population geneticists attempt to reconstruct the origins, migrations, and relationships of populations using modern and ancient DNA samples. Examining available data, scientists have identified combinations of mutations that are distinctive of populations in different regions of the world. Unique mitochondrial DNA and Y-chromosome profiles are called haplogroups.¹² Scientists designate these haplogroups with letters of the alphabet.¹³

At the present time, scientific consensus holds that the vast majority of Native Americans belong to sub-branches of the Y-chromosome haplogroups C and Q¹⁴ and the mitochondrial DNA haplogroups A, B, C, D, and X, all of which are predominantly East Asian.¹⁵ (the endnote merely confirms that Native Americans arrived from Siberia and populated the New World long before Book of Mormon times) But the picture is not entirely clear. Continuing studies provide new insights, and some challenge previous conclusions. For example, a 2013 study states that as much as one-third of Native American DNA originated anciently in Europe or West Asia and was likely introduced into the gene pool **before the earliest migration to the Americas**.¹⁶ This study paints a more complex picture than is suggested by the prevailing opinion that all Native American DNA is essentially East Asian. (The key words here are “before the earliest

migration to the Americas,” which happened many of thousands of years **before** Book of Mormon times. The genetic source came from people who migrated from western Eurasia on the northern route that led them through Siberia to North America) While Near Eastern DNA markers do exist in the DNA of modern native populations, it is difficult to determine whether they are the result of migrations that predated Columbus, such as those described in the Book of Mormon, or whether they stem from genetic mixing that occurred after the European conquest. This is due in part to the fact that the “molecular clock” used by scientists to date the appearance of genetic markers is not always accurate enough to pinpoint the timing of migrations that occurred as recently as a few hundred or even a few thousand years ago.¹⁷ Scientists do not rule out the possibility of additional, small-scale migrations to the Americas.¹⁸ (Please do not take the bait! This endnote refers to the remains of the 24,000 year old Mal'ta boy in Siberia, whose DNA indicates that not only was he ancestral to Native Americans, but that his ancestors have roots in Western Eurasia. This is actually evidence **against** the Book of Mormon and the version of the story this essay is trying to present. It dates the DNA in question to 20,000 years **before** Book of Mormon times, so it could not possibly have come from Jaredites or Lehites) For example, a 2010 genetic analysis of a well-preserved 4,000-year-old Paleo-Eskimo in Greenland led scientists to hypothesize that a group of people besides those from East Asia had migrated to the Americas.¹⁹ (And this is a great attestation of the power of population genetics. This individual dates back to Jaredite times but his DNA leaves no mystery about where he came from. What *would* be interesting, in contrast, would be if we had a Mesoamerican skeleton from Jaredite times with DNA of Near Eastern origin. But no such luck) Commenting on this study, population geneticist Marcus Feldman of Stanford University said: “Models that suggest a single one-time migration are generally regarded as idealized systems. ... There may have been small amounts of migrations going on for millennia.”²⁰ (Of course, he is talking about migrations from Asia. But there is one excellent example of a non-Asian migration to America at the L'Anse Aux Meadows Viking settlement in Nova Scotia. A handful of Norsemen - probably about the size of Lehi's family - briefly visited

North America. But unlike the millions of Book of Mormon peoples, this tiny handful of Vikings left abundant and unquestionable specific evidence of their visit. The colony reached a population of no more than 100 people, living in eight longhouses and left us a lot of clues about who they were and how they lived. Compare this to **zero** evidence of all of the Book of Mormon populations combined. We can even see where the Viking settlers built a forge and made a few hundred nails to repair their ship, all of which left ample evidence of their metallurgical activities. Contrast this with the proposed the metalsmiths who made countless thousands of swords and armor pieces for vast armies of Nephites, Lamanites and Jaredites, but left no trace. The apologetic claim that such evidence would have entirely vanished by natural means is absolutely unsupportable. Also of note, DNA from rodent remains at the site tell us that that Norse mice stowed away on the Viking ship. You can't help but wonder why it is that many millions of Jaredites, Mulekites, and Nephites, with their cities, weapons and writing left no definitive evidence of their existence compared to such a small Viking presence, and why there is nothing to attest to the many Old World animals that the Book of Mormon tells us they brought with them, compared to the lowly Norse rat.)

The Founder Effect

One reason it is difficult to use DNA evidence to draw definite conclusions about Book of Mormon peoples is that nothing is known about the DNA that Lehi, Sariah, Ishmael, and others brought to the Americas. Even if geneticists had a database of the DNA that now exists among all modern American Indian groups, it would be impossible to know exactly what to search for. It is possible that each member of the emigrating parties described in the Book of Mormon had DNA typical of the Near East, but it is likewise possible that some of them carried DNA more typical of other regions. In this case, their descendants might inherit a genetic profile that would be unexpected given their family's place of origin. This phenomenon is called the founder effect.

