Weighing and Measuring in the Worlds of the Book of Mormon

John W. Welch

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Author(s) John W. Welch

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Abstract This article addresses the seemingly misplaced discussion of weights and measures in the middle of Alma 11 in the Book of Mormon. Although the interruption initially seems strange, John Welch offers new insights to explain its purpose in the Book of Mormon. For instance, knowledge of the Nephite monetary system supplements a reader's comprehension of the bribery and corruption that occurred in that society. Evidence of this monetary system also shows a link between Near Eastern civilizations and Book of Mormon civilizations, thus providing further evidence for the divinity of Joseph Smith's work.

WEIGHING & MEASURING

IN THE WORLDS OF THE BOOK OF MORMON

JOHN W. WELCH

Midway through one of the most heart-wrenching accounts in the Book of Mormon, when Alma and Amulek were on trial for their lives and Amulek's faithful women and children were put to death by fire, the story is interrupted with an explanation of King Mosiah's system of weights and measures (see Alma 11:3–19). It is a strange interruption, a mundane hiatus, but at least a relieving diversion as the tension mounts in Alma and Amulek's showdown with Zeezrom and the legal officials in Ammonihah. Why would one bring up these incidental economic nuts and bolts at such a point in the record?

SEVERAL REASONS MIGHT EXPLAIN WHY THIS information was included at this point in the Book of Mormon. For one thing, these short metrological details are not only intertwined with the debate between Amulek and Zeezrom (see Alma 11:21–25), but they also provide an important building block in Mormon's grand narrative. By abusing the justice system and misusing the lawful weights and measures, the wicked people of Ammonihah effectively opened the floodgates of God's judgment upon themselves, a pattern that would apply later to Nephite civilization as a whole.

In addition, as this article will show, this sidelight in the book of Alma contains enough facts to support meaningful parallels between King Mosiah's weights and measures and those used in other ancient cultures. For many reasons, these monetary details found in the large plates are weighty matters indeed. The attempted bribery, the overreaching of the lawyers, the royal standardization and official codification of these measures, their mathematical relationships, and the unusual names involved in Alma 11 have long intrigued readers.[1]

Studying a large and detailed text such as the Book of Mormon is a complex task, which might be compared to climbing a rock face. Climbers look for toeholds and handholds by which they can make careful, upward progress. When they encounter a niche, they take advantage of it, even though their view from below does not allow them a clear glimpse of what lies above. Some niches may not prove useful for further climbing. But a person explores as possibilities appear and then sees what opens up above from each new position reached. Likewise, the intriguing face of Alma 11 offers several solid niches in which to give an analytical hand- or toe-hold. Yet we cannot see clearly where our course may lead until we explore where a particular perch next takes us. In some cases, we may be disappointed; in others, we will find a point that is significant for our upward reach toward better understanding.

The Attempted Bribery

Alma the Younger, who had become the high priest over the church in King Mosiah's former realm, undertook a preaching mission to call people to repentance and to reclaim the loyalty of inhabitants of outlying areas for the church. On reaching the city of Ammonihah, Alma found the people to be strongly alienated from his system of religious belief. Rebuffed and discouraged, he left the city only to be instructed by a heavenly messenger to return and try again. This time he met a man named Amulek who gave him food, shelter, and companionship during the remainder of his mission. On the first day of their renewed effort to reach the hearts of people, the two men became embroiled in a public dispute about whether the Messiah would really come. It is in the midst of this debate that we find information about how people in the land of Zarahemla weighed and measured their basic economic goods, for into this confrontation came the clever voice of Zeezrom, one of the most prominent lawyers in the city. "Will ye answer me a few questions which I shall ask you?" he inquired of Amulek (Alma 11:21). Amulek responded: "Yea, if it be according to the Spirit of the Lord, which is in me" (Alma 11:22). Zeezrom seems to have paid no heed to Amulek's answer because almost immediately he offered Amulek an outright bribe: "Behold, here are six onties of silver, and all these will I give thee if thou wilt deny the existence of a Supreme Being" (Alma 11:22). The expression "all these" clearly signals that Zeezrom considered this sum to be impressive.

At this juncture, a reader naturally asks, what are "six onties of silver" and how large was the offered bribe? It seems that the Nephite record keepers anticipated these sorts of questions from readers and therefore listed the relative values of the weights and measures used by the Nephites at that time to calculate wealth. Zeezrom's bribe was an impressive sum. A judge earned one onti of silver for seven days of work. Hence, six onties of silver would equal a judge's salary for 42 days of work; or if seven judges were involved in a case, enough to pay them all for a six-day trial. Zeezrom's six onties probably looked quite

Previous page: This tablet from Marash dating from the 8th century B.C. depicts a figure holding scales and a bag of weights.

sizable, physically. If one has spent time in a village marketplace where merchants sell goods measured out by using old metal weights, one notices how bulky the weights themselves are. Because an onti of silver would purchase seven measures of barley in the marketplace (see Alma 11:6–7), it is safe to conclude that an onti represented a significant amount of silver in raw weight.

