

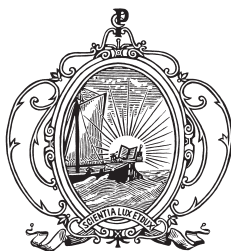
COLLOQUIA ANTIQUA

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INSIGHTS INTO HITTITE HISTORY AND ARCHAEOLOGY

Edited by

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CHAPTER 6

HITTITE MILITARY AND WARFARE

Jürgen LORENZ and Ingo SCHRACKAMP

Abstract

The present chapter deals with Hittite military and warfare. A brief review of Hittite history shows what important a role the military played in the history of Central Anatolia and beyond during the 2nd millennium BC. The reader will be introduced to the sources, which contain both archaeological remains and cuneiform texts. Constituting the major parts of the army, chariot troops and foot soldiers will be dealt with in detail, describing arms, equipment and organisation. Though we do not have descriptions of how a battle was fought, a synthesis of cuneiform documents, material remains and pictorial evidence allow us to reconstruct a good deal of Late Bronze Age warfare.

INTRODUCTION

Hittite history is mainly a history of wars. Since the oldest known Indo-European record, the so-called Anitta text, deals with military confrontations, it demonstrates instructively the importance of military expansion during the process of state formation in 2nd-millennium BC Anatolia.¹ The expansion under the Old Hittite kings as well would not have been possible without a well-developed military. Doubtless Muršili's I conquest of Babylon marks the climax of the military undertakings of the Old Hittite kings. We cannot say for certain how far the military was involved in dynastic disputes and rebellions in the Middle Hittite period, but the lack of written evidence for major military operations clearly contributes to the fact that intra-Hittite disputes weakened the political power of Ḫatti. After this ill-documented period, Šuppiluliuma I laid the foundations for the Hittite empire. For this period sources are more varied and extensive than hitherto. During the reign of Muwatalli II, the empire extended from western Anatolia to upper Mesopotamia, including major parts

¹ CTH 1; Neu 1974. CTH numbers given in the notes refer to a revised, digital version of Laroché, *Catalogue des textes hittites*: <http://www.asor.org/HITTITE/CTHHP.html>.

of Syria and the Levant. Rule over such wide a territory was only possible by means of accurate administration and the striking force of an effective army.

SOURCES

The annalistic literature of the kings provides the most important written source dating to the Old Hittite period: The annals of Ḫattušili I,² his instruction to his successor Muršili I, and the Telipinu³ text contain information describing the military activities of the Old Hittite kings. In addition, a few passages of the Hittite Laws offer further information.⁴ The Middle Hittite Mašat letters testify to the function and the functioning of a Hittite border city,⁵ the so-called Kikkuli text accurately deals with the training of chariot horses and thus is of major relevance for our topic.⁶ In comparison to the scanty documentation of the Old and Middle Hittite periods, written sources from the Empire period are much more extensive. Here the annals of Šuppiluliuma I and Muršili II⁷ provide us with detailed information about the composition of the army and its arms, manpower, numbers and recruiting. Treaties with vassal kings increase our knowledge of the composition and human resources of the Hittite army. Instructions to different officers and the so-called military oaths are helpful in describing the nature of military service and organisation.⁸ Some administrative documents provide further detail information concerning armament and equipment.⁹

Hittite depictions of arms and army are supplemented by numerous representations of Hittite infantry and chariot troops on Egyptian reliefs and wall-paintings dating from the reigns of Seti I and Ramesses II (Figs. 5-6). Although archaeological remains of weapons and equipment from Hittite sites as well as

² CTH 4; KBo 10.1 (Akkadian), Houwink ten Cate 1983-84; KBo 10.2 (Hittite), Kempinski 1983, 22-33.

³ CTH 6, see Sommer and Falkenstein 1938; on CTH 19, see Hoffmann 1984.

⁴ CTH 291-292, edited by Friedrich 1971; more recently, see Roth 1997.

⁵ Alp 1991, 4-6; Klinger 1995, 83-86; most recently de Martino 2005, 307-08 with a few additions to the corpus.

⁶ CTH 284, see n. 73.

⁷ For those texts designated as CTH 40 and CTH 61, see Güterbock 1956; Goetze 1933.

⁸ CTH 255, 259; on 261, see von Schuler 1957. For an overview of the officers, see Beal 1992, 297-527; Beal 1995, 546-47; Pecchioli-Daddi 1982. For the military oaths, see Oettinger 1976.

⁹ Instructive examples are the inventories filed under CTH 242: KBo 18.170 (+) 170a and KUB 42.43 (see Košak 1982, 110-11; Siegelová 1986, 482-88); KUB 42.81 (Košak 1982, 98-100; Haas 1989, 32-33; Siegelová 1986, 179).

from neighbouring regions are rare, they complement the written and pictorial evidence (Figs. 1-3, 7).

MOTIVES AND STRATEGY

The Hittites went to war for many reasons. In the north, Kaškan tribes¹⁰ had to be prevented from raiding the border regions, to the west and south-west lay the rebellious and reluctant Arzawa states, and to the south-east expeditions had to be undertaken in order to subdue rebellious vassals where – in upper Mesopotamia and northern Syria – the Hittite kings came in contact and conflict with the interests of the major powers Assyria, Egypt and Mitanni. The main targets of Hittite expansion were the regions to the south-east where the most profitable vassal kingdoms lay, whereas Hittite strategy in the west and the north focused on defensive measures.

