

Observations on the Evolving Chariot Wheel in the 18th Dynasty

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It is generally believed that the horse-drawn chariot was introduced into Egypt by the Hyksos, and that it originated somewhere in the area of Syria-Palestine.¹ Egyptian literary references to chariots occur as early as the reigns of Kamose,² the 17th Dynasty king who took the first steps in freeing Egypt from the Hyksos, and Ahmose,³ the founder of the 18th Dynasty. Pictorial representations, however, do not appear until slightly later in the 18th Dynasty. Two of the earliest scenes are found in the tomb of Rennie of El Kab⁴ (possibly dating to the reign of Amenhotep I), and in the tomb of User⁵ (reign of Thutmose I).

Professor Yigael Yadin maintains that during the earlier part of the 18th Dynasty, the Egyptian chariot was "exactly like the Canaanite chariot:"⁶ both were constructed of light flexible wood, with leather straps wrapped around the wood to strengthen it, and both utilized wheels with four spokes. In Yadin's eyes the four-spoked wheel is diagnostic for dating purposes; it is restricted to the early period of the 18th Dynasty. It remained in vogue, he says, until the reign of Thutmose IV, when "the Egyptian chariot begins to shake off its Canaanite influence and undergo considerable change."⁷ Yadin believes that the eight-spoked wheel, which is seen on the body of Thutmose IV's chariot,⁸ was an experiment by the Egyptian wheelwrights, who, when it proved unsuccessful, settled thereafter for the six-spoked wheel. In short, "So widespread and meticulous is the delineation of the number of wheel spokes on chariots depicted on Egyptian monuments that they can be used as a criterion for determining whether the monument is earlier or later than 1400 B.C."⁹

Yadin's observations raise two questions. First, is the number of spokes in the wheel of the chariot as reliable a dating tool as he suggests? Secondly, what prompted the change from the four- to six-spoked wheel? Was it purely a way to "shake off Canaanite influences," or was there a more practical motivation for the shift?

A chariot scene from the tomb of Ken-Amun¹⁰ (dated to the reign of Amenhotep II) shows a partially obliterated chariot. Four-spoked wheels are invariably depicted with the spokes in a 12, 6, 3, and 9 o'clock position, but in this scene the two visible spokes point toward 12 and 4 o'clock; this indicates a six-spoked wheel.

The introduction of the six-spoked wheel did not herald the immediate end of the four-spoked wheel, for Amenhotep II himself is shown driving a chariot of the older type on the red granite block discovered by M. H. Chevrier,¹¹ as is Userhet, an official in his court.¹² Subsequently we find Thutmose IV riding a chariot with eight-spoked wheels in the scene which for Yadin marked the beginning of the shift away from the four-spoked wheel.¹³ As we have seen, however, there is evidence of a wheel with six spokes in the preceding reign, and we conclude that the shift began before 1400 B.C. Possibly the chariot of Thutmose IV was produced in a period when experimentation was still in progress, or alternatively, the chariot was custom made according to the king's specifications. Either explanation might seem plausible, since until recently no other 18th Dynasty Egyptian chariot wheels with eight spokes had come to light. However, while browsing through some of the assembled talatat scenes in the Akhenaton Temple Project office in Cairo, the writer came across a processional scene in which Akhenaton is shown riding in a chariot that had eight spokes in its

wheels.¹⁴ This scene tends to support the hypothesis that the Thutmose IV chariot was a custom-made vehicle, as Akhenaton's would have been.

Another pictorial source from the reign of Thutmose IV is the workshop scene from the tomb of Hepu.¹⁵ Here wheelwrights are working on wheels that are supported by four spokes. This suggests that the four-spoked wheel remained in use for a limited time after 1400 B.C. Thereafter, for the remainder of the 18th Dynasty, the chariot wheel is regularly represented with six spokes,¹⁶ the single exception being the eight-spoked wheel of Akhenaton mentioned above.

In the 19th and 20th Dynasties, the chariot wheels, for the most part, continue to have six spokes. We see them, for example, on the royal chariots of Seti I,¹⁷ Ramesses II,¹⁸ and Ramesses III.¹⁹ Admittedly, for the reigns of Ramesses II²⁰ and Ramesses III,²¹ one can cite scenes depicting four-spoked wheels, but, in each instance, the chariots are driven by foreign warriors. Again, chariot wheels with eight spokes are found in the Ramesside era, but they are limited to a few chariots driven by Hittites. The Hittite chariots normally had six spokes in each wheel.

According to the evidence presented here, the six-spoked wheel is regularly portrayed in the chariots used by monarchs after Thutmose IV, the sole exception being the talatat scene from the Amarna period mentioned above. However, contrary to Yadin's position, the six-spoked wheel is found before 1400 B.C. But he is basically correct in stating that the six-spoked wheel is consistently shown on chariots after 1400 B.C.