But Amulek, who himself was a wealthy man, had no trouble turning down the offer. He saw it for what it was—an appeal to the greed that Zeezrom apparently assumed influenced all individuals. It was one version of the age-old question, "What price your integrity?" The legal officials in Ammonihah, however, lacked integrity. Bribery, as they must have known, was strictly prohibited by the Law: "Thou shalt take no gift: for the gift blindeth the wise and perverteth the words of the righteous" (Exodus 23:8). As Amulek warned the people in his city: "The foundation of the destruction of this people is beginning to be laid by the unrighteousness of your lawyers and your judges" (Alma 10:27). In the corruption and ensuing destruction of Ammonihah, Mormon and other Nephite historians may well have seen an anticipation, even a rehearsal, of the lawless circumstances that would lead to the annihilation of their civilization five centuries later.[2]

equitable administration of justice throughout their kingdom.[3] If officers were needed, if legal tablets were required, a king would typically provide them. With the abandonment of kingship at the end of the book of Mosiah, the legal system in the land of Zarahemla changed. Prior to the law introduced by King Mosiah around 91 b.c., it is unlikely that any judges were paid for their services in Nephite society (see 2 Nephi 26:31, "for if they labor for money they shall perish"). There is no evidence in the Bible that Israelite towns or cities paid judges or judicial administrators.[4] Over the years, the traditional Jewish understanding of the rule against bribery in Exodus 23:8 has held that it precludes the payment of judges in any form.[5]

As he fashioned his reform, however, Mosiah must have realized that his judges would need to be paid in some way if his new system was going to have any chance of succeeding without a royal patron, and one function of his system of weights and measures was to set the amount they would be paid. He chose to provide for them generously: "And the judge received for his wages according to his time—a senine of gold for a day, or a senum of silver, which is equal to a senine of gold; and this is according to the law which was given" (Alma 11:3).

As well-intended as Mosiah's program was, it quickly
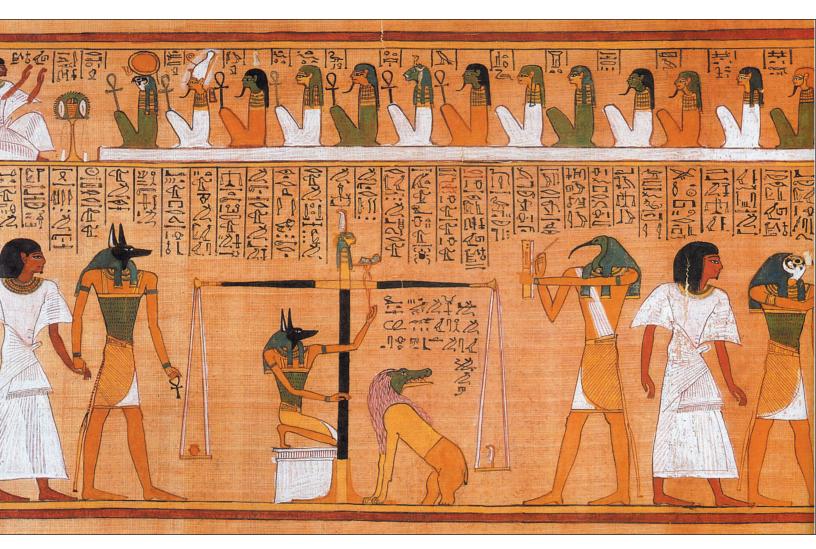
Bronze lion weights from
Nimrud, Assyria

The Overreaching of the Lawyers

The corruption of those legal officials may well have had something to do with the idea that Nephite judges had only recently become entitled to be paid for their services. Mosiah's new system of weights and measures accompanied a major political change from kingship to judgeship, a radical departure from past administrative practices. The new practice of paying judges had evidently soon led to abuse.

Here modern readers will need to remember that ancient judges were not paid professionals. In the Old World, kings were generally responsible to ensure the

led to abuse. Though the law itself seemed to contemplate that only a judge would receive wages, others soon made it a "business" and sought to "get gain" through this system (Alma 11:31–32). Although it may have gotten off to a rocky start, the reign of judges soon became stabilized, especially once the destruction of Ammonihah sent a strong message to any who would traffic in judicial corruption.

Royal Standardization

Promoting economic stability was a general goal behind Mosiah's royal system of weights and measures. The text clearly states that this system was "established by

In this depiction of a scene from the Egyptian Book of the Dead, Anubis both intrduces Henefer to the weighing of his heart against the feather of Maat and checks the accuracy of the balance.

king Mosiah" (Alma 11:4). For many years, the Nephites had "altered their reckoning and their measure, according to the minds and the circumstances of the people, in every generation" (Alma 11:4). This fluid condition must have made commerce difficult in Zarahemla, as similar situations did elsewhere in the ancient world.

In response to this generic problem, ancient kings often tried to provide standardization or curbs on inflation in their economies.[6] The ancient world in Lehi's day knew virtually nothing of true coinage,[7] established units of currency, or international currency exchanges. No ancient kingdom had banking regulatory agencies or federal reserve boards. Royal decrees offered the main hope for economic stability. Indeed, having Mosiah's new standardized system of weights and measures undoubtedly stimulated the Nephite economy. Beginning in the first year of the reign of the judges, in Alma 1, people in Zarahemla began counting their wealth, accumulating riches, and distinguishing the rich from the poor. While class distinctions and economic conditions surely had existed between the affluent and the poor in Nephite society in earlier years, a dramatic shift in awareness of wealth and riches enters the record beginning precisely with the commencement of the reign of judges at the beginning of the book of Alma. These reactions are exactly what one would expect of a society enjoying and adjusting to the use and exploitation of a new financial system.