The Book of Mormon clearly tells us that Lehi's family were Israelites from Jerusalem. Do the authors really expect you to believe that they might have actually

been the descendants of Siberians who had relocated temporarily to Jerusalem? Because that is what you would have to believe for this story to fit the genetic evidence. They also would have had to have been Jews living in some kind of alternate reality Jerusalem where the reign of King Zedekiah, the life of the prophet Jeremiah and the Babylonian conquest of Jerusalem happened more than 24,000 years ago if we are to use the built-in genetic clock, not to mention their earlier example of Near Eastern DNA. Multiple and mutually exclusive examples are being presented in the hopes that you will like one of them. Also, please don't get sidetracked by the suggestions that we don't have DNA from any individuals mentioned in the Book of Mormon. This is not CSI Zarahemla. We are not trying to identify individuals, we are looking at populations. We must be careful not to conflate DNA profiling with population genetics. But if they want to play that game, we know that one of the Book of Mormon founders, Mulek, was the son of King Zedekiah of Jerusalem, a lineage that is well known. What more could you ask for? The real power of population genetics is in determining the origins of groups of people and their migrations, not who they were as individuals. You may not know anything about who your ancestors were and where they lived 2000 years ago, but if you submit a sample of your DNA to a company like 23AndMe they will tell you exactly where your ancestors came from for about a hundred bucks. It's just that easy these days. They don't need to know who your great-great-great... grandfather was. They can even tell you what percentage of your genome came from Neanderthals. In the same way, we can tell quite accurately where Native Americans came from. But, if we take the Book of Mormon at its word about the peopling of the New World, we shouldn't have to look any farther than the DNA of the nearest Native American to find evidence of Lamanites.

Consider the case of Dr. Ugo A. Perego, a Latter-day Saint population geneticist. His genealogy confirms that he is a multigeneration Italian, but the DNA of his paternal genetic lineage is from a branch of the Asian/Native American haplogroup C. This likely means that, somewhere along the line, a migratory event from Asia to Europe led to the introduction of DNA atypical of Perego's place of origin.²¹ If Perego and his family were

to colonize an isolated landmass, future geneticists conducting a study of his descendants' Y chromosomes might conclude that the original settlers of that landmass were from Asia rather than Italy. (But this is the exact opposite of what this essay is claiming about Book of Mormon peoples. It turns out that Dr. Perego really does have Asian/Native American markers in his paternal line, even though some of his ancestors arrived in Italy some generations ago. Dr. Perego was originally laboring under the misunderstanding about his own origins until genetics set him straight. He trusts the science, so he now accepts that he has Asian/Native American ancestors. His previous belief has been shown to be false and he now accepts the new evidence. What if Dr. Perego insisted that his paternal ancestors were Middle Eastern but his DNA said they were Native American? Who would we believe? We must not allow a special exception for the Book of Mormon) This hypothetical story shows that conclusions about the genetics of a population must be informed by a clear understanding of the DNA of the population's founders. In the case of the Book of Mormon, clear information of that kind is unavailable (in other words, clear information **in favor of** the Book of Mormon is unavailable. Shouldn't we be honest with ourselves and seriously consider that it might not be there because it never existed?).

Unfortunately, the authors of this essay have a much bigger task than just convincing you and me that the Native Americans are not the Lamanites of the Book of Mormon. They must also convince the Lord himself, who seems to think the American Indians really are Lamanites, and He is concerned about teaching them the gospel to fulfill Moroni's declaration that the purpose of the Book of Mormon is the converting the remnant of Lehi's children. The book's title page says that it is "written to the Lamanites, who are a remnant of the house of Israel." What a sad thought, that the book was dedicated by God to people who he has allowed to become extinct before they had the opportunity to receive it.

Here are a few things God said about the American Indians in the Doctrine and Covenants:

-D&C 54:8 And thus you shall take your journey into the regions westward, unto the land of Missouri, unto the borders of the Lamanites.

-D&C 49:24 But before the great day of the Lord shall come, Jacob shall flourish in the wilderness, and the Lamanites shall blossom as the rose.

-D&C 28:14 And thou shalt assist to settle all these things, according to the covenants of the church, before thou shalt take thy journey among the Lamanites.

-D&C 19:27 Which is my word to the Gentile, that soon it may go to the Jew, of whom the Lamanites are a remnant, that they may believe the gospel, and look not for a Messiah to come who has already come.

-D&C 30:6 ...for I have given unto him power to build up my church among the Lamanites.

-D&C 28:9 ...and no man knoweth where the city of Zion shall be built, but it shall be given hereafter. Behold, I say unto you that it shall be on the borders by the Lamanites.

-D&C 32:2 ...he shall go with my servants, Oliver Cowdery and Peter Whitmer, Jun., into the wilderness among the Lamanites.

-D&C 3:18 And this testimony shall come to the knowledge of the Lamanites, and the Lemuelites, and the Ishmaelites, who dwindle in unbelief because of the iniquity of their fathers...

-D&C 28:8 And now, behold, I say unto you that you shall go unto the Lamanites and preach my gospel unto them;

So I ask you, whoever wrote this essay, where exactly are these Lamanites to whom we are commanded to take the gospel? We are woefully failing to follow God's commandments if we don't find and teach them.

In addition to God's own voice in the D&C, we have the statements of modern prophets, seers and revelators. President Gordon B. Hinkley confirmed the identity of the native people of the Americas as Lamanites in his dedication of the Ciudad Juarez Temple when he said, "May the sons and daughters of Father Lehi grow in strength and fulfillment of the ancient promises made concerning them," (*LDS Church News*, 13 Mar, 1999) as did Elder James E. Faust when he dedicated the Tuxtla Gutierrez, Mexico temple: "We invoke thy blessings upon this nation of Mexico where so many of the sons and daughters of Father Lehi dwell" (*LDS Church News*, 18 Mar. 2000). President Thomas S. Monson referred to attendees at the Villahermosa, Mexico temple as "children of Lehi" (*LDS Church News*, 27 May 2000) and President Hinkley said of the members attending the Guayaquil Ecuador Temple that they "have the blood of Lehi in their veins." (*LDS Church News* 7 Aug 1999).