Yadin's explanation for the shift in the number of wheel spokes is hardly convincing. The Egyptians were certainly jingoistic, but it is stretching the point to believe that they would alter the number of wheel spokes merely to "shake off Canaanite influences," and thereby assert their nationalistic identity. They were eminently practical, and we must seek a practical reason for the change.

The six-spoked wheel from the reign of Amenhotep II suggests that the shift must have begun even earlier. Thutmose III, Amenhotep II's predecessor, launched at least 17 military campaigns into Syria-Palestine; one might surmise that in these circumstances the Egyptian chariot would undergo certain changes in order to achieve maximum performance. Unfortunately we have no battle scenes with chariots in action until the time of Tutankhamun.²³ Before this, chariots are limited to hunting, domestic, and procession scenes.

In the Tutankhamun battle scenes, we see for the first time a second warrior standing in the chariot beside the driver. In the Ramesside era, we again encounter Egyptian war chariots with two warriors. In historical texts, *ktn* is the term for charioteer,²⁴ and *sunny* is translated as "chariot warrior".²⁵ The role of the *ktn* is simply to drive the chariot, while the *sunny* is portrayed as wielding a shield to protect the driver, or actually shooting arrows at the enemy.²⁶

One of the earliest occurrences of the word *sunny* is found in a text in the tomb of Menkheperasonb (# 112) in the Theban necropolis.²⁷ The text reads, *it.f sunny n hm.f*—"his father was a chariot warrior of his majesty." Since Menkheperasonb served under Thutmose III, his father would have been a *sunny* in the early part of that reign, or before it. If *sunny* is here used as a technical term, it appears that the chariot warrior must have been introduced early in Thutmose III's reign, or even earlier. No doubt the addition of a second man on the light chariot necessitated a stronger wheel to support the extra weight. The period of the extensive campaigns of Thutmose III would have been an ideal time for the wheelwrights to experiment with the chariot in order to improve its performance in the field of battle.

The same explanation will account for the eight-spoked wheels of Hittite chariots in 19th Dynasty battle scenes.²⁸ The Hittites mounted yet a third warrior in their chariots. This additional burden must have prompted their wheelwright to add another pair of spokes to strengthen the wheel.

¹ Y. Yadin, *The Art of Warfare in Biblical Lands*, I (Toronto, 1963), p. 86; H. E. Winlock, *The Rise and Fall of the Middle Kingdom in Thebes* (New York, 1947), p. 152.

² L. Habachi, *The Second Stela of Kamose ...* (Abhandlungen des Deutschen Archäologischen Instituts Kairo, Ägyptologische Reihe, Band 8: Glückstadt, 1972), I. 13.

³ Sethe, *Urkunden IV*, 3,6.

⁴ J. J. Tylor, *Tomb of Rennie* (London, 1900), *ad. loc.*

⁵ N. deG. Davies, *Five Theban Tombs* (London, 1913), pl. 22.

⁶ Yadin, *op. cit.*, p. 86.

⁷ *Ibid.*, p. 87.

⁸ W. Wreszinski, *Atlas zur altägyptischen Kulturgeschichte* (Leipzig, 1923-41), pp. 1-2.

⁹ Yadin, *op. cit.*, 87.

¹⁰ N. deG. Davies, *The Tomb of Ken-Amun* (New York, 1930), pl. 22.

¹¹ H. Chevrier, "Rapport sur les travaux de Karnak," *ASAE* 28 (1928), p. 126.

¹² Yadin, *op. cit.*, p. 186.

¹³ Wreszinski, *loc. cit.*

¹⁴ The writer would like to thank Prof. D. B. Redford for encouraging him to examine the assembled chariot scenes in his Cairo office and hopes to devote time to a deeper study of this scene in the near future.

¹⁵ Nina Davies, *Private Tombs at Thebes IV* (Oxford, 1962), pl. 8.

¹⁶ W. M. F. Petrie, *Six Theban Temples* (London, 1897), pl. 10; N. deG. Davies, *The Rock Tombs of el Amarna, III* (London, 1905), pl. 32; Nina Davies, *Tutankhamun's Painted Box* (Oxford, 1962), pls. I-IV.

¹⁷ Wreszinski, *op. cit.*, p. 61.

¹⁸ *Ibid.*, p. 109.

¹⁹ *Ibid.*, p. 114b.

²⁰ *Ibid.*, pp. 84, 137.

²¹ *Ibid.*, p. 66.

²² *Ibid.*, pp. 23, 25, 84.

²³ Nina Davies, *op. cit.*, pls. I and III.

²⁴ *Wb.* V, 148.

²⁵ *Wb.* III, 459.

²⁶ Wreszinski, *op. cit.*, pp. 21, 23, 25, 84.

²⁷ Nina Davies, *The Tombs of Menkheperasonb ...* (London, 1933), pl. 24.

²⁸ Wreszinski, *op. cit.*, pp. 23, 25, 84.