

We already discussed the chariots which I think is a huge problem. Several additional technology advances are completely out of place. I'll go through these more briefly than the previous sections, but I am happy to discuss any of these in depth if you have any questions.

Silk

The Book of Mormon mentions the use of silk six times. Silk is a material that is created from the cocoon of the **Asian** moth "Bombyx mori", and was unknown to the pre-Columbian Americas.

Compass

The Book of Mormon also states that a "compass" or "Liahona" was used by Nephi around 600 BC. The compass is widely recognized to have been invented in China around 1100 AD, and remains of a compass have never been found in America. In the Book of Alma when Alma, speaking to his son Helaman, explains "the thing which our fathers call a ball, or director — or our fathers called it Liahona, which is, being interpreted, a compass" (Alma 37:38). Alma tells his son that "it is as easy to give heed to the word of Christ ... to eternal bliss, as it was for our fathers to give heed to this compass ... to the promised land" (Alma 37:44).

Joseph Smith, Jr would have been familiar with the use of the word "compass" in his King James Bible in the books of Exodus, Numbers, Joshua, Proverbs, and Acts. So adding it to the Book of Mormon seemed reasonable, except that the Bible uses "compass" in a completely different way. All uses in the Bible are referring to something round or something which moved in a curved fashion. This definition is consistent with one of the meanings of "compass" as found in any dictionary.

The Book of Mormon references "compass" to refer to, as Alma 37:38 states, a "director". The important part of each reference to the Liahona is the fact that it **directs**. Here are the other references to this, with my emphasis added:

1 Nephi 16:10

And it came to pass that as my father arose in the morning, and went forth to the tent door, to his great astonishment he beheld a round ball of curious workmanship; and it was of fine brass. And within the ball were two spindles; and the one **pointed the way wither we should go** into the wilderness.

1 Nephi 16:30

And it came to pass that I, Nephi, did go forth up into the top of the mountain, according to the **directions** which were given upon the ball.

It makes sense that the name of the device, "Liahona, which is, being interpreted, a compass," comes from the fact that it is a "director" which had "two spindles; and the one pointed the way." Therefore this use predates the invention of a directing compass by more than 1500 years.

Submarines and Windows

The Book of Mormon describes that the Jaredite people built submersible boats, and they were familiar with the concept of "windows" near the time of the Biblical Tower of Babel (around 2000 BC), and that they specifically avoided crafting windows **for lighting** in their covered seagoing vessels, because the windows would be "**dashed in pieces**" during the ocean voyage. Transparent window panes are a more recent invention—dating to the 11th century AD in Germany.

I'd like to dig in a little deeper about the story:

First, for a water voyage prior to the ocean crossing itself, the Lord had instructed Jared and his brother to build boats in which, according to the account, their families and friends “did cross many waters,” (2:6) carrying with them “seeds of every kind,” flocks (“male and female, of every kind”), “fowls of the air”, “swarms of bees,” and “fish of the waters.” (2:1-3) According to the account, this boat trip was accomplished successfully.

Next, four years later, the Lord again ordered the men to build similar boats “after the manner of barges which ye have hitherto built” (2:16), this time for an ocean crossing of nearly **one year’s duration**. These boats, similar to the ones built four years earlier, are described as “small, and they were light upon the water, even like unto the lightness of a fowl upon the water” (2:16), with structural integrity such that they were “exceedingly tight,” top and bottom, entirely leak proof and airtight (“tight like unto a dish”) (2:17) because they were going to be “many times buried in the depths of the sea” (6:6) by “mountain waves” (2:24) during many violent storms. To be both (a) light (“like a fowl upon the water”), and (b) able to carry flocks and herds with food supplies for a **year**, the construction would obviously have to be carefully planned and organized because of the known challenges of combining lightness with strength even today.

Following the Lord’s specifications, the workmen built each boat with just one tight-fitting door, and no window or other opening. Construction of all eight boats was completed, per the Lord’s personal instructions (“I have made the barges according as thou [the Lord] hast directed me.” 2:18).