President Kimball spearheaded the Indian Placement Program with the intention that the Lamanites among us could have their curse removed and once again become, as he put it, "white and delightsome." Of this program he said "The day of the Lamanites is nigh. For years they have been growing delightsome, and they are now becoming **white** and delightsome...The children in the home placement program in Utah are often lighter than their brothers and sisters in the hogans on the reservation." (*The Improvement Era*, December 1960, 922-23)

All of this gets even more complicated when you factor in the inhabitants of the Pacific Islands, which leaders of the church have also claimed to be the descendents of Lehi by way of Hagoth, the Book of Mormon's famous ship builder. This is confirmed by many statements such as dedicatory prayer of for the New Zealand temple by President David O. McKay: "We express gratitude that to these fertile Islands Thou didst guide descendents of Father Lehi." This opens an entirely different can of DNA worms that

throws the thesis of this essay entirely out the window. The Gospel Principles manuals have consistently taught that the native peoples of the Americas and the Pacific Islands are Lamanites: “Great numbers of Lamanites in North and South America and the South Pacific are now receiving the blessings of the gospel (*Gospel Principles* 1997, 268). To lump the Polynesians and Native Americans into a single lineage completely destroys any attempts of this essay to explain away the specific DNA problems with Native Americans. Their DNA shows that the Pacific Islanders come from a different location in Asia than the American peoples (*Nature*, 03 October 2016) and that the islands specifically identified by modern prophets and apostles as being populated by Hagoth and his descendents were actually settled long AFTER Book of Mormon times. And we must not assume that this is merely an error of misguided manual writers. It is established doctrine. Brigham Young first said, “Those islanders and the natives of this country (United States) are of the House of Israel, of the seed of Abraham. (*Journals of Religious History* 8:90-104). So who do we believe? The voice of God in restoration scripture, the prophets who say these people ARE literal Lamanites, or the apologists who say they are not?

Now back to your regularly scheduled program:

Population Bottleneck and Genetic Drift

The difficulties do not end with the founder effect. Even if it were known with a high degree of certainty that the emigrants described in the Book of Mormon had what might be considered typically Near Eastern DNA, it is quite possible that their DNA markers did not survive the intervening centuries. Principles well known to scientists, including population bottleneck and genetic drift, often lead to the loss of genetic markers or make those markers nearly impossible to detect.

Population Bottleneck

Population bottleneck is the loss of genetic variation that occurs when a natural disaster, epidemic disease, massive war, or other calamity results in the death of a substantial part of a population. These events may severely reduce or totally eliminate certain genetic profiles. In such cases, a population may regain genetic diversity over time through mutation, but much of the diversity that previously existed is irretrievably lost.

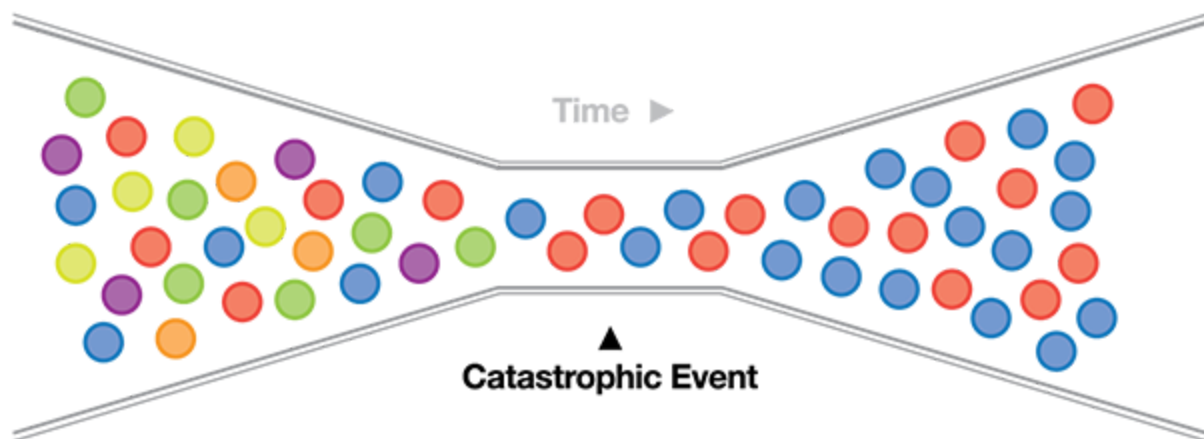


Illustration of population bottleneck

Due to a dramatic reduction in population, some genetic profiles (represented here by the yellow, orange, green, and purple circles), are lost. Subsequent generations inherit only the DNA of the survivors. (This is an interesting argument because the arrival of the first Americans across Beringia is *THE* textbook example of a genetic bottleneck. It is commonly accepted that those people either entered through a briefly open corridor between ice sheets or followed a coastal route, and then spread rapidly throughout the Americas over a period of about 2,000 years, where they continued to flourish until the arrival of European conquerors. According to what you have just read, their DNA should be a complete mystery because of genetic mutation, yet we are still able to easily trace their genetic lineage directly back to Siberia and to that Mal'ta skeleton from 24,000

years ago. Despite the founder effect. Despite the bottleneck. If the consequences of bottleneck and founder effect are so dire, the greatest mystery in science today would be where any of the people of the Americas come from. But it's not a mystery. It is well understood, and it is not changed by faith-based expectations otherwise.)

In addition to the catastrophic war at the end of the Book of Mormon, the European conquest of the Americas in the 15th and 16th centuries touched off just such a cataclysmic chain of events. As a result of war and the spread of disease, many Native American groups experienced devastating population losses.²² One molecular anthropologist observed that the conquest “squeezed the entire Amerindian population through a genetic bottleneck.” He concluded, “This population reduction has forever altered the genetics of the surviving groups, thus complicating any attempts at reconstructing the pre-Columbian genetic structure of most New World groups.”²³ (the author quoted here is the aforementioned LDS geneticist Ugo Perego, the probable uncredited author of this essay).