Official Codifications

Ancient kings typically implemented their economic

progress by means of official decrees. In this light it is interesting that King Mosiah's statute contains similarities to other ancient law codes antecedent to the Nephite system. For example, similarities appear almost effortlessly in the law code of Eshnunna,[8] which was compiled about 1800 b.c. in a Babylonian city by that name that lay approximately 50 miles northeast of Baghdad in modern Iraq. In fact the similarities are rather striking. First of all, the opening lines in the law code of Eshnunna set out an important equivalency that becomes the basis for commerce: "one kor of barley is equal to one shekel of silver." A similar conversion between silver and barley was also used among the Hittites.[9] Perhaps it is coincidental, but the law of Mosiah begins with a comparable ratio of value stated in similar phraseology: "a senum of silver, which is equal to a senine of gold, . . . and either for a measure of barley" (Alma 11:3, 7).

A second parallel has to do with the basic reason for establishing values for various goods. At Eshnunna, this valuation was designed to allow merchants to deal in a variety of commodities, each one being convertible into either silver or barley, sesame oil, wool, and other things. Thus precious metal and grain measures were interchangeable. Correspondingly, the Nephite system allowed traders to convert from silver or gold into many other goods: "also for a measure of every kind of grain" (Alma 11:7).[10]

Third, one of the motives behind the laws of Eshnunna was apparently to create a kind of standard rate of compensation for drivers of wagons or for boatmen, as well as to set the penalties for damages or the daily rates for renting different means of transport, such as boats and wagons. In the case of the Nephites, the system was likewise linked to a standard daily wage, in this instance for judges. Both systems are consistent with the ordinary workings of ancient economies.[11]

Mathematical Fractions

Another revealing feature of the Nephite system emerges in its capability to express certain fractions. Rather than simply starting with the smallest unit and counting it to be "one" in an ascending scale of values, the Nephites also worked with fractions of ½, ¼, and ⅛ (see Alma 11:14–19). In this dimension we see not only possible ties to the Old World, but also a link to the New.

Notably, the Nephite monetary system (in spite of its numerical elegance in other respects) appears incapable of expressing a fraction with a numerator greater than one. The system features measures equal to ½, ¼, and ⅛, but not ¾. In order to express the value of 1½ or ⅜ in the Nephite system, a new unit was introduced, namely the antion (see Alma 11:19). One gold antion equaled three silver shiblons (in other words "three half-senums," with a shiblon equal to half a senum of silver or half a senine of gold).

Similarly, and quite surprisingly, arithmetic had not developed far enough in ancient times to allow for the full expression of complex fractions or mixed integers and fractions in other cultures. People in the ancient Near East knew how to say ½, ¼, or ⅒, but if an ancient Egyptian or Greek wanted to say ⅜, he would usually have to say "one-fourth plus one-eighth."[12] The Greeks generated some interesting circumlocutions to express these arithmetic amounts. Thus "one and a half talents" was *tria hemitalanta* (literally, "three half-talents"; compare "three half-senums," as seen above), "one and one-third" was *epitritos* (literally, "one-third beyond"), and "two-fifths" would be expressed as "of five parts, two of them."[13]

Moreover, the same approach can be found in the New World. While most native cultures of the New World apparently did not develop or rely on weights and measures that were expressed in fractions, one exception is known, although it has so far not drawn the interest of scholars. It comes from the Quiché Maya in highland Guatemala and appears in the *Popol Vuh*. (The Quiché Maya were later inhabitants of the region considered by many Latter-day Saint students to have been the land of Nephi.) Interestingly, the basic way to represent a fraction in Quiché was to add the suffix *il* to a numeral. In this way, a person would express one-third by adding the suffix *il* to the number three.[14] This fact should encourage students to examine other New World numeration systems for further clues. But for the moment, it is possible to see here a hint of connection between the expression of fractions in Mosiah's system of weights and measures and the Quiché Maya system in ancient America.

Returning to the Old World, there is clear evidence from at least as early as the Egyptian Old Kingdom (ca. 2686–2181 b.c.) and the Old Babylonian era (ca. 2000–1600 b.c.) that fractions were a part of weights and volume measures actually used in the ancient Near East. Israelites also used fractions, though their denominations differed.[15] For instance, the Hebrews reckoned in weights of silver shekels. But we know that they also developed a unit known as *nṣp* which was equal to ½ shekel and another unit called *rbᶜ nṣp* which represented ⅛ shekel. Such pieces of silver match nicely with the Nephite shiblon (½ senum) and leah (⅛ senum).

On their part, Egyptians used a system of weights and measures even more similar to the Nephite system. In ancient Egypt, the *heqat* was a full measure of grain. The fractions of the *heqat* were ½, ¼, ⅛, 1/16, 1/32, and 1/64. As in the

Nephite system, the Egyptian grain measures were binary—fractions that came about by halving.[16] In Egyptian hieroglyphs, these fractions "were written in a special way, quite unlike ordinary fractions. They were called *horus-eye* fractions, and were used solely for grain."[17] These fractions were called *horus-eye* fractions because, according to an ancient myth, the eye of the falcon-god Horus (often called the *wdjt-eye*) was said to have been torn into fragments by the wicked god Seth.[18] Horus was the son of Osiris. When Osiris was killed by his brother Seth, Horus killed Seth, his uncle, but in the fight, Horus's eye was broken into parts. Horus's eye was later healed by the god Thoth, but the parts of the *wdjt-eye* came to symbolize each of these fractions.

