



## K(NO)W MORE SPEARS FROM THE BACKS OF CHARIOTS: PROBLEMS WITH THE BATTLE OF KADESH'S THRUSTING SPEARS

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### ABSTRACT

*Although it has been argued that the Hittite chariot forces at the Battle of Kadesh utilized thrusting-spears while fighting, there is very little evidence to confirm this. The pictorial record demonstrates that this interpretation derives from a set of scenes depicting just one event. Such assertions neglect to consider the depictions of Ramesses II's predecessor, Sety I, engaged with Hittite forces using archery equipment from a chariot, and also pass over Hittite textual records focusing on the same subject. This short paper thus employs both these sources and an examination of the mechanical implications of using thrusting-spears from chariots to reconsider traditional interpretations.*

Depictions of the chariotry at the Battle of Kadesh display the Hittite chariots operating with a charioteer or driver and two additional occupants ('chariot-warriors');<sup>1</sup> in some depictions of these Hittite chariots, one of the chariot-warriors holds a spear-like weapon. Thus, some scholars of New Kingdom battle tactics propose that the Hittites deployed their chariots in a completely different manner to that of the Egyptians (a charioteer accompanied by an archer), by primarily deploying their chariots as 'shock vehicles' to engage infantry or enemy chariotry in the field.<sup>2</sup> This study will reconsider the evidence on which such assertions are based utilizing artistic depictions, archaeological data and mechanical constraints that indicate that the use of 'thrusting-spears' from a back of a chariot is unsound.

Supporters of the Hittite 'shock vehicle' theory often rely heavily on the scenes of the Battle of Kadesh to validate their claim. However, such interpretations often ignore an earlier depiction of a military engagement by Ramesses II's father, Sety I. Located on the bottom register of the northern exterior wall of the Hypostyle Hall at Karnak (west side of the doorway), the scene depicts Sety I engaging a Hittite chariotry force that employs archery equipment.<sup>3</sup> Not a single spear is shown in the hands of a Hittite chariot-warrior. It could be argued that there was a change in armaments of Hittite chariotry during the 15 years from Sety I's engagement to the Battle of Kadesh, but proponents of the 'shock vehicle' theory have either neglected to mention this earlier artistic scene or failed to explain why the Hittites' spear-tactics would

have been viewed as tactically more efficient than archery by the time of Ramesses II's accession.<sup>4</sup> With regard to the artistic scenes of the Battle of Kadesh, the depictions of the Hittite chariot forces are shown in the act of fleeing Ramesses II's onslaught and the majority of the Hittite chariot-warriors are not armed with any weapons at all.<sup>5</sup> Conceivably this was an artistic attempt to suggest that the Hittite forces were powerless to stand against the force of the Egyptian king.<sup>6</sup> Beal, a Hittitologist, has additionally noted that most of the textual records from the Hittite New Kingdom do not detail a direct association of Hittite chariotry associated with either long-lances or thrusting-spears.<sup>7</sup> The records do, however, demonstrate that the Hittite chariotry had a direct relationship with projectile weaponry, those being javelins and archery equipment. Therefore, at least based on the Hittite textual evidence, the use of thrusting spears over projectile weaponry cannot be substantiated.

To these representational and textual arguments, one can add the analysis of Littauer & Crowel that has conclusively demonstrated that the use of a thrusting-spear from the back of a chariot would have been physically impossible.<sup>8</sup> In their article, Littauer & Crowel demonstrate that a 3 meter (10 ft.) lance could not have functioned from the back of a chariot given the wide track of New Kingdom chariots (averaging 1.7 meters). In pharaonic Egypt, such long lances are not attested in the archaeological record. The only secured examples of a thrusting spear's dimensions come from the Nubian fortress of Mirgissa.<sup>9</sup> The 11 spearheads of the armoury at Mirgissa have large flint

points that date to the 13<sup>th</sup> Dynasty, averaging 20 cm long by 3.17 wide with short tangs measuring 15. – 2 cm long.<sup>10</sup> These examples are very thin at 5.2 mm and have a gradual shoulder that would not have interfered with trusting and retraction for multiple strikes.<sup>11</sup> A spearhead from Buhen exhibits a similar shape and overall dimensions (Figure 1). The shafts of these weapons did not escape degradation. Fortunately, the thrusting spears found in Room H were deposited in moist loam soil that preserved an impression of the overall shaft's dimensions.<sup>12</sup> The diameter of the shaft was 2.8 – 3.2 cm thick and its length would have been 166 cm. This, when the lithic point was added would have been 180 cm in total length.<sup>13</sup> The weight of the thrusting spear would have been 1500 – 2000 grams, roughly five times the weight of a javelin.<sup>14</sup>