Yes, the genetic pressure on the ancient Americans did alter their genetic structure, but in a measurable and understandable way, Are we expected to believe that European diseases and warfare specifically and exclusively “squeezed” out the Nephite, Lamanite, Jaredite and Mulekite elements while leaving ample evidence, thousands of years older, of the lineages from Asia?

Also, DNA has been sequenced from ancient archaeological remains of many individuals predating these “catastrophic” wars, including the 8500-year old Kennewick Man* from the American Northwest and some the nearly 13,000-year old individuals previously mentioned from Montana and the Yucatan. And guess what? They present a picture is of a continued presence of Siberian-descended ancient peoples throughout the land right up to modern times with no hint of Middle Eastern intrusion.

*I don't want to move too far off-topic but I should mention the other significance of Kennewick Man. The Heartland movement of Book of Mormon geography claims that the discovery of the Western Eurasian haplogroup X in modern North American Natives

is conclusive evidence of the Book of Mormon, but the people making these claims need to be frequently reminded that Kennewick Man's genome also contains haplogroup X, and that he died thousands of years *before* the Book of Mormon. (*Nature*, 23 July 2015, 523)

Genetic Drift

Genetic drift is the gradual loss of genetic markers in small populations due to random events. A simple illustration is often used to teach this concept:

Fill a jar with 20 marbles—10 red, 10 blue. The jar represents a population, and the marbles represent people with different genetic profiles. Draw a marble at random from this population, record its color, and place it back in the jar. Each draw represents the birth of a child. Draw 20 times to simulate a new generation within the population. The second generation could have an equal number of each color, but more likely it will have an uneven number of the two colors.

Before you draw a third generation, adjust the proportion of each color in the jar to reflect the new mix of genetic profiles in the gene pool. As you continue drawing, the now-uneven mix will lead to ever more frequent draws of the dominant color. Over several generations, this “drift” toward one color will almost certainly result in the disappearance of the other color.



Illustration of genetic drift using colored marbles.

This exercise illustrates the inheritance pattern of genetic material over the course of several generations and shows how drift can result in the loss of genetic profiles. The

effect of drift is especially pronounced in small, isolated populations or in cases where a small group carrying a distinct genetic profile intermingles with a much larger population of a different lineage. (Wait, weren't you just told that all of the Book of Mormon peoples were killed off by a catastrophe? Now they're telling you that they were intermingled out of existence?)

As with bottlenecks and the founder effect, the peopling of the Americas is a perfect laboratory to study genetic drift. Genetic drift did happen, which is why Native Americans have a unique set of haplotypes and different skull morphology than their ancient forebears. But even so, 15,000 years was not enough time to allow for the slightest question about the origin of these people as the descendants of Beringia land bridge pedestrians, as already acknowledged by this essay. Consider the 24,000 year old Mal'ta child; the Lehitese arrived a mere 2600 years ago. Why should we expect that the Nephite/Lamanite DNA would have mutated ten times faster than that of older peoples?

We have seen how modern prophets claim that Polynesians are descendants of Lehi through Hagoth, yet their DNA traces back to Asia through an entirely different lineage than the American populations. In fact, new DNA findings link Polynesians to Asia all the way back to the Mesolithic Age. Are we to believe that the Book of Mormon ancestry of the Pacific Islanders also vanished in exactly the same way as their American cousins, and in exactly the same way left only the evidence of the non-Book of Mormon Asian origin of the Polynesians? In addition, the settlement of each island was a reenactment of the conditions of the Nephi voyage, so we must accept that each and every case lost only its essential Book of Mormon DNA in exactly the same way, leaving only the DNA of the "other" people. But that's not even the real problem. The real problem is that most of those islands weren't yet inhabited in Book of Mormon times.

A study in Iceland combining both genetic and genealogical data demonstrates that the majority of people living in that country today inherited mitochondrial DNA from

just a small percentage of the people who lived there only 300 years ago.²⁴ The mitochondrial DNA of the majority of Icelanders living at that time simply did not survive the random effects of drift. It is conceivable that much of the DNA of Book of Mormon peoples did not survive for the same reason (yet there is absolutely no mystery about where the Icelanders came from and when, so not such a great example after all. Now try to imagine how credible this essay would sound if it claimed that the Icelanders were really Jews who originated in Jerusalem but evidence of them had been “squeezed out”).

Genetic drift particularly affects mitochondrial DNA and Y-chromosome DNA, but it also leads to the loss of variation in autosomal DNA. When a small population mixes with a large one, combinations of autosomal markers typical of the smaller group become rapidly overwhelmed or swamped by those of the larger. The smaller group’s markers soon become rare in the combined population and may go extinct due to the effects of genetic drift and bottlenecks as described above. Moreover, the shuffling and recombination of autosomal DNA from generation to generation produces new combinations of markers in which the predominant genetic signal comes from the larger original population. This can make the combinations of markers characteristic of the smaller group so diluted that they cannot be reliably identified (Losing diversity by multigenerational blending in is the opposite of losing diversity by bottleneck. Did the molecular evidence of Lehighites vanish because they intermarried with the indigenous population or because they remained separate and vanished because of a bottleneck? I guess we will just throw it all against the wall and see if anything sticks.).

