How Witnesses Described the Gold Plates

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1065-9366 (print), 2168-3158 (online)

This article contains descriptions of the gold plates quoted directly from individuals who were closely associated with Joseph Smith Jr. Among those quoted are Martin Harris, Orson Pratt, and Emma Smith. The compiler also comments on the material of the plates.
HOW WITNESSES DESCRIBED THE “Gold Plates”

Compiled by Kirk B. Henrichsen
Although no single comprehensive description of the Book of Mormon plates has been preserved, the Prophet Joseph Smith and several people closely associated with him made various statements that include partial descriptions of the plates. When we consider all the sources together, quite a detailed picture emerges of the physical characteristics of the ancient Nephite record.

Material

“the appearance of gold”¹
—Joseph Smith Jr., Eight Witnesses, Orson Pratt

“golden plates”²
—David Whitmer

“a mixture of gold and copper”³
—William Smith
Weight

“weighing altogether from forty to sixty lbs.”
—Martin Harris

“I was permitted to lift them. . . . They weighed about sixty pounds according to the best of my judgement.”
—William Smith

“I . . . judged them to have weighed about sixty pounds.”
—William Smith

“They were much heavier than a stone, and very much heavier than wood. . . . As near as I could tell, about sixty pounds.”
—William Smith

“I hefted the plates, and I knew from the heft that they were lead or gold.”
—Martin Harris

“My daughter said, they were about as much as she could lift. They were now in the glass-box, and my wife said they were very heavy. They both lifted them.”
—Martin Harris

“I moved them from place to place on the table, as it was necessary in doing my work.”
—Emma Smith

Joseph’s sister Catherine, while she was dusting in the room where he had been translating, “hefted those plates [which were covered with a cloth] and found them very heavy.”
—H. S. Salisbury, paraphrasing Catherine Smith Salisbury

Individual Plate Dimensions

“six inches wide by eight inches long”
—Joseph Smith Jr.

“seven inches wide by eight inches in length”
—Martin Harris

“seven by eight inches”
—Martin Harris

“about eight inches long, seven inches wide”
—David Whitmer

“Each plate was not far from seven by eight inches in width and length.”
—Orson Pratt

Thickness of Each Plate

“of the thickness of plates of tin”
—Martin Harris

“thin leaves of gold”
—Martin Harris

“about as thick as parchment”
—David Whitmer

“not quite as thick as common tin”
—Orson Pratt

“[W]e could raise the leaves this way (raising a few leaves of the Bible before him).”
—William Smith

“They seemed to be pliable like thick paper, and would rustle with a metallic [sic] sound when the edges were moved by the thumb, as one does sometimes thumb the edges of a book.”
—Emma Smith

Volume Thickness

“something near six inches in thickness, a part of which was sealed”
—Orson Pratt

“[W]hen piled one above the other, they were altogether about four inches thick.”
—Martin Harris

Sealed and Unsealed Portions

“A large portion of the leaves were so securely bound together that it was impossible to separate them.”
—David Whitmer

“What there was sealed appeared as solid to my view as wood. About the half of the book was sealed.”
—David Whitmer

“[A]bout two-thirds were sealed up, and Joseph was commanded not to break the seal; that part of the record was hid up. The plates which were
sealed contained an account of those things shewn unto the brother of Jared."27
—Orson Pratt

“A great many, in reading this record carelessly, would wonder why it was that a part of these plates should be sealed, and why Joseph Smith should not be permitted to break the seal. It was because, in this great revelation, the sealed portion of the plates from which the Book of Mormon was taken, contained this great vision, given to the brother of Jared. Joseph was not permitted to translate it, neither to break the seal of the book; it is to be reserved to come forth in due time.”28
—Orson Pratt

Rings and Binding Format

“[T]hey were fastened with rings thus [a sketch shows a ring in the shape of a capital D with six lines drawn through the straight side of the letter to represent the leaves of the record].”29
—David Whitmer

“bound together like the leaves of a book by massive rings passing through the back edges”30
—David Whitmer

“They were bound together in the shape of a book by three gold rings.”31
—David Whitmer

“put together on the back by three silver rings, so that they would open like a book”32
—Martin Harris

“bound together in a volume, as the leaves of a book, and fastened at one edge with three rings running through the whole”33
—Orson Pratt

“Through the back of the plates were three rings, which held them together, and through which a rod might easily be passed, serving as a greater convenience for carrying them; the construction and form of the plates being similar to the gold, brass, and lead plates of the ancient Jews in Palestine.”34
—Orson Pratt
"I wish to mention here that the title-page of the Book of Mormon is a literal translation, taken from the very last leaf, on the left hand side of the collection or book of plates, which contained the record which has been translated, the language of the whole running the same as all Hebrew writing in general." [The asterisk directs the reader to a note that says, “*That is, from right to left.”]
—Joseph Smith Jr.