Figure 1: Spearhead found at Buhen. Comparable in dimensions and overall shape to the Mirgissa spearheads, 22.4 X 5.4 cm (BM EA65771)

Although this material does come from a time prior to the New Kingdom, Vila's analysis of the spears from the Mirgissa armoury demonstrates a direct correlation to the dimensions of New Kingdom spears not only in size but also in their overall shape as well. A spearhead from the 19<sup>th</sup> Dynasty measures 17.6 cm long and another example from the 18<sup>th</sup> Dynasty measures 24 cm long X 3.4 cm at its widest point.<sup>15</sup> In addition, New Kingdom forked

spear butts from the Petrie Museum demonstrate that the diameter of the shaft socket is 1.9 – 2.4 cm, comparable with the shaft's diameter from the armoury at Mirgissa.<sup>16</sup> Spearheads from Boghazköy exhibit similar spearhead socket proportions (2.1 – 2.2 cm) and overall dimensions (14.1 – 16.3 X 2.22 – 4 cm).<sup>17</sup> We should assume, based on the current evidence that thrusting-spears employed by the Hittites and the Egyptians during the New Kingdom were of comparable dimensions. From these examples, we can apply Littauer & Crowel's analysis to demonstrate that the range of a thrusting-spear would have been extremely truncated if used from the back of a chariot (Figure 2). It must be concluded that if such a deployment method was utilized by the Hittite chariotry it would have endangered the vehicles to become disabled as the chariot's nave would have to get extremely close to the intended target.

The physical forces involved in using a thrusting-spear from the back of a chariot must also be considered to evaluate the Hittite 'shock vehicle' theory. The impact force applied upon the spear-wielder would have been substantial. Utilizing Spalinger's suggestion that the average speed of a New Kingdom chariot was 20 – 25 kmph, a rough calculation of the impact force can be attempted.<sup>18</sup> If our spear-wielder was 160 lbs. (72.6 kgs.) and was travelling in a chariot at a conservative 20 kmph this would have resulted in 326 lbs. (148 kgs.) of impact force.<sup>19</sup> At a higher rate of speed, 30 kmph, the resulting force would have been 489 lbs. (222 kgs.). Surely the impact force of the collision would have caused the spear-wielder to lose footing in the chariot-car.<sup>20</sup> Additionally, one has to consider that the lateral stresses on a 2.8 – 3.2 cm thick spear shaft would have caused the shaft to buckle and break, rendering the weapon unsuitable for continual use. Therefore, the

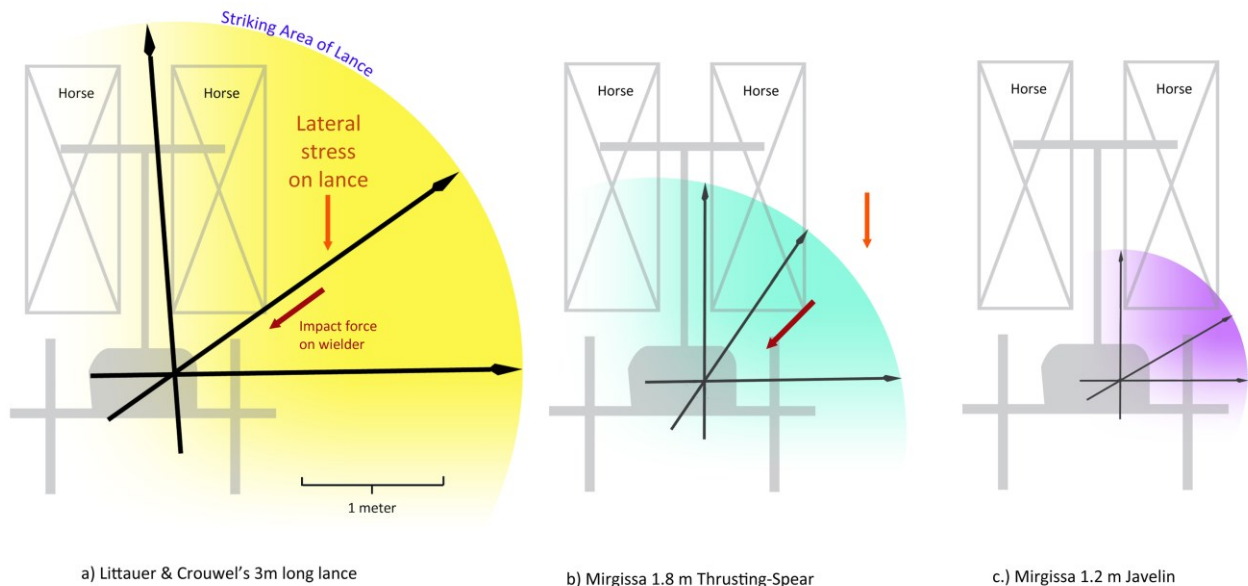


Figure 2: Schematic drawing displaying the physical constraints on using spear-like weapons from the car of the chariot (altered after Littauer & Crowel 1983, Fig.1)

tactical efficiency of using a spear from the back of a chariot cannot be substantiated based on the physical mechanics involved.