The authors of a 2008 paper in the American Journal of Physical Anthropology summarized the impact of these forces succinctly: “Genetic drift has been a significant force [on Native American genetics], and together with a major population crash after European contact, has altered haplogroup frequencies and caused the loss of many haplotypes.”²⁵ Genetic profiles may be entirely lost, and combinations that once existed may become so diluted that they are difficult to detect. Thus, portions of a population may in fact be related genealogically to an individual or group but not have DNA that

can be identified as belonging to those ancestors. In other words, Native Americans whose ancestors include Book of Mormon peoples may not be able to confirm that relationship using their DNA.²⁶ (But does the Book of Mormon really say the Lehites, Jaredites and Mulekites were just a tiny handful of people who were quickly absorbed into another culture? Or does it say they filled the land, built great cities and fought wars that included hundreds of thousands, even millions of people? Doesn't it forbid intermarriage, and wasn't that the reason for the "curse" of dark skin? (2 Nephi 5:21 "And he had caused the cursing to come upon them, yea, even a sore cursing, because of their iniquity. For behold, they had hardened their hearts against him, that they had become like unto a flint; wherefore, as they were white, and exceedingly fair and delightsome, that they might not be enticing unto my people the Lord God did cause a **skin of blackness** to come upon them"). The authors of these new hypotheses show a great disrespect for the Book of Mormon's authors; they simply refuse to believe them, or are embarrassed by them and are trying to explain their story away.)

This essay has given a couple of examples that are supposed to support its claims (Iceland and Dr. Perego's own ancestry). Now let's look at some real-world examples that are much more relevant to the Book of Mormon:

- 1) The Lemba people are a tribe of black Africans living in Zimbabwe. Although physically indistinguishable from their neighbors, the Lemba claim to be Jews who migrated from the Middle East at the time of the Babylonian invasion, **just like the Lehites**. The Lemba moved into the African population and interbred with them, just as this essay claims the Book of Mormon settlers did. This makes the Lemba a perfect example for all of the arguments that this essay is trying to apply to the Book of Mormon. So, based on those assumptions we should expect that there would be no way to genetically link the Lemba to ancient Middle Eastern Israelites, right? Guess again. DNA testing in the late 1990s and early 2000s finds strong and direct links via multiple haplogroups between the

Lemba and the Jews and Arabs of the time and place from which the Lemba claim to originate. They are, without question, of Middle Eastern Semitic origin, just as their tradition claims. (Spurdle, A. B. (1996). The origins of the Lemba "Black Jews" of southern Africa: evidence from p12F2 and other Y-chromosome markers. *American journal of human genetics*, 59(5), 1126).

- 2) When DNA of aboriginal Australians was sequenced an obvious incursion of Indian (that's real Indians from India) DNA was found, indicating an interbreeding with nomads from India 4200 years ago. As corroborating evidence, dogs and new weapon technology also appear at the same time in the archaeological record, demonstrating that the Asian immigrants brought these things with them. This can be compared to the Book of Mormon claims that its peoples brought steel, crops and domesticated animals. Yet neither DNA nor any sort corroborating archaeological evidence exists in support of the Book of Mormon's case. (Pugach, I., Delfin, F., Gunnarsdóttir, E., Kayser, M., & Stoneking, M. (2013). Genome-wide data substantiate Holocene gene flow from India to Australia. *Proceedings of the National Academy of Sciences*, 110(5), 1803-1808.)
- 3) The Denisovans were an extremely ancient culture distinct from both Neanderthals and Modern Humans who lived about 40,000 years ago. All we know of their physical makeup comes from a single finger bone found in Siberia. From this single fragment geneticists were able to sequence the Denisovan genome. Recent studies have found Denisovan DNA in the genetic makeup of people throughout the Pacific Islands. How's that for an example of genetic bottleneck and founder effect? We can trace the origins of the Pacific Islanders back 40,000 years through a tiny trickle of

DNA, yet we still can't find any traces of the bloodline of Hagoth and his crew, whom modern prophets have claimed on multiple occasions to be the **sole** founders of the Polynesian societies. (Reich, D. (2011). Denisova admixture and the first modern human dispersals into Southeast Asia and Oceania. *The American Journal of Human Genetics*, 89(4), 516-528).

- 4) DNA studies and archaeological evidence of American dogs clearly shows that dogs arrived in the Americas with trans-Beringial travelers over 10,000 years ago. Even though the Book of Mormon claims its travelers brought Old World animals and seeds, and supposedly raised them in the Americas with great success, there remains no physical or DNA evidence that those things ever existed in the Americas (Leonard, J. (2002). Ancient DNA evidence for Old World origin of New World dogs. *Science*, 298(5598), 1613-1616..

We must ask ourselves why all of the reasons given by this essay for the disappearance of Book of Mormon DNA should not apply to these and many other real world examples. If the forces of genetic drift and bottleneck are severe enough to wipe out all evidence of the Book of Mormon it seems like we shouldn't expect to find any examples like those listed above.

Now let's consider yet another serious genetic rock that this essay avoids turning over. On June 4, 1834, during the Zion's Camp march across eastern Ohio and Illinois to Missouri, Joseph Smith wrote in a letter to Emma about "wandering over the plains of the Nephites, recounting occasionally the history of the Book of Mormon, roving over the mounds of that once beloved people of the Lord, picking up their skulls & their bones, as a proof of its divine authenticity..." (*The Personal Writings of Joseph Smith, Deseret Book, 1984, 324*) So here was Joseph's own **proof** of the Book of Mormon's authenticity: the bones they found on that journey, including those of an individual who Joseph identified as Zelph, a Lamanite whose skin become white again because of his righteousness. Zelph's burial mound, just outside of Griggsville Illinois, is known by archaeologists today as Naples Mound 8. This should be exciting news to Mormon apologists! Joseph Smith told us exactly where to find DNA evidence of real Nephites and Lamanites who died in Book of Mormon times. So why isn't the church eagerly

studying those remains and proclaiming to the world that they have found genetic proof for the Book of Mormon? Why aren't BYU archaeologists crawling over the region around Griggsville? Why are they instead trying to distract you from such questions with apologetics like this essay? Because they can find no trace of Nephites or Lamanites, white or otherwise, on the plains of Illinois. But I think you saw that one coming.