Next, the Brother of Jared looked at the finished boats and wondered, Whoa! How will we breathe in these things? Specifically, quoting him: “... I have made the barges as thou hast directed me. And behold, O Lord, we shall perish, for in them we cannot breathe, save it is the air which is in them; therefore we shall perish.” (2:19) It was only then, that is, that he noticed that the boats were air-tight. He also noticed they were totally dark inside: “O Lord, in them there is no light; whither shall we steer?” (2:19)

As we are all likely aware, in Ether 2:20 the Lord answers that “Behold, thou shalt make a hole in the top, and also in the bottom; and when thou shalt suffer for air thou shalt unstop the hole and receive air. And if it be so that the water come in upon thee, behold, ye shall stop the hole, that ye may not perish in the flood,” and for light they have two glowing rocks in each ship (6:2).

So, the group had already built ships in the same way four years earlier and successfully crossed waters without worrying about light or air. For some reason with this longer trip, these issues finally come up.

Regarding that air, I want to propose a few real issues with the plausibility:

- If you were taking your family on a car trip in a car that for some reason was completely airtight, would you tell them, “Wait until you notice you’re suffering for lack of air, **then** open the window.” Isn’t it the case that people who need air often don’t notice it until too late, because oxygen shortage has caused them to pass out? Don’t we read that people who suffocate often don’t know it’s happening? Pilots at altitude undergoing oxygen deprivation experience the same hazard. Their awareness drops below the level needed to know they lack “air.”
- How would air enter and exit the same single hole supplying the entire barge/boat? With one air hole (which was small enough to not weaken the structure of the barge) open only a fraction of the time, how did any of the air circulate throughout the ship? Air does not readily enter a closed space.
- They had seeds of every kind, **flocks** of every kind, **fowls** of the air, swarms of **bees**, and **fish** of the waters, all **inside** the boats with them, **for one year**, without any open air circulation. Based on some rough calculations, one goat eats roughly 2-3 pounds of food a day, times 365 - days is over 1,000 pounds of food **per mammal**. Plus they would need huge amounts of **fresh**

water for each person and animal since they couldn't drink ocean water. All this food, water, and animals were inside barges without fresh air, being "tossed upon the waves" (6:5) and "buried in the depths of the sea" (6:6) in a ship designed specifically to be able to rotate upside down at will.

I could go on in looking at this trip with even a little common sense. As you do this, it becomes harder to argue that it is anything more than a completely fictitious story. As B.H. Roberts stated in *Studies of the Book of Mormon*, page 251, "... there is a certain lack of perspective in the things the book [of Mormon] relates as history that points quite clearly to an underdeveloped mind as their origin. The narrative proceeds in characteristic disregard of conditions necessary to its reasonableness, as if it were a tale told by a child, with utter disregard for consistency."

Last point about the Jaredites. The story starts with Jared and his family leaving the Tower of Babel (Ether 1). In the book of Ether, the Tower of Babel is a real event. Without it being a real event, nothing really makes sense. The problem is that the story of the Tower of Babel in the book of Genesis (11:1-9) is a typical "etiological" myth. This is a story invented to explain why something is so, much like children's stories called "How the leopard got his spots," "Why the sea is salty," "Why the sky is blue," etc. There are a number of other etiological tales in the Bible, such as the tales to explain why a snake has no legs (Gen. 3), or why we see a rainbow after a storm (Gen.9:13-16). There never was a Tower of Babel, but it had to exist for the story of the Jaredites to make any sense. So, which is it? Was the Tower of Babel a real event, or is the book of Ether a completely fabricated story? I have to lean toward the fabrication, in agreement with B.H. Roberts.

Uses of metal

Here are some of the verses in the Book of Mormon that reference metals:

2 Nephi 5:15

And I did teach my people to build buildings, and to work in all manner of wood, and of **iron**, and of **copper**, and of **brass**, and of **steel**, and of **gold**, and of **silver**, and of **precious ores**, which were in great abundance.

Jarom 1:8

And we multiplied exceedingly, and spread upon the face of the land, and became exceedingly rich in **gold**, and in **silver**, and in precious things, and in fine workmanship of wood, in buildings, and in machinery, and also in **iron** and **copper**, and **brass** and **steel**, making **all manner of tools** of every kind to till the ground, and **weapons of war**—yea, the sharp pointed arrow, and the quiver, and the dart, and the javelin, and all preparations for war.

Mosiah 8:10

And behold, also, they have brought **breastplates**, which are large, and they are of **brass** and of **copper**, and are perfectly sound.

