

BOOK OF MORMON COMPARISONS

Metal Weapons and Tools

"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." (2 Nephi 5:15)

Critics have often pointed to the mention of metalworking in the Book of Mormon as anachronistic and proof of its modern invention. While it is true that archaeology in America has not yielded up much in the way of advanced metallurgy, the topic of metals in the Book of Mormon is a complex and perhaps poorly understood one. Many different cultures and time periods are encompassed in this book of scripture, and it is essential to look at each one separately.

Chronologically, the first mention of what appears to be advanced metallurgy is among the Jaredites. Ether 7:9 gives an account of Shule, going to a hill called Ephraim, which had what must have been iron ore that was used to make swords of steel. The majority of the Jaredite timeline does not have any external references, so it is difficult to determine when this event took place. How close this metal was to modern day steel is debatable, but it seems to pre-date any other account of this alloy, even from the Old World. In addition, Ether 10:23 informs us that the Jaredites mined for all kinds of ore, using it for utilitarian and decorative purposes. Currently, these accounts remain enigmatic and unsubstantiated by outside sources. This tradition of metalworking is extremely ancient and has vanished without leaving solid evidence.

Next are the Nephites. In Jerusalem of the 6th century BC, Nephi was acquainted with swords and bows of steel. He could even make his own tools out of iron ore. His claims are not that unusual for their time and place. Steel may not have been commonplace, but the region was well within the Iron Age and steel as a metal grew out of evolving techniques for hardening iron, which can be quite soft. At any rate, Nephi's bow and Laban's sword are spoken of as rare and precious items. Judging by the aforementioned verse in 2 Nephi, he passed on his metalworking skills to others among the Nephites. How long this skill remained is unknown. Often during Nephite history, when metal is mentioned, it is in the context of precious metals with monetary value or decorative purposes.

Among the Lamanites, metal is hardly ever mentioned. Based on the description of Laman and Lemuel and their immediate descendants, we would not expect to find any such technology in their accounts. But by about 120 BC, Mosiah 19:15 tells us that the Lamanites did value precious metals, as they required a yearly tribute from Limhi's people of half their gold and silver. Centuries later, Helaman 6:9 records that both Nephites and Lamanites had become rich with gold, silver, and other precious metals.

The widespread use of iron and steel for utilitarian and military purposes claimed by critics is not attested by the Book of Mormon. The practical use of metals seems to have been limited to small groups of people and perhaps to certain time periods. Swords, spears, armor plates, and other tools do not need to be made of metal to be effective. We may be tempted to imagine Nephite armies clad as Greek hoplites or Roman

legions with cuirasses of bronze, Classical metal helmets, and swords of steel, but the text does not necessarily bear this out. If the Nephites did have some metal implements and weapons, they would certainly not have shared that technology with their mortal enemies.

Still very prevalent is the misconception that the ancient inhabitants of Mesoamerica had no metal tools at all, being merely a stone age culture. The truth that many people refuse to acknowledge is that some cultures had metal and some did not. For example, the Maya did use many stone tools, but they also had metal, although perhaps not much. Among the sacrificial items thrown into the sacred cenote at Chichén Itzá are axe heads and other implements of copper and bronze. Since there are no sources of ore in the Yucatán, these items must have come from other areas in Mesoamerica, probably through trade. A group that lived in Central Mexico, the Tarascans, were well known for their skills in metallurgy.¹

Peabody Museum 10-70-20/C6035



Those who still assert that the Maya had no metal implements must not have visited many museums or read the Spanish priest Diego de Landa's description of metal blades and tools.² While they did primarily use stone and obsidian as cutting blades, it is certain that they had weapons and tools of metal as well, even though these date from centuries after the Book of Mormon. Just how common these were will probably remain unanswered, as the damp climate of Mesoamerica is not conducive to the preservation of metals.