Conclusion

Much as critics and defenders of the Book of Mormon would like to use DNA studies to support their views, the evidence is simply inconclusive. (which makes me wonder why LDS scientists, like Dr.s Thomas Murphy and Simon Southerton, who published the results of Native American DNA research were accused by the church of apostasy and summoned for disciplinary action. Apparently the evidence they presented was just a little bit too conclusive-ish for comfort.)

Nothing is known about the DNA of Book of Mormon peoples. Even if such information were known, processes such as population bottleneck, genetic drift, and post-Columbian immigration from West Eurasia make it unlikely that their DNA could be detected today. As Elder Dallin H. Oaks of the Quorum of the Twelve Apostles observed, "It is our position that secular evidence can neither prove nor disprove the authenticity of the Book of Mormon."²⁷

Book of Mormon record keepers were primarily concerned with conveying religious truths and preserving the spiritual heritage of their people. They prayed that, in spite of the prophesied destruction of most of their people, their record would be preserved and one day help restore a knowledge of the fulness of the gospel of Jesus Christ. Their promise to all who study the book "with a sincere heart, with real intent, having faith in Christ," is that God "will manifest the truth of it unto you, by the power of the Holy Ghost."²⁸ For countless individuals who have applied this test of the book's authenticity, the Book of Mormon stands as a volume of sacred scripture with the power to bring them closer to Jesus Christ.

Don't you feel a little disappointed that this is where this essay leads us? The church demands that we believe the Book of Mormon's literal, physical claims. We test

them. They fail. The apologists step in and create a diversion crafted to help us continue to believe in the literalness of the claims while trying to dissuade us from expecting any tangible evidence. Or worse, trying to explain away the tangible evidence that we do have. But in the end you are always left with the final reminder that it's all really just a matter of faith and that if you lack conviction of a particular teaching, or are troubled by contrary evidence, it is your fault for not having an adequately sincere heart or for letting yourself be deceived by Satan and his clever tricks of logic and reason. Even as these desperate arguments are being laid before us we are told to ignore the evidence and continue believing and praying until we get an answer - but only if it's the right answer. We might wonder why we are not given the same charge to determine the truthfulness of the Koran or the Bhagavad Gita.

We are expected to do this indefinitely because there is only one conclusion that we are allowed to reach, no matter how long we study and pray. But, if you are truly, sincerely striving to know the truth at all costs, how are you expected to arrive at that ultimate answer when the church itself keeps changing its claims about the Book of Mormon and allowing its professors to lead you down these convoluted, non-doctrinal roads, chasing mobile goal posts?

If you want to clearly understand the church's actual doctrines about the settling of the Americas I highly recommend an *Ensign* article called *A Promised Land*, written in 1974 by Jeffrey R. Holland as a tribute to the approaching bicentennial anniversary of the United States. Of course, this was before molecular science came along and spoiled the story. (Link: <https://www.lds.org/ensign/1976/06/a-promised-land?lang=eng>). You might want to read it alongside the version of history that is told in this essay to get a sense of the degree of backpedaling and hand waving that's going on here. Don't make the mistake of excusing this as Elder Holland "speaking as a man" and presenting his own opinion. He is merely repeating the words of prophets and official church materials.

Elder Holland talks about an ancient North America that was not yet separated by plate tectonics from the Old World when Adam and Eve lived in what is now Missouri. This would have been long **after** the arrival of those "other" people that this

essay tells us arrived from Asia (a continent that does not yet exist in Elder Holland's version of the story) and spread across the land. Elder Holland then explains how God wiped the land free of all life in the Great Flood (how did the Siberian immigrants survive?) and only then physically separated the Americas from the rest of the world, specifically to keep it uncontaminated by human habitation. He says, "Such a special place needed now to be kept apart from other regions, **free from the indiscriminate traveler** as well as the soldier of fortune. To guarantee such sanctity the very surface of the earth was rent. In response to God's decree, the great continents separated and the ocean rushed in to surround them. The promised place was set apart. **Without habitation** it waited for the fulfillment of God's special purposes." Brother Holland then says "With care and selectivity, the Lord began almost at once to repeople the promised land," and goes on to tell the stories of the arrival of first the Jaredites and then the Nephites on this pristine, unoccupied land.

Quite a different story from the one that has been forced upon us by the harsh light of science, and quite different from the tale told in this essay. These are two dramatically contradictory histories. But both come from the church and are approved by the First Presidency. Which are we supposed to believe? If you get a spiritual confirmation about one, does that mean the other is false? Or is there yet another version that they haven't come up with yet? It sounds like we are being told multiple contradictory stories and expected to just pick whichever works best for us and go with it, whether it's true or not.

Somebody's got some 'splainin' to do.