Characters, Text, and Plate Surface

"[The plates] were filled with... Egyptian characters... The characters on the unsealed part were small, and beautifully engraved. The whole book exhibited many marks of antiquity in its construction and much skill in the art of engraving.”
—Joseph Smith Jr., Orson Pratt

“There were fine engravings on both sides.”
—John Whitmer

“We also saw the engravings thereon, all of which has the appearance of ancient work, and of curious workmanship.”
—Eight Witnesses

Count Alexander von Humboldt published this drawing in 1814 of the Aztec Calendar Stone, which had been discovered in 1790. This is the only “Mexican calendar” that Anthon could have seen in Humboldt’s work.

"[T]he characters... were cut into the plates with some sharp instrument.”
—William Smith

"Upon each side of the leaves of these plates there were fine engravings, which were stained..."
with a black, hard stain, so as to make the letters more legible and easier to be read.”

—Orson Pratt

The following statements, though based on transcriptions of the characters engraved on the plates and not on examination or intimate knowledge of the plates themselves, are also of interest.

“It [Joseph’s transcription of characters from the plates] consisted of all kinds of singular characters disposed in columns, . . . Greek and Hebrew letters, crosses and flourishes; Roman letters inverted or placed sideways were arranged and placed in perpendicular columns, and the whole ended in a rude delineation of a circle, divided into various compartments, arched with various strange marks, and evidently copied after the Mexican calendar.”

—Charles Anthon

“The characters were arranged in columns, like the Chinese mode of writing, . . . Greek, Hebrew and all sorts of letters, more or less distorted, . . . were intermingled with sundry delineations of half moons, stars, and other natural objects, and the whole ended in a rude representation of the Mexican zodiac.”

—Charles Anthon

“[Martin Harris] was in the habit of exhibiting to his hearers what he claimed to be a fac simile [sic] copy of the title page of the forthcoming book [Book of Mormon].” One who saw this copy said, “On it were drawn rudely and bunglingly, concentric circles, between, above and below, which were characters, with little resemblance to letters.”

—Charles W. Brown

OF WHAT MATERIAL WERE THE PLATES?

Were the Book of Mormon plates pure gold, or were they made from an alloy that looked like gold? The most serious investigation of this question was done 45 years ago by Read H. Putnam of Evanston, Wyoming, a blacksmith and metallurgist. Working first from the general dimensions of the set of plates as reported by eyewitnesses, he calculated that a block of pure gold of that size would have weighed a little over 200 pounds. A number of witnesses, however, put the weight of the set at about 60 pounds. The discrepancy can be partly accounted for by the fact that the leaves must have been handcrafted, presumably by hammering, and irregularities in flatness would have left air space between the plates. This led Putnam to surmise that the entire set of plates would have weighed probably less than 50 percent of the weight of a solid block of the metal.

Because the weight of a metal depends on its purity, we must also consider whether the plates were of pure gold. The Nephites were aware of purity distinctions and alloys. We know, for example, that the “brass” plates were of an alloy (quite surely bronze, a copper-tin mixture) and that the plates of Ether were specifically distinguished as being of “pure” gold (Mosiah 8:9). Furthermore, Nephi taught his associates “to work in all manner of metals and precious ores” (2 Nephi 5:15). Yet nowhere does the text say that the Nephites’ plates were of pure gold.

Joseph Smith’s brother William specifically said that the material of the plates was “a mixture of gold and copper.” (Someone must have provided an objective basis for that statement, for the natural assumption would have been that the plates were pure gold.) The cautious statements by other witnesses, including Joseph Smith himself, who spoke of the plates as having “the appearance of gold,” suggest that the metal may have been an alloy.