On their travels throughout Mesoamerica, John Stephens and Frederick Catherwood found what they believed was evidence of ancient woodworking done with metal tools and noted that the prevailing belief was that there was no metalworking among the indigenous peoples of the Americas. One of these carved pieces of wood was found at a well-known site in the Yucatán called Kabah in one of the buildings located

Notwithstanding the popular belief that the Maya did not have metal, most museums will have a small display of copper and bronze objects in their Mesoamerican section. We were fortunate enough to have been granted a research visit at the Peabody Museum at Harvard in April of 2007. During this visit, we saw and handled blades and knives of various sizes and configurations from their collections in storage. Some are rough and green with age, but some are still smooth and relatively uncorroded, indicative of an alloy like bronze. We also saw large copper spearheads, something we had not known of before and did not expect.

Peabody Museum 91-33-20/C2521



Peabody Museum 91-33-20/C2529

Forgotten structure outside the restored area at Kabah

outside of the area that has been restored for tourism. It sits in the jungle west of the site's famous arch and has not been cleared of the encroaching vegetation, so most visitors today would have no idea of its existence. They removed a wooden lintel from one of the doorways and commented on the distinct lines of the carving and the apparent skill necessary to produce such a work, believing that it must have been done with metal tools. They found similar examples of extremely hard wooden lintels that had been carved at sites like Ocosingo and Uxmal.³ The tools we examined date to the Mayan Classic era, so this issue is easily explained today, but even Stephens knew of accounts from Christopher Columbus and Bernal Díaz that described bright metal hatchets used by the natives they encountered. Stephens was also aware of knives of copper and copper alloys from Peru that were hard enough to carve wood.⁴ Modern experts have disagreed with Stephens' deductions, but based on what is commonly known and believed, we see no problem with accepting his belief that metal tools were known and used by the Maya and even earlier cultures.



Provocative as these metal items are, it is obvious that they are not old enough to be directly related to Book of Mormon events. We must admit that metallurgy does not appear to have been an integral part of known Mesoamerican cultures until late in their history, and then, perhaps only to a limited extent. According to current archaeological findings, the first metal items in Mesoamerica appear around AD 700 in western Mexico. Implements like tools, axes, needles, awls, and ritual items were made of bronze alloys consisting of copper mixed with arsenic, tin, or lead. Alloys with precious metals like gold and silver have also been found. It is believed that this technology was introduced through trade with South America, which has a history of metallurgy dating back to 1500 BC.⁵ Metal from these Mexican copper deposits has been found in sites as far away as Belize, but the source for some Mesoamerican bronze artifacts has yet to be identified. It may have come from copper ore found in the Guatemalan Highlands.⁶ This mountainous area of southern Guatemala is rich in minerals. Mining operations today produce iron ore, gold, silver, copper, zinc, and lead, among other metals.⁷ Since the general consensus among LDS scholars is that the Guatemalan Highlands are a good candidate for the city of Nephi and the establishment of Nephite culture, this is another point in their favor. All the raw materials necessary for the metalworking described in 2 Nephi are known to be there.

Artifacts of gold and silver are well known in addition to the aforementioned tools of bronze and copper



alloys. That accounts for some of the metals Nephi mentions, but what about iron and steel? Ancient America is not known to have had an Iron Age, which is a necessary precursor to the development of steel. Currently, there may be no known ancient steel items from the Americas, but surprisingly, there are some of iron. Also in the Peabody's collection are a number of iron tools including a chisel and some blades. According to their ledger entries, they were found in 1883 along with other ancient artifacts in a stone-covered burial mound

Peabody Museum 83-72-20/32770, an example of a pre-Columbian iron blade

Peabody Museum 83-72-20/32768



Peabody Museum 83-72-20/32771



near the shores of the Tempisque River in Pelona, Costa Rica. Exciting as these finds are, we have no further information on their age or what culture they came from. We asked the curator that showed the them to us, but she did not know, either. The museum also has iron needles that were found in 1897 in what was thought to be a burial cave in the state of Guerrero, Mexico. This area of western Mexico is also known as a center for copper metallurgy, so that industry may have led to iron working as well. Currently, we have been unable to find any information about this development.