The title page of the Book of Mormon, written by Moroni, tells us that the book was "written to the Lamanites, who are a remnant of the house of Israel... that they may know the covenants of the Lord, that they are not cast off forever." This essay requires us to believe that there are no more Lamanites, thus making this purpose of the Book of Mormon completely unfulfillable. Nephi beheaded Laban and absconded with the brass plates so that a nation would not "dwindle and perish in unbelief," but not only have the peoples of the Book of Mormon dwindled in unbelief, according to this essay, they have

perished and vanished utterly from the face of the earth. Apparently they were real at one time - millions and millions of them - but now they are completely and utterly erased beyond the power of science to ever find them. Yet there remains a continent full of “other” people, who, even though they are a perfect fit for the Book of Mormon’s description of Lamanites in skin color, clothing, and many other attributes, are completely unrelated and have been consistently misidentified by both the Lord and his prophets.

The takeaway from this essay should be that the authors did not present a single shred of evidence **for** the Book of Mormon. They did, however, make a lot of excuses for the lack of evidence, they overlooked a lot of problematic contradictory evidence, and they did their best to downplay a serious scientific issue that significantly impacts the historicity of the book.

To come away from this essay feeling that you have been given a satisfying answer you must accept that:

1. The Jaredites, Mulekites and Lehites arrived at a new land that was already heavily populated.
2. These other people were the ancestors of modern Native Americans, yet cannot be descendents of Adam and Eve because they predate them by thousands of years, as described by the Bible and modern General Authorities.
3. These “other” people somehow survived the Noahic Flood, even though it was sent by God specifically to wipe just such people from the the American continents to prepare the land for his chosen people.
4. The Book of Mormon somehow fails to mention these people, their cities, their extensive agriculture, military presence, writing systems, religion and trade

systems (apart from some possible “hints”), even though it gives many descriptions of animals, and plants that can no longer be detected.

5. Our prophets, seers and revelators, and even our scriptures (i.e. God), are wrong about the identity and origins of both the Native American and the Polynesian peoples.
6. The vast civilizations described by the Book of Mormon utterly vanished without a trace, while massive evidence of the civilizations of their neighbors is still everywhere to be found.
7. We should give more weight to the excuses given in this essay than to physical, testable evidence or to the words of the prophets or the Lord through scripture.

Since the First Presidency (or anyone else for that matter) does not attach their names or reputations to any of this material there is no reason for you to take any of it seriously. It is merely a juggling act to divert us from the unwelcome evidence. It is hearsay and, in light of what the scriptures and prophets have said, possibly heresy.

I believe there are many inspiring stories and concepts in the Book of Mormon. I encourage anyone who finds value there to continue to read and cherish it. But I would like to caution that using scientific language to dance around the very real problems of literal historicity does not make Book of Mormon apologetics empirically scientific. Apologetics is not science, it is more like anti-science. Science follows the evidence and forms testable hypotheses. Religious apologetics does the exact opposite; it starts with a conclusion, cherry-picks the evidence for odds and ends that appear to support it, and reimagines the source material in an attempt to cram it into the square hole of the apologists' foregone, faith-based conclusions. In that sense it is more like trial law than science. The lawyer's job is to create a case that looks good for his/her defendant, not to discover the objective truth. If the evidence doesn't go in the apologists' favor they

either discard it or attempt to discredit it, or to discredit the people behind it. They herald the science that fits their needs and dismiss the science that doesn't. Just to be clear, I am not accusing the authors of this essay of all of these things, but they are helping build the scaffold upon which these things hang.

If you find the answers in this and the other Gospel Topics essays satisfying, more power to you. I will wait for the First Presidency to poke their heads out and give us something that actually answers the questions. In the meantime we must continue to ask ourselves why it is that, of the thousands of archaeologists who have studied the civilizations and peoples (including DNA) of the ancient Americas, only those who were already devout Mormons and believers in the Book of Mormon find anything even remotely resembling a correlation between the real world and the story found in the Book of Mormon.

Resources

1. See introduction to the Book of Mormon.
2. This article uses the terms Native American and American Indian to refer to all the indigenous peoples of both North and South America. For more on the relationship of DNA studies and the Book of Mormon generally see Ugo A. Perego, "The Book of Mormon and the Origin of Native Americans from a Maternally Inherited DNA Standpoint," in Robert L. Millet, ed., *No Weapon Shall Prosper: New Light on Sensitive Issues* (Provo, UT: Brigham Young University Religious Studies Center, 2011), 171–216; Michael F. Whiting, "DNA and the Book of Mormon: A Phylogenetic Perspective," *Journal of Book of Mormon Studies* 12, no. 1 (2003), 24-35; Daniel C. Peterson, ed., *The Book of Mormon and DNA Research* (Provo, UT: Neal A. Maxwell Institute, 2008).
3. Antonio Torroni and others, "Asian Affinities and Continental Radiation of the Four Founding Native American mtDNAs," *American Journal of Human Genetics* 53 (1993), 563–90; Alessandro Achilli and others, "The Phylogeny of the Four Pan-American MtDNA Haplogroups: Implications for Evolutionary and Disease Studies," *PloS ONE* 3, no. 3 (Mar. 2008), e1764.
4. Ugo A. Perego and others, "Distinctive Paleo-Indian Migration Routes from Beringia Marked by Two Rare mtDNA Haplogroups," *Current Biology* 19 (2009), 1-8.
5. Martin Bodner and others, "Rapid Coastal Spread of First Americans: Novel Insights from South America's Southern Cone Mitochondrial Genomes," *Genome Research* 22 (2012), 811–20.
6. John L. Sorenson, "When Lehi's Party Arrived in the Land, Did They Find Others There?" *Journal of Book of Mormon Studies* 1, no. 1 (Fall 1992), 1–34. These arguments were summarized more

recently in John L. Sorenson, *Mormon's Codex: An Ancient American Book* (Provo, UT: Neal A. Maxwell Institute, 2013). Sorenson suggests that indicators in book's text makes it "inescapable that there were substantial populations in the 'promised land' throughout the period of the Nephite record, and probably in the Jaredite era also." ("When Lehi's Party Arrived," 34).