In other words, the pupil of the eye became the hieroglyph for ¼; the eyebrow, ⅛; the eyelash, ¹⁄₃₂; the tear duct, ¹⁄₆₄; and so on. The full Horus-eye then symbolized the full measure of grain, or in other words the *wdjt-eye* was the sum of them all. As seen on table 5 in the sidebar, the Nephite system is much the same.

Although the Egyptian system bears certain similarities to that of the Nephites—both are binary, both have six defined measures, and both feature an additional whole amount which is the sum of lesser parts—the two systems were not absolutely identical. Such an observation agrees, of course, with Mormon's own recognition that his people had "altered their reckoning and their measure" from generation to generation (Alma 11:4). However, the relative gradation of units found in the Egyptian New Kingdom and among Nephites of Alma's day match exactly, as is developed further on table 6. In other words, if one assumes that Nephite gold "limnah" (Alma 11:5–10) is cognate with or related to the ancient Mesopotamian and Hebrew common "light" *mina*-weight (or *maneh*) of about 17.6 oz,[19] then all of the Nephite measures can immediately be interpreted as exact multiples of the Egyptian New Kingdom and Late Egyptian period *qdt* or *kite*-weight of 0.31 oz (very close to the Old Babylonian 0.3 oz *šiqlum,* "shekel").[20] Beginning with Nephite "leah" (Alma 11:17) as the smallest known Nephite weight, we can then match every one of the Egyptian grain-measure fractions noted in the preceding paragraph with a Nephite weight, pairing the Nephite "leah" with the Egyptian *kite*-weight that represents one. The correspondence is systematic and remarkable, and appears to be an alteration from the Hebrew *šeqel*-standard of 50 shekels to a mina. Such an adaptation or reorientation of the Israelite system may already have been in process in Lehi's time, judging from the frequent appearance of hieratic Egyptian numerals on Hebrew

shekel weights in the contemporary kingdom of Judah.[21] The Nephite standard thus implies a theoretical 56 leahs (shekels?) to the limnah (mina?).[22]

Unusual Names

So far, one of the least firm dimensions of studying the Nephite measuring system concerns the names of the various weights and measures. As one might expect, over time languages change and terms common in one era carry a different meaning in another. In general, the origin and meaning of the names that Nephites attached to their weights and measures cannot be determined. Nor do they match precisely the names of the terms that describe weighing and measuring found in ancient Old World cultures. Occasionally, however, a correspondence seems too close to be a coincidence. Three examples will illustrate this point.

The Nephite "shiblum," which was equivalent to one quarter of "a measure of barley" (Alma 11:15–17), was spelled "shilum" in the Printer's Manuscript of the Book of Mormon. Even though the Original Manuscript for this passage is lost, it is very likely that, when Oliver Cowdery recopied the manuscript that went to the printer from the manuscript which had been dictated, he spelled this unusual term as he found it in his source (typically, scribes exhibit care when copying foreign terms and phrases). The term *shilum* closely approximates the Hebrew *šillum* (or *shillum*) which means "repayment," "recompense," or "retribution" (see Hosea 9:7; Isaiah 34:8; Micah 7:3). Moreover, both the Nephite and Hebrew expressions may link to the Akkadian *šillum* (or *shilum*) in Mesopotamia, which refers to an "area measure."[23]

The Nephite *senum*, as the basic unit of silver measure, was equivalent to "a measure of barley" (Alma 11:7). This silver measure was double the value of a shiblon. A shiblon was equivalent to "half a measure of barley" (Alma 11:15) and stood in a sequence of ascending values wherein the next higher weight was always double the next smaller one. For the name *senum*, the correspondences come from Hebrew and Egyptian. On the Hebrew side, "senum" appears to derive from a root having two consonants, *sn*, perhaps coupled to the Akkadian nominative singular termination *-um*.[24] An obvious candidate is *seni* or *senayim* (dual form), from the Hebrew root for "second," "two," or "double." It is not unreasonable linguistically to see the Hebrew for *two* as a close relative of the Nephite senum, particularly in view of dialectical exchanges in early Hebrew between *s and š* (e.g., Judges 12:5–6). The same phonological equivalent may also be

seen in the ancient Egyptian cognates for *two: sn, snw, snwy,* and *sny,* and Coptic *snau.*[26]

Broadening the discussion from a focus on measures for grains, we come to "sheum," a Nephite word for a kind of grain. As one might expect, the term is at home in the ancient Near East. It is the Old Assyrian name for wheat, which is *she'um* or *e'um.*[27] We find this very term listed among other cereal names, including corn (maize), wheat, barley, and neas (see Mosiah 9:9). Even though for Nephites the name evidently did not refer to wheat, as it did at one time in ancient Mesopotamia, its attestation among the names of other cereal grains points to an origin for the term in the ancient Near East. What is not clear, of course, is whether this term came originally from the Jaredites, the Mulekites, or the Nephites.[28] In any of these instances, however, the impact is the same.