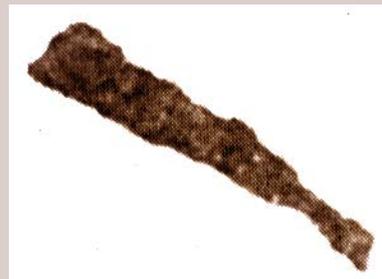
Peabody Museum 03-24-20/C3628

But this is not surprising. Ancient Mesoamerican metallurgy is a topic that has not received as much attention as it deserves. Dorothy Hosler, professor of Archaeology and Ancient Technology at MIT, worked on excavations at El Manchón, a prehispanic copper smelting site in Guerrero. In her 2003 report, she stated that the purpose of the work there was to address significant gaps in the current understanding of copper-based metallurgy in Mesoamerica. Until her excavations in 2002 and 2003, there existed little archaeological evidence of pre-Columbian metal smelting and production. Interestingly, El Manchón is but one of several copper smelting sites in the area, but at the time it was the only such site in Mesoamerica that had ever been reported. This area is almost untouched archaeologically, so there is much more that remains to be done. The site has a very approximate dating of around AD 1300, but there appears to be no connection between it and other known cultures. Indeed, the ethnic background of the people that lived in this region is unknown. Where the ore came from or where the copper ingots smelted at El Manchón ended up has not yet been discovered.⁸

It should go without saying that mainstream archaeology does not support the Book of Mormon's claims, but that is nothing new. What impact does this have then for the Book of Mormon? The first thing to realize is that we should not look for immediate evidence of Nephite culture among late Classic sites like Chichén Itzá, even though metal objects have been found there. Another is that there is currently no archaeological evidence for advanced metallurgy during Jaredite and Nephite times. For the moment, we must assume that these groups had the ability to smelt ore and create alloys of decorative metals like gold and silver, as well as utilitarian metals like copper and iron, without sharing that technology with their neighbors. This scenario is one explanation for the lack of advanced metallurgy among the Olmec or Preclassic Maya. But we need not assume that all tools and weapons mentioned in the Book of Mormon were made of metal or that metallurgy was commonplace among the Nephites or Jaredites at all times during their history. In our assessment, we must be guided by the text itself, not Arnold Friberg's illustrations. Critics' assertions that iron and steel production was ubiquitous and that everyone had metal tools, swords, and armor are just not supported by the text.

Because of the late date of Mesoamerican metallurgy, our suggestion is that knowledge of advanced metallurgy like smelting and making alloys practiced in the Preclassic period in Mesoamerica originated in the Eastern Hemisphere and did not develop locally. Nephite and Jaredite cultures began in the Old World, where

metalworking was already an ancient practice. Laban's sword and Nephi's bow were personal possessions of wealthy individuals who lived in Jerusalem around 600 BC. While costly and rare, these weapons were not anachronistic and easily fit into that time and place, which was well into the Iron Age. Some extremely ancient steel artifacts have been found in the Mediterranean region, including an 11th century BC quench-hardened steel knife from a tomb in Idalion, Cyprus and a miner's pick from Mt. Adir in northern Galilee that dates to the 12th or 13th century BC.⁹ It is likely that all metalworking in Nephite history can be traced directly back to Nephi and the skills he brought from the Middle East, rather than to any American influences.



After all the evidence, we are left to ponder the question of metals without a definitive answer yet. It does seem obvious from a careful study of the text contrasted with Mesoamerican history that Jaredite and Nephite blacksmiths kept their secrets well guarded from their neighbors. This is to be expected of a technology that would give them the advantage in warfare. It is possible that these ancient metalworking skills were lost somehow and not adopted by subsequent cultures until copper metallurgy was reintroduced from South America centuries after the close of the Book of Mormon.

Why would this be? Metalworking is just one of the cultural advances mentioned in the Book of Mormon that is not found in known Ancient American cultures like the Olmec and Maya from the same time period. If other indigenous peoples had contact with Nephites or Jaredites, would they not have borrowed or adapted advances like metallurgy, in addition to other Old World practices had among these immigrants to the New World? Even if Nephites and Jaredites did not share the techniques of metalworking with native peoples, would it not have eventually gotten out and influenced their neighbors?