The use of chariotry during the New Kingdom was widespread throughout the eastern Mediterranean and it appears that each culture deployed such units in a similar manner. The use of archery equipment could inflict numerous injuries without a high risk of disabling the vehicle. As we have seen, the idea that the Hittite military would have deployed chariots in a different manner from other groups in the ancient Near East is untenable. In addition to the representational evidence for this ‘shock vehicle’ deployment being very sparse we must also consider that the

Hittite textual records indicate that there was a strong association of chariotry with projectile weaponry. Further, the physical dimensions and the mechanics involved in striking an opponent from a moving vehicle demonstrate conclusively that this theory should be rejected as a plausible deployment method. Therefore, it appears that Drews’ and Schulman’s assertion, that this ‘third man’ depicted in the Hittite chariots at the Battle of Kadesh is actually an infantry chariot-runner (armed with a javelin and not a thrusting spear), is not only warranted but appears to be the only possible explanation.<sup>21</sup>

## NOTES

- 1 Luxor, Karnak, Abu Simbel, Abydos and the Ramesseum (Susanna Heinz, *Die Feldzugsdarstellungen des Neuen Reiches: Eine Bildanalyse* (Vienna: Austrian Academy of Sciences Press, 2001), 288 no. IV.3, 286 III.3, 281 no. I.1, 282 no. II.2 and 292 no. V.3 respectively).
- 2 The scholars are too numerous to list here but some examples are; J. G. MacQueen, *The Hittites and their Contemporaries in Asia Minor* (London, 1996), 58; Yigael Yadin, *The Art of Warfare in Biblical Lands In the Light of Archaeological Study* (London: International Publishing, 1963), 109 Yadin goes so far as to claim that the Hittites lost the Battle of Kadesh due to their deployment of infantry on chariots; Nigel Stillman & Nigel Tallis, *Armies of the Ancient Near East, 3000 BC-539 BC* (Sussex: Wargames Research Group, 1984), 65; Mark Healy, *Armies of the Pharaoh* (Oxford: Osprey, 1992), 21 – 22; Robert Morkot, *Historical Dictionary of Ancient Egyptian Warfare* (Oxford: Scarecrow Press, 2003), 66; Anthony Spalinger, “The Battle of Kadesh: The Chariot Frieze at Abydos”, *Ä&L* 13 (2003), 185 - 186; Anthony Spalinger, *War in Ancient Egypt* (Oxford: Wiley-Blackwell, 2004), 195, 214 implies that three-men to a chariot and operating as a charging vehicle was the ‘typical way’ of deployment for Hittite chariots (or their vassal dependencies).
- 3 Heinz, *Die Feldzugsdarstellungen des Neuen Reiches*, 247 I.12, 250 I.21
- 4 Anthony Spalinger, “The Northern Wars of Seti I: An Integrative Study”, *JARCE* 16 (1979), 35; Spalinger, “The Battle of Kadesh: The Chariot Frieze at Abydos”, 175 ft. 52 acknowledges this earlier Sety I encounter with a Hittite host (with two men to a chariot) but claims that “...one can argue that the third man had fallen off the chariot” or that it was a mistake on the part of the artist. This seems highly unlikely, besides being an *ex silentio* argument, but also in light that the textual record that mentions the Hittites’ three-man deployment is specifically pointed out because it is not the standard practice of chariot warfare during this time.
- 5 It should be noted that supporters of the Hittite ‘shock vehicle’ theory often leave the impression with readers that most depictions of the Battle of Kadesh’s Hittite chariot teams are armed (Richard Beal, *The Organization of the Hittite Military*, PhD Thesis (Chicago: University of Chicago, 1986), 578).
- 6 Robin Archer, “Chariotry to Cavalry: Developments in the First Millennium” in Brian Fagan (ed.) *New Perspectives on Ancient Warfare* (Leiden: Brill, 2010), 61 – 62
- 7 The term for ‘spear’ is used to mean a bladed weapon that could be attached on a shaft that would have been intended for thrusting strikes primarily by gripping it with one hand. A ‘lance’ is different in that it would have required two hands and presumably would have been much longer and might have had a longer point. Richard Beal, *The Organization of the Hittite Military* (Heidelberg: Carl Winter, 1992), 149 ft. 544, 201; Richard Beal, “I Reparti e le Armi Dell’Esercito Ittia” in M. Cristina Guidotti and Franca Pecchioli Daddi (eds.) *La Battaglia Di Qadesh: Ramesse II Contro Gli Ittiti Per La Conquista Della Siria* (Rome: Sillabe, 2002), 98
- 8 Mary Littauer & Joost Crowel, “Chariots in Late Bronze Age Greece”, *Antiquity* 57 – 221 (1983), 187 – 192 written in response to Peter Greenhalgh, *Early Greek Warfare: Horsemen and chariots in the Homeric and Archaic Ages* (Cambridge: Cambridge University Press, 1973), 9. Although Greenhalgh does mention the bow could have been used from chariots, he places more emphasis upon the long-spear for Mycenaean warfare. Littauer & Crowel’s critique has been widely accepted by researchers of Classical warfare (Robert Gaebel, *Cavalry Operations in the Ancient Greek World* (Oklahoma: University of Oklahoma Press, 2004), 41).
- 9 André Vila, “L’armement de la Forteresse de Mirgissa-Iken”, *RdÉ* 22 (1970), 172 – 199
- 10 Vila, “L’armement de la Forteresse de Mirgissa-Iken”, 180 Vila did uncover one point that might suggest a lancehead, measuring 28.6 cm long (without the tang) but this could be a spearhead on the larger end of the spectrum.
- 11 Due to the deposition of this material this date should be taken lightly and might be better dated to the range of the