To be sure, in all of this etymological exploration sound scholarship demands that we be tentative. Without the original text on the gold plates, we cannot check the ancient spelling of such terms. But these three striking examples invite us to continue to examine ancient records to learn whether there may be other possible connections.[29]

Weights before Coins

It should be clear from all of the foregoing that we are talking here about weights and measures, not coins. When the Book of Mormon speaks of "the different pieces of their gold, and of their silver," as well as naming them "according to their value" (Alma 11:4), we should probably not think that it is referring to minted coins. Rather, the term *pieces* most likely refers to metallic weights of some sort. The first coins known to history—at least coins in the modern sense—appeared in Lydia in western Asia Minor by the seventh century B.C., spreading into the Mediterranean region only after Lehi had left Jerusalem.[30] As in other ancient cultures, the Nephites seem to have used weighted pieces of metal as payment for measured amounts of grain.

Again Old World parallels would suggest that the Nephites formed weights of silver and gold into standard sizes, and perhaps shapes, and certainly kept them to a standardized heaviness. Examples of Egyptian coiled weights are shown in tomb paintings, although, understandably, archaeologists have found few examples of such precious metallic objects for measurement. After metal objects had served their purpose or had become damaged or obsolete, people likely melted them down in order to reuse the metal. Hence, they have rarely survived. Among those recovered from ancient Near Eastern civilizations are the widespread heavy copper ingots of

20–30 kilograms from the Late Bronze Age (1500–1200 B.C.); small bronze weights from Egypt; a few coils of gold, silver, and copper that were evidently cut into shorter lengths when needed; and small gold ingots made by pouring liquid gold into grooves created by pressing one's finger into sand.[31] In contrast, archaeological sites have yielded stone weights in abundance.[32]

Thoughts on Money in the Book of Mormon

Finally, the history of money in the Book of Mormon, though sketchy, is suggestive of moral values and weightier matters than simply economic mechanics. With the particulars of Mosiah's system now in mind, readers may reflect on the attitudes and insinuations behind each statement in the Book of Mormon about money.

All five occurrences of the word *money* in the small plates appear in passages based on Isaiah 55:1 which reads: "Every one that thirsteth, come ye to the waters, and he that hath no money; come ye, buy, and eat; yea, come, buy wine and milk without money and without price." In the same vein, Nephi urges people not to labor for money: "the laborer in Zion shall labor for Zion; for if they labor for money they shall perish" (2 Nephi 26:31). Isaiah's term is *kesep,* a Hebrew word for "silver." This

THE NUMERICAL ELEGANCE OF THE NEPHITE SYSTEM

The gold antion (worth one and a half gold senines) allows the system to express half values. The question is, why was "a half senine" not adopted? Perhaps for two reasons: smaller valued silver weights were used, but gold was probably intrinsically more valuable, and thus a piece of gold smaller than a senine may have gotten lost or damaged too easily. But more than that, the values of 1½, 3, 3½, and 5½ more readily formed with the antion than if, instead, a hypothetical half senine gold measure had been used, as seen on Table 4

TABLE 4				
Values	With the Antion		Without the Antion	With ½ Senine
1½	1 weight		impossible	2 weights
2½	2 weights	1 + 1½	impossible	2 weights
3½	2 weights	2 + 1½	impossible	3 weights
4½	3 weights	1 + 2 + 1½	impossible	3 weights
5½	2 weights	4 + 1½	impossible	3 weights
6½	3 weights	4 + 1 + 1½	impossible	3 weights

So, the presence of the gold antion improved the efficiency of the system. Again, all of the half values between one and seven can be made without needing to use two of the same weights.

Altogether, seven silver measures were used. The shiblon, shiblum, and leah were ½, ¼, and ⅛ of a senum, respectively. Because these three smaller measures extend the binary system on into fractions smaller than one, one can see the mathematical consistency of the system from the leah to the ezrom. For purposes of clarification, if one were to consider the leah (the smallest measure) as 1, then the shiblum (twice the size of a leah) becomes 2, the shiblon becomes 4, the senum is then 8, the amnor 16, and the ezrom 32. See table 5, which also expresses this relationship in terms of powers of two and fractions, alternative ways of saying the same thing:

TABLE 5			
⅛	= leah	= 1	$= 2^0$
¼	= shiblum	= 2	$= 2^1$
½	= shiblon	= 4	$= 2^2$
1	= senum	= 8	$= 2^3$
2	= amnor	= 16	$= 2^4$
4	= ezrom	= 32	$= 2^5$
7	= onti		

When Alma 11:13 says that an onti was "as great as them all," it would appear that the onti equaled 1 + 2 + 4 = 7 senums. It is possible, however, that the onti also included the value of the three smaller measures as well, in which case the onti was worth seven and ⅞ senums, or 63 leahs.

word undoubtedly refers to the old flexible shekel system or something like it, not a specific system of coinage and currency.[33] These passages place little confidence in a society that overemphasizes wealth or precious things. Nephi and his brother Jacob knew the problems that money-seeking can cause. Nephi had been willing to leave Lehi's estate behind in the land of Jerusalem; Laban had seized many of their valuables, and the proud Jews had become overconfident in their material wealth. Jacob, born in the wilderness, had grown up where money was not used and opposed those who had become proud because of their riches (see Jacob 2:13).