The answer is not necessarily so. An example from later Mesoamerican history may help to explain why. The Mayan cultural influence spread out over much of Guatemala, southern Mexico, Belize, and Honduras, but seems to have stopped rather abruptly around present-day El Salvador. Sites like Copán and Tazumal were situated at the far corner of Mayan cultural influence and were established among the Lenca, a non-Mayan people already living in that area for a long time. These sites exhibit all the usual hallmarks of Classic Mayan culture: monument carving, hieroglyphic writing, dynasties of divine kings, ornate city centers with massive stone temples and pyramids, and so on. By comparison, the Lenca may have appeared to be a much simpler culture without these traits. With the collapse of many major sites at the end of the Mayan Classic era, these sites on the outskirts were eventually abandoned and the core of Mayan culture gradually moved north and west to the Yucatán Peninsula. One might expect the Lenca to have adapted to the Mayan way of life and continued in the traditions that had been introduced to them.

But such was not the case. According to Payson Sheets, an archaeologist with the University of Colorado, that did not happen. Sheets has been excavating a site in El Salvador called Cerén, which was suddenly covered by a volcanic eruption around AD 600. When the Maya left this region, their culture went with

them and the Lenca returned to the way of life they had known before. Even though Mayan culture seemed more advanced in comparison, the Lenca apparently had no need to record their accomplishments on monuments or with writing, nor did they need divine kings to intercede with the gods on their behalf. Their culture was left basically unaffected with the departure of the Maya.¹⁰ The result is that Central America is relatively free of the rich archaeological legacy left by the Maya that is found all throughout Mesoamerica.

Our suggestion is that indigenous populations like the Maya, their ancestors, and other natives may not have learned metallurgy to any great extent from Nephites or Jaredites with whom they probably had contact. Their own tools of stone, flint, and obsidian served them well enough and they may have seen no need to change. Creating implements of metal alloys requires much more time, effort, and resources than making them out of stone. This may explain why even after the accepted introduction of metal tools to Mesoamerica, they never completely replaced stone implements, which were still being used at the time of the Conquest. If Book of Mormon peoples kept metalworking to themselves and their neighbors could do all they needed with stone and obsidian, we should not expect to find widespread evidence of advanced metallurgy in the archaeological record. This lack of evidence may be frustrating, but in our search for support of the Book of Mormon, we must carefully reassess the text itself and acquaint ourselves with the latest credible scholarship and not be limited by critics' demands.

However, the regions generally accepted to be strong candidates for Book of Mormon lands, Mexico and Guatemala, have the necessary ore deposits to supply the metalworking mentioned by Jaredite and Nephite historians. In addition, pre-Columbian artifacts of gold, silver, copper, bronze, and iron have been found and acknowledged by archaeologists, so we have support for most of the metals mentioned in the Book of Mormon. These are not old enough to be of Nephite origin, but they prove that Ancient American metallurgy did exist and that should give us encouragement to keep looking.

Adapted from the forthcoming *An LDS Guide to the Yucatán*, by Daniel Johnson, Jared Cooper, and Derek Gasser, authors of *An LDS Guide to Mesoamerica*.

Notes

1 Andrew Coe, *Archaeological Mexico* (Chico: Moon Publications, 1998), p. 136.

2 See Diego de Landa, *Yucatan Before and After the Conquest* (New York: Dover Publications, 1978), pp. 50, 90, 94.

3 John L. Stephens, *Incidents of Travel in Yucatan, vol. 1* (New York: Dover Publications, Inc., 1963), pp. 102-103, 252.

4 *Ibid.*, p. 253.

5 Dorothy Hosler, "Recent Insights into the Metallurgical Technologies of Ancient Mesoamerica," *Journal of Metals* 51 (May 1999), p. 11.

6 *Ibid.*, pp. 13-14.

7 David B. Doan, "The Mineral Industry of Guatemala," *U.S. Geological Survey Minerals Yearbook* (1999), p. 15.1.

8 See Dorothy Hosler, *Excavations at the Copper Smelting Site of El Manchon, Guerrero, Mexico*, 2004. 12-28-2007. <<http://www.famsi.org/reports/01058/index.html>>.

9 3-18-2009. <http://www.lassp.cornell.edu/sethna/Tweed/Martensite_History.html>.

10 Payson Sheets, personal communication, 5 October 2008.