7. Anthony W. Ivins, in Conference Report, Apr. 1929, 15.
8. "Facts Are Stubborn Things," *Times and Seasons* 3 (Sept. 15, 1842): 922. This article is unattributed but was published under Joseph Smith's editorship. See also Hugh Nibley, *Lehi in the Desert, The World of the Jaredites, There Were Jaredites* (Salt Lake City and Provo, UT: Deseret Book and Foundation for Ancient Research and Mormon Studies, 1988), 250.
9. For a review of statements on this subject, see Matthew Roper, "Nephi's Neighbors: Book of Mormon Peoples and Pre-Columbian Populations," *FARMS Review* 15, no. 2 (2003), 91–128.
10. Introduction to the Book of Mormon, rev. ed. (New York: Doubleday, 2006). The introduction, which is not part of the text of the Book of Mormon, previously stated that the Lamanites were the "principal ancestors of the American Indians." Even this statement, first published in 1981, implies the presence of others. (Introduction to the Book of Mormon, 1981 ed.)
11. John L. Sorenson, "When Lehi's Party Arrived," 5–12.
12. Peter A. Underhill and Toomas Kivisild, "Use of Y Chromosome and Mitochondrial DNA Population Structure in Tracing Human Migrations," *Annual Review of Genetics* 41 (2007), 539–64.
13. Haplogroup names follow a standardized nomenclature of alternated letters of the alphabet and numbers. See International Society of Genetic Genealogy, "Y-DNA Haplogroup Tree 2014"; Mannis van Oven and Manfred Kayser M., "Updated Comprehensive Phylogenetic Tree of Global Human Mitochondrial DNA Variation," *Human Mutation* 30 (2009), E386-E394.
14. You are about to access <http://www.isogg.org/tree> and <http://www.phylotree.org>.
15. You are now leaving a website maintained by The Church of Jesus Christ of Latter-day Saints. We provide the link to this third party's website solely as a convenience to you. The linked site has its own terms of use, privacy policies, and security practices that differ from those on our website. By referring or linking you to this website, we do not endorse or guarantee the content, products, or services offered.
16. Vincenza Battaglia and others, "The First Peopling of South America: New Evidence from Y-Chromosome Haplogroup Q," *PLoS ONE* 8, no. 8 (Aug. 2013), e71390.
17. Ugo A. Perego and others, "The Initial Peopling of the Americas: A Growing Number of Founding Mitochondrial Genomes from Beringia," *Genome Research* 20 (2010), 1174–79.
18. Maanasa Raghavan and others, "Upper Palaeolithic Siberian Genome Reveals Dual Ancestry of Native Americans," *Nature*, Nov. 20, 2013.
19. This "clock" is based on the observed rate at which random mutations occur in DNA over time. For an example of a proposed mitochondrial DNA molecular clock see Pedro Soares and others,

- “Correcting for Purifying Selection: An Improved Human Mitochondrial Molecular Clock,” *American Journal of Human Genetics* 84 (2009), 740–59.
20. Alessandro Achilli and others, “Reconciling Migration Models to the Americas with the Variation of North American Native Mitogenomes,” *Proceedings of the National Academy of Sciences* 110, no. 35 (2013), 14308–13.
 21. Morten Rasmussen and others, “Ancient Human Genome Sequence of an Extinct Palaeo-Eskimo,” *Nature*, Feb. 11, 2010, 757–62. This hypothetical migration would have been separated by approximately 200 generations from early migrations to the Americas.
 22. Quoted in Cassandra Brooks, “First Ancient Human Sequenced,” *Scientist*, Feb. 10, 2010, www.thescientist.com/blog/display/57140. Michael H. Crawford, molecular anthropologist at the University of Kansas, noted similarly that the “evidence does not preclude the possibility of some small-scale cultural contacts between specific Amerindian societies and Asian or Oceanic seafarers.” (Michael H. Crawford, *The Origins of Native Americans: Evidence from Anthropological Genetics* [Cambridge: Cambridge University Press, 1998], 4).
 23. Ugo A. Perego, “Origin of Native Americans,” 186–87.
 24. Native populations were reduced by as much as 95 percent. See David S. Jones, “Virgin Soils Revisited,” *William and Mary Quarterly*, Third Series, vol. 60, no. 4 (Oct. 2003), 703–42.
 25. Michael H. Crawford, *Origins of Native Americans*, 49–51, 239–41, 260–61.
 26. Agnar Helgason and others, “A Populationwide Coalescent Analysis of Icelandic Matrilineal and Patrilineal Genealogies: Evidence for a Faster Evolutionary Rate of mtDNA Lineages than Y Chromosomes,” *American Journal of Human Genetics* 72 (2003), 1370–88.
 27. Beth Alison Schultz Shook and David Glenn Smith, “Using Ancient MtDNA to Reconstruct the Population History of Northeastern North America,” *American Journal of Physical Anthropology* 137 (2008), 14.
 28. See “How Many Genetic Ancestors Do I Have?” Co-op Lab, Population and Evolutionary Genetics, UC Davis.
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 31. Dallin H. Oaks, “The Historicity of the Book of Mormon,” in Paul Y. Hoskisson, ed., *Historicity and the Latter-day Saint Scriptures*, (Provo, UT: Brigham Young University Religious Studies Center, 2001), 239.
 32. Moroni 10:4.

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