After these few comments early in the small plates, nothing else is said of money in the Book of Mormon until the book of Alma. The description of the law reform of King Mosiah in Mosiah 29 makes no contemporaneous mention of the system of weights and measures that he established. Even though the new system is not mentioned until Alma 11, its effects are already subtly in evidence, working behind the scenes in Alma 1. No sooner was the system inaugurated in the first year of the reign of judges than money became more of a problem. Nehor, who taught that religious leaders and ministers should be supported financially, gained followers. Perhaps his claim now made more sense. After all, if judges were to be paid for their services, should not priests and religious leaders also be paid? Nehor was persuasive, and many of the people "began to support him and give him money" (Alma 1:5).

The church led by Alma, however, continued to distinguish itself by serving and supporting one another specifically "without money" (Alma 1:20). Preserving the tradition instituted by Alma the Elder at the Waters of Mormon, these covenant people supported one another by sharing their goods, "impart[ing] of their substance, every one according to that which he had" (Mosiah 18:27). Similarly, King Benjamin urged his people to return the very thing that they had borrowed rather than attempt to reduce the debt to a liquidated amount that could then be paid (see Mosiah 4:28; for similar repayments in kind compare Exodus 22:1, 4, 11, 14), and to impart of their substance directly one to another according to their need for those commodities (see Mosiah 4:19). This sharing of goods probably did not involve much use of money per se.

When standardized monetary weights became current among the Nephites, however, money became a source of political corruption (see Helaman 7:5), bribery (see Alma 11:25; Helaman 9:20), religious favoritism (see Mormon 8:32), greed and idolatry (see Mormon 8:32).

Not that the system itself was inherently bad, but in the hands of designing people it became a tool of corruption. While the law reform of Mosiah undoubtedly contributed favorably to a growing commercialism, to economic prosperity, and to the ability of the city of Zarahemla to maintain political control over its surrounding regions, Nephite religious leaders strove to contain its importance. After the coming of Christ, the Nephites had all things in common during their golden era (see 4 Nephi 1:3), during which time, again, monetary units or values presumably played a small role.

Perhaps Moroni was thinking of the love of tangible wealth that had so badly corrupted his society in the final years of the Nephite world when he took overt steps to guard the Nephite metal plates. Knowing that people would eagerly melt down metal to reduce it to bullion for use in trade or commerce, Moroni was particularly motivated to protect and preserve the sacred records of the Nephites, most of which were written on plates of precious ore. Perhaps for this reason Moroni placed a solemn curse on any person who sought to acquire the plates "to get gain" (Mormon 8:14).

Conclusion

The Nephite system of weights and measures is intriguing for a number of reasons. It appears in a scene where Alma and Amulek have engaged in a debate on religious topics, an odd placement at first glance. But this placement may have grown out of a desire to illustrate fundamental sources of trouble in Nephite society—pride and lawlessness. These characteristics would eventually lead to great wickedness and the annihilation of Nephite society, as Mormon reports. Further, by including this material, Mormon has highlighted a connected social ill, that of serious bribery, conveying an idea of just how substantial the amount was that Zeezrom offered to Amulek. On another level, even though the Nephites "altered their reckoning and their measure" as they saw fit (Alma 11:4), we can detect links between Nephite measures and grains and similar systems of metrology known from the ancient Near East, including names, relative amounts, and official functions. Concerning possible connections between Nephite measures and the systems developed among ancient Americans, the matter awaits and invites further study. In the meantime, however, our climb up this interesting outcropping of substantial material already allows us to see that Joseph Smith would have been hard pressed to produce on his own such an elegant, complex, yet practical system of measures, conforming so well with ancient realia. □

13. The writings of several prophets that are preserved on the brass plates are not found in the Old Testament: Zenos, Zenock, Neum, and Ezias (see 1 Nephi 19:10; Helaman 8:19–20).

14. Important articles discussing the exodus typology in the Book of Mormon include George S. Tate, "The Typology of the Exodus Pattern in the Book of Mormon," in *Literature of Belief: Sacred Scripture and Religious Experience*, ed. Neal E. Lambert (Provo, Utah: BYU Religious Studies Center, 1981), 245–62; S. Kent Brown, "The Exodus Pattern in the Book of Mormon," in *From Jerusalem to Zarahemla*, 75–98.

15. Although the biblical text implies that Moses died, the Book of Mormon makes it clear that he was actually translated (see Alma 45:19).

16. Some scholars have even called him an "anti-Moses." See, for example, Luis A. Schokel, "Jeremías como anti-Moisés," in *De la Torah au Messie, Mélanges Henri Cazelles*, ed. M. Carrez, J. Doré, and P. Grelot (Paris: Desclée, 1981), 245–54.

17. Oliver Cowdery's report is found in the *Messenger and Advocate* 1/5 (1835): 78–80; 1/7 (1935): 108–12; and 1/10 (1835): 156–59. A convenient list and important discussion of these passages can be found in Kent P. Jackson, "The Appearance of Moroni to Joseph Smith (JS—H 1:27–49)," in *Studies in Scripture: Volume Two: The Pearl of Great Price*, ed. Robert L. Millet and Kent P. Jackson (Salt Lake City: Randall Book, 1985), 339–66.

18. See *TPJS*, 14–15.

Pondering the Word
Dennis and Sandra Packard

* This article has been adapted by the authors sfrom Dennis J. and Sandra Packard, "Pondering the Scriptures," in *Feasting upon the Word* (Salt Lake City: Deseret Book, 1981).