Mosiah 11:8

And it came to pass that king Noah built many elegant and spacious buildings; and he ornamented them with fine work of wood, and of all manner of precious things, of **gold**, and of **silver**, and of **iron**, and of **brass**, and of **ziff**, and of **copper**;

Mosiah 11:10

And he also caused that his workmen should work all manner of fine work within the walls of the

temple, of fine wood, and of **copper**, and of **brass**.

Ether 7:9

Wherefore, he came to the hill Ephraim, and he did **molten** out of the hill, and made **swords** out of **steel** for those whom he had drawn away with him; and after he had armed them with swords he returned to the city Nehor, and gave battle unto his brother Corihor, by which means he obtained the kingdom and restored it unto his father Kib.

Ether 10:23

And they did work in all manner of ore, and they did make **gold**, and **silver**, and **iron**, and **brass**, and all manner of metals; and they did dig it out of the earth; wherefore, they did cast up mighty heaps of earth to get ore, of **gold**, and of **silver**, and of **iron**, and of **copper**. And they did work all manner of fine work.

Some studies have shown that metallurgy did exist in a primitive state in Mesoamerica during the Preclassic/Formative and Classic periods (which corresponds to the time period in the Book of Mormon). These metals include brass, iron ore, copper, silver, and gold. However, the metals were never used to make swords or armor.

Between 2004 and 2007, a Purdue University archaeologist, Kevin J. Vaughn, discovered a 2000-year-old iron ore mine near Nazca, Peru, however there is no evidence of smelting, and the ore (hematite) was apparently used to make pigments. There are other numerous excavations that included iron ore. He noted:

“Even though ancient Andean people smelted some metals, such as copper, **they never smelted iron** like they did in the Old World...Metals were used for a variety of tools in the Old World, such as weapons, while **in the Americas, metals were used as prestige goods for the wealthy elite.**”

This is another **really big deal**. There is no evidence of steel (hardened iron) production in North, Central, or South America. Making steel is a big process, which would leave big evidence, mostly in the form of large ovens that can reach the very high temperatures needed to purify and then harden the iron, and the waste products of steelmaking. Neither of these evidences would just disappear over time. They would be easily excavated, and the purpose would be easily understood. Yet, no evidence of steelmaking in pre-Columbian Americas has ever been uncovered.

The word “dross” (meaning a by-product of this high-temperature smelting needed to make steel) appears twice in the Book of Alma. According to [Brent Lee Metcalfe](#):

“The importance of metallurgy suggested by these frequent references to the metals themselves is confirmed by Nephite use of metaphors about metallurgical processes. For example, the word ‘dross’ is employed metaphorically. Dross is the waste product of smelting, the impurities which rise to the surface above the heavier molten metal. When cool, dross is a newly formed rock consisting of oxides, silicas, and other components of the ore in which the metallic mineral occurred. Dross has the usual qualities of a hard rock in that it resists erosion and deterioration unless subject to mechanical and/or chemical breakdown. The context for the word ‘dross’ in two passages in the Book of Mormon record suggests that the speaker and audience understood the metallurgical process the metaphor implies (cf. Ps. 119:119; Prov. 25:4; 26:23; Isa. 1:22, 25; Ezek. 22:18-19). ‘Therefore they were not permitted to enter into their synagogues to worship God, being esteemed as filthiness,’ the text explains. ‘Therefore they were poor; yea, they were es-

teemed by their brethren as dross; therefore they were poor as to things of the world; and also they were poor in heart' (Alma 32:3). Later it is explained, '[T]herefore, if ye do not remember to be charitable, ye are as dross, which the refiners do cast out, (it being of no worth) and is trodden under foot of men' (34:29). Such apt metaphors suggest that metallurgical processes were an important and generally understood feature of Nephite life."

Additionally, the Book of Mormon details a system of metal weights and measures used by the societies described therein for commerce. However, the overall use of metal in ancient America seems to have been extremely limited. A more common exchange medium in Mesoamerica were **cacao beans**.

Really, though, even if no evidence of the actual making of the steel or other metals were found, the bigger mystery for me is how no actual swords, breastplates, "all manner of tools of every kind to till the ground", and other "weapons of war" that were supposedly made in abundance for at least a thousand years have been found. There are battles in the Book of Mormon where **millions** died. A battle of that magnitude would have left piles and piles of swords and breastplates, all other types of artifacts. Again, nothing supporting any of this has been found.