- late Middle Kingdom to the end of the Second Intermediate Period . Vila, "L'armement de la Forteresse de Mirgissa-Iken", 180. Lille, Institut de Papyrologie et D'égyptologie, Université de Lille No. L 589 (<http://www.globalegyptianmuseum.org/record.aspx?id=7051>) please note that the entry misidentifies this point as a javelin head. There is a suspected parallel of this type of thrusting-spear lithic point in the British Museum that was found at Buhen (BM 65771).
- 12 Vila, "L'armement de la Forteresse de Mirgissa-Iken", Pl. 13
  - 13 This is comparable to the length of a neo-Assyrian thrusting-spear, from Nimrud, that had the complete shaft intact (Amy Barron, *Late Assyrian Arms and Armour: Art versus Artifici*, PhD Thesis (Toronto: University of Toronto, 2010), 82).
  - 14 Vila, "L'armement de la Forteresse de Mirgissa-Iken", 184
  - 15 Petrie Museum no. UC16339 and UC30032bb
  - 16 Petrie Museum no. UC69795, UC63158 and UC63159.
  - 17 Rainer Boehmer, *Die Kleinfunde von Bogazköy aus den Grabungskampagnen 1931-1939 und 1952-1969* (Berlin: Mann, 1972), 144 no. 1285 and 1287, Pl. 45
  - 18 Anthony Spalinger, "Some notes on the Chariot Arm of Egypt in the Early Eighteenth Dynasty" in Panagiotis Kousoulis and Konstantinos Magliveras (eds.) *Moving Across Borders: Foreign Relations, Religion and Cultural Interactions in the Ancient Mediterranean* (Leuven: Peeters, 2007), 132 – 133. Spalinger does note that although this is the average speed, that top speeds of 38 kmph were possible for short distances.
  - 19 Weight estimate based on Winlock (Herbert Winlock, *The Slain Soldiers of Neb- Hepet-Rē' Mentu- Hotpe*(1945)) and Spalinger (Spalinger, *War in Ancient Egypt*, 40; Spalinger, "Some notes on the Chariot Arm of Egypt in the Early Eighteenth Dynasty", 130 – 131 ft. 42). See also, Carola Vogel, "Fallen Heroes? Winlock's 'Slain Soldiers' Reconsidered", *JEA* 89 (2003), 239 – 245.
  - 20 Even if the wielder was wearing some sort of 'safety belt' the impact would undoubtedly have caused serious injury to his spine.
  - 21 Robert Drews, *The End of the Bronze Age: Changes in Warfare and the Catastrophe ca. 1200 B.C.* (Princeton, 1993), 121; Alan Schulman, "The Egyptian Chariotry: A Reexamination", *JARCE* 2 (1963), 89 – 90.

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