1. Jeffrey R. Holland, "Daddy, Donna, and Nephi," *Ensign*, September 1976, 7.

2. Gordon B. Hinckley, "The Light Within You," *Ensign*, May l995, 99.

3. Hugh W. Nibley, "Educating the Saints—a Brigham Young Mosaic," *BYU Studies* 11/1 (l970): 61.

4. *TPJS*, 276.

5. *JD*, 7:185.

6. Spencer W. Kimball, "How Rare a Possession—the Scriptures!" *Ensign*, September l976, 4.

Weighing and Measuring in the Worlds of the Book of Mormon
John W. Welch

1. I express appreciation to Kent Brown, Claire Foley, and the FARMS editorial staff for their contributions to this article. This article was prepared at the request of the editors to report and develop past and current research by several people on this subject, mentioned in the notes below.

2. The collapse of the rule of law undercut the divinely established base of Nephite civilization. Abinadi plainly prophesied the Lord's threat to "utterly destroy" the Nephites because "they have hardened their hearts against [the Lord's] words;

they have repented not of their evil doings; therefore, I will visit them . . . in my fierce anger" (Mosiah 1:8, 1; compare Mormon 1:19). See also the similar lawlessness in Helaman chapters 4, 5, and 7, and in Mormon chapters 1 and 2. Old Testament prophets also condemned the misuse of weights and balances in the marketplace (Hosea 12:7; Amos 8:5) just prior to the destruction of the Northern Kingdom.

3. Keith W. Whitelam, *The Just King: Monarchical Judicial Authority in Ancient Israel* (Sheffield: JSOT Press, 1979), 37; Hans J. Boecker, *Law and the Administration of Justice in the Old Testament and Ancient East* (Minneapolis: Augsburg Publishing House, 1980), 40–49.

4. See Ruth 4:1–2; Harold B. Clark, *Biblical Law* (Portland, Ore.: Binfords & Mort, 1943), 260 n.19, "Ordinarily the judges were not paid." Haim H. Cohn, "Bribery," *Encyclopedia Judaica* (Jerusalem: Keter, 1974), 4:1357, "[Judges] are urged to be impartial, and not susceptible to bribes (2 Chronicles 19:7) and reminded that judicial services should be given free (Bek. 29a)."

5. Cohn, "Bribery," 1368, "Other talmudic jurists carried the rule against bribery to extremes by refusing to sit in judgment over any person who had shown them the slightest courtesy, such as helping them to alight from a boat (Ket. 105a)."

6. See Morris Silver, *Economic Structures of Antiquity* (Westport, Conn.: Greenwood, 1995), 97–99.

7. See discussion below.

8. This set of laws appears in English in James B. Pritchard, ed., *Ancient Near Eastern Texts Relating to the Old Testament*, 3rd ed. (Princeton: Princeton University Press, 1969), 161–63, and Martha T. Roth, *Law Collections from Mesopotamia and Asia Minor* (Atlanta, Ga.: Scholars Press, 1995), 57–70. See further John W. Welch, "The Laws of Eshnunna and Nephite Economics," in *Pressing Forward with the Book of Mormon* (Provo, Utah: FARMS, 1999), 147–49.

9. Harry A. Hoffner Jr., *The Law of the Hittites* (Leiden: Brill, 1997), 10, "The silver equivalent is calculated on the basis of the probable rate of exchange of 4 *PARISU* of barley for [½ shekel] of silver in section 183 and a 30-day Hittite month."

10. As in most ancient cultures, the metallic pieces of silver and gold probably changed hands rarely in commercial exchanges. Rather, it was the goods themselves that people traded. See Marvin A. Powell Jr., "Ancient Mesopotamian Weight Metrology: Methods, Problems and Perspectives," in *Studies in Honor of Tom B. Jones*, ed. Marvin A. Powell Jr. and Ronald H. Sack (Neukirchen: Kevelaer, 1979), 86–87.

11. Although economies in the New World must have rested on some sort of standards, only three types of artifacts have survived: (1) weights that are multiples of a single unit, (2) elements of balance scales (so far known only in Andean South America), and (3) a measure of length—"cubit"—that is 20.7 inches. For the weights, see Erland Nordenskiöld, *The

Origin of the Indian Civilization of South America* (Göteborg: Pehrssons, 1933), 278. For elements of balance scales, see ibid., and Walter Hough, "Balances of the Peruvians and Mexicans," *Science* 21 (1893): 30. For the "cubit" in ancient America, see "An Old-World Cubit in America," *Nature* 111 (1923): 647. These are cited in John L. Sorenson and Martin H. Raish, *Pre-Columbian Contact with the Americas across the Oceans: An Annotated Bibliography* (Provo, Utah: FARMS, 1996), 29, 192, 478.

12. Bartel L. van der Waerden, *Science Awakening* (New York : Oxford University Press, 1961), 49. Gillings, *Mathematics in the Time of the Pharaohs*, 234, "We tend to forget that [the Egyptians] were a people who had no plus, minus, multiplication, or division signs, no equals or square-root signs, no zero and no decimal point, no coinage, no indices, and no means of writing even the common fraction p/q; in fact, nothing even approaching a mathematical notation."

13. See Herbert W. Smyth, *Greek Grammar* (Cambridge: Harvard University Press, 1963), 106; translations mine.

14. See Munro S. Edmonson, *The Book of Counsel: The Popol Vuh of the Quiche Maya of Guatemala* (New Orleans: Tulane University, 1971), 6. See also the reference to balances in Hough, "Balances of the Peruvians and Mexicans," 30 (cited in Sorenson and Raish, *Pre-Columbian Contact*, 478). I thank John Sorenson for this information.