Putnam observed that the only two colored metals from antiquity were gold and copper. An alloy of those two elements was called “tumbaga” by the Spaniards and was in common use in ancient tropical America for manufacturing precious objects. Putnam put forward the reasonable hypothesis that metal plates made in Mormon’s day were of that material (the earliest Mesoamerican archaeological specimen of tumbaga—made from a hammered metal sheet—dates to the same century, the fifth century A.D., when Moroni hid up the plates he had in his possession). If Mormon’s Book of Mormon plates were made of tumbaga, their weight would have been much less than had they been made of pure gold. Putnam made that point in mathematical detail and concluded that the total weight of the plates in Joseph Smith’s charge would have been near the 60-pound figure reported by several witnesses.

It is of interest that tumbaga was commonly gilded by applying citric acid to the surface. The resulting chemical reaction eliminated copper atoms from the outer .0006 inch of the surface, leaving a microscopic layer of 23-carat gold that made the object look like it was wholly gold. Plates having “the appearance of gold,” then, are exactly what we would expect if they were made of tumbaga.

In the process of depletion gilding, the particles of gold and copper that are uniformly distributed throughout the alloy are exposed to an open flame, which causes the copper to turn black. The copper is then removed by a mildly acidic “pickle,” such as a citrus extract. When heated and polished, the remaining surface particles compress and form a thin layer of pure gold.
ENDNOTES

The Editor's Notebook


2. Ibid., 2:94 (6 Feb. 1853).

3. “What Meanteth the Words That Are Written?” Abinadi Interprets Isaiah


5. Ibid., 2:94 (6 Feb. 1853).


7. William Smith interview,

8. Until now was he reciting? He may have turned to read at that moment from a scroll, plates, or book of some kind containing Exodus. The brass plates contained this material.


10. From this point on in the dialogue, I quote rather than paraphrase Abinadi’s powerful words.


13. Hugh W. Nibley offers an additional view: “Why help come from the mountains? That is explained very well in those wonderful verses of Isaiah which the prophet Abinadi uses so effectually, Isaiah 52:7…” How beautiful upon the mountainside are the feet of him who brings good tidings”—literally, are the legs of the runner who brings good news and who goes to us to hear that there is peace…. Abinadi is announcing that from the other side of the mountain, from the other world, comes the good news. This is revelation. It’s the welcome messenger from the other world, the angel who brings us the gospel—who brings us the message of salvation, who brings us the message of peace, which you don’t find on this side of the mountain.” (“The Mountain of the Lord’s House,” lecture 16 of Ancient Documents and the Pearl of Great Price [series of videotaped lectures from a 1988 honors class at Brigham Young University on the Pearl of Great Price], transcript pp. 8–9.


15. In Alma 32, Alma expounds the method whereby this change can occur.

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The descriptive material for this article was compiled by Kirk Henrichsen, of the staff of the Museum of Church History and Art in Salt Lake City, who kindly offered it for use in the Journal.


9. Ibid., 168.


11. B. B. Bell interview with H. S. Salisbury (grandson of Catherine Smith Salisbury), Historical Department Archives, the Church of Jesus Christ of Latter-day Saints.


14. Martin Harris interview, Iowa State Register, August 1870, as quoted in Backman, Eyewitness Accounts, 226.


17. Martin Harris interview, Tiffany’s Monthly, May 1859, 165.

18. Martin Harris interview, Iowa State Register, August 1870, as quoted in Backman, Eyewitness Accounts, 226.


24. Martin Harris interview, Tiffany’s Monthly, May 1859, 165.

25. The method by which a portion of the record was sealed is not specified in the documentary evidence.


27. David Whitmer interview, Deseret Evening News, 16 August 1878, in David Whitmer Interviews, ed. Cook, 64.


29. Ibid., 19:211–12, 9 December 1877.

30. David Whitmer interview, Edward Stevenson diary, 22–23 December 1877, Historical Department Archives, the Church of Jesus Christ of Latter-day Saints. Original capitalization and punctuation have been modernized. In Stevenson’s interview, Whitmer recounted his mother’s description of the rings.


33. Martin Harris interview, Tiffany’s Monthly, May 1859, 165.

34. Pratt, An Interesting Account, 13.


36. Joseph Smith Jr., “Church History” (Wentworth Letter); Pratt, An Interesting Account; Orson Pratt’s interview is slightly different, adding, for example, the following italicized words: “[The plates] were filled on both sides with 101 prophet characters. . . . The characters or letters upon the unscaled part were small, and beautifully engraved”.


38. “Testimony of the Eight Witnesses.”


41. Ibid., 19:211–12, 9 December 1877.


ENDNOTES