15. Marvin A. Powell, "Weights and Measures," *Anchor Bible Dictionary*, ed. David Noel Freedman et al. (New York: Doubleday, 1992), 6:898.

16. See the discussion of Egyptian fractions, as they are pictured in the Horus-eye, in Alan Gardiner, *Egyptian Grammar*, 3rd Edition (London: Oxford University Press, 1957), 197–99 (§266).

17. Gillings, *Mathematics in the Time of the Pharaohs*, 210.

18. Alan H. Gardiner, *Egyptian Grammar* (Oxford: Griffith Institute, Ashmolean Museum, 1976), 197.

19. Powell, "Weights and Measures," 6:897 (Sumerian MA.NA, Akkadian/Assyrian/ Babylonian *manum*); s.v. "*manû*," in Miguel Civil et al., *The Assyrian Dictionary of the Oriental Institute of the University of Chicago* (Chicago: Oriental Institute, 1977), 10:1:219–21; Dever, "Weights and Measures," in *Harper's Bible Dictionary*, 1127. Compare Akkadian *limnum, limnanni, limmanum*, etc., in Wolfram von Soden, *Akkadisches Handwörterbuch* (Wiesbaden: Harrassowitz, 1965), 604, as among the uses of *manum*.

20. John W. Betlyon, "Coinage," *Anchor Bible Dictionary*, 1:1076.

21. Compare Dever, "Weights and Measures," 1128–29; Powell, "Weights and Measures," 6:906–7.

22. I thank Robert F. Smith for this table and analysis, which is based on many years of research contributions relevant to this subject.

23. Åke Sjöberg, editor, *The Sumerian Dictionary of the University Museum of the University of Pennsylvania* (Philadelphia: University Museum, 1984), 2:200. See also

Robert F. Smith, "Weights and Measures in the Time of Mosiah II" (FARMS, 1983), 6.

24. The Printer's Manuscript has *senum, ezrum,* and *shilum* in Alma 11, as well as *sheum* in Mosiah 9:9. These may well be Akkadian carryovers from the Jaredites.

25. Gardiner, *Egyptian Grammar*, 192–94 (§§ 260–61); Antonio Loprieno, *Ancient Egyptian: A Linguistic Introduction* (Cambridge: Cambridge University Press, 1995), 60, 71–72.

26. Thomas O. Lambdin, *Introduction to Sahidic Coptic* (Macon, Ga.: Mercer University Press, 1983), 59, 270.

27. Hildegard Lewy, "On Some Old Assyrian Cereal Names," *Journal of the American Oriental Society*, 76/4 (1956): 201–4; s.v. "se'u" in *Assyrian Dictionary*, 17:2:345–50.

28. Robert F. Smith, who first drew attention to this connection, suggested "a Mulekite and possibly, therefore, Jaredite provenance." But the case is not obvious. See "Some 'Neologisms' from the Mormon Canon," *Conference on the Language of the Mormons 1973* (Provo, Utah: BYU Language Research Center, 1973), 64–67, esp. 66 and note 38.

29. For other possible relationships between Nephite weights and meaningful terms known from other ancient cultures, see Smith, "Nephite Weights and Measures."

30. See John W. Betlyon, "Coinage," in *Anchor Bible Dictionary*, 1:1079; A. D. H. Bivar, "Coins," *The Oxford Encyclopedia of Archaeology in the Near East*, ed. Eric M. Meyers et al. (New York: Oxford University Press, 1997), 2:41–42; Marvin A. Powell Jr. also notes the use of coinlike silver cubes in the Neo-Babylonian era (sixth–fifth centuries B.C.) in "Ancient Mesopotamian Weight Metrology," 87.

31. Powell, "Weights and Measures," 6:905; Barry Kemp, *Ancient Egypt: Anatomy of a Civilization* (London: Routledge, 1989), 237, 244–55; J. D. Muhly, "Cyprus," in *Oxford Encyclopedia of Archaeology in the Near East*, 2:92–93.

32. Powell, "Ancient Mesopotamian Weight Metrology," 72; and "Weights and Measures," 6:906. The Bible also mentions stone weights. For instance, the Hebrew phrase underlying "diverse weights, a great and a small" (Deuteronomy 25:13) could be translated literally as "stones, a large stone and a small."

33. Betlyon, "Coinage," 1:1076–89.

Did the ancient peoples of Mesoamerica use a system of weights and scales in measuring goods and their values?

1. See, for example, Francisco Guerra, "Weights and Measures in Pre-Columbian America," *Journal of the History of Medicine and Allied Sciences* 15 (1960): 342–44; Daniel G. Brinton, "The Lineal Measures of the Semi-Civilized Nations of Mexico and Central America," *Proceedings of the American Philosophical Society* 22: 194–207, 1885; and Fernando Cortés, *His Five Letters of Relation to the Emperor Charles V*, ed. and trans. Francis A. MacNutt (Glorieta, N.Mex.: Rio Grande, 1977), 1:259.

2. See Guerra, "Weights and Measures"; Munro S. Edmonson, *The Book of Counsel: The Popol Vuh of the Quiche Maya of Guatemala* (New Orleans: Tulane