The conquest of vassal states was formally confirmed by vassal treaties wherein tributes were fixed. This provided a constant influx of goods for Hatti. Since the Hittite kings regularly listed the amount of plunder, spoils and tribute, its economic role can hardly be overestimated. In addition to cattle and movables, deportees provided an important source of manpower that was needed for agricultural and temple service, sometimes military service as well. Deportation of large parts of the population of subdued territories was a common way of diminishing the potential for rebellion in the long term.¹¹

Defence and protection of Hittite territory against external attack was another vital issue. Hittite warfare to the north and north-west was primarily defensive in nature and purpose, serving to defend and protect Hittite territory. To this end, the Hittite kings established border garrisons, especially in northern Anatolia, to protect this region from raids by Kaškan tribes.

Another instrument of Hittite policy was diplomacy. By avoiding armed confrontation with another major power by means of diplomatic agreement, the king was enabled to concentrate more military strike-power at other points. Diplomatic relations and agreements with Ahhiyawa and Babylonia should be regarded as the result of strategic considerations, as should the treaty between the Hittite Great King and the Pharaoh of Egypt. Assyria was in fact the only

¹⁰ For a recent survey of sources mentioning Kaškans, see Klinger 2005.

¹¹ For prisoners of war in the ancient Near East, see Bryce 2002, 104-07; Ünal 1983, 164-65 n. 6; Goetze 1933, 217-20; Gelb 1973; Klengel 1983, 241-46; Faivre 1991; Joannès 2001, 227-30, 686-88.

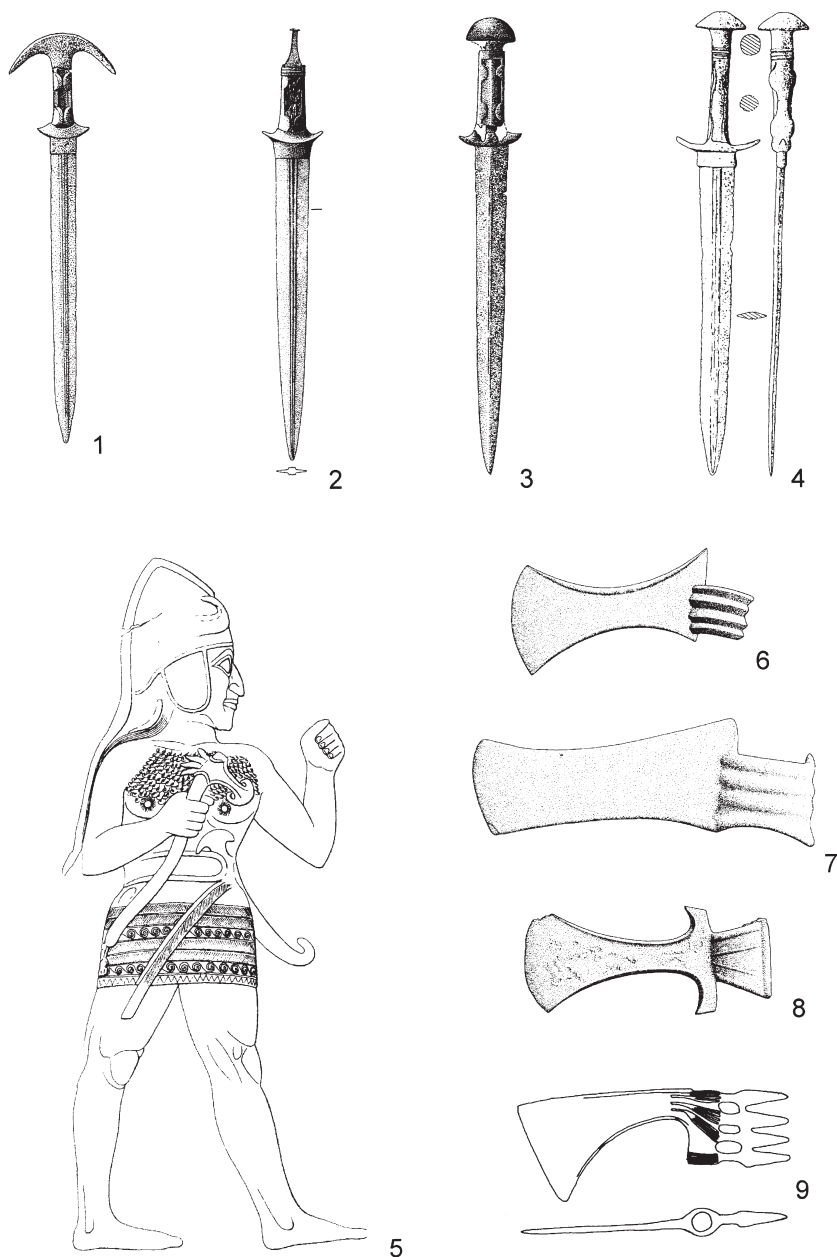


Fig. 1. Swords and axes: Examples of swords used by the Hittites: Tell Atchana (1), Ugarit (2), Tell es-Sa'idiye (3), Şarköy (4); (5) Warrior God from the King's Gate, Boğazköy, with a helmet, sword and axe; (6-9) Axes found at Kültepe (6), Sivas (7) and (9), and Boğazköy (8) (after Geiger 1993 [1-4]; H. Müller-Karpe 1980, Taf. 170 B 3 [5]; Erkanal 1977, Taf. 5.59, 60, 54 [6-8]; Ökse and Toy 1992, 147 fig. 6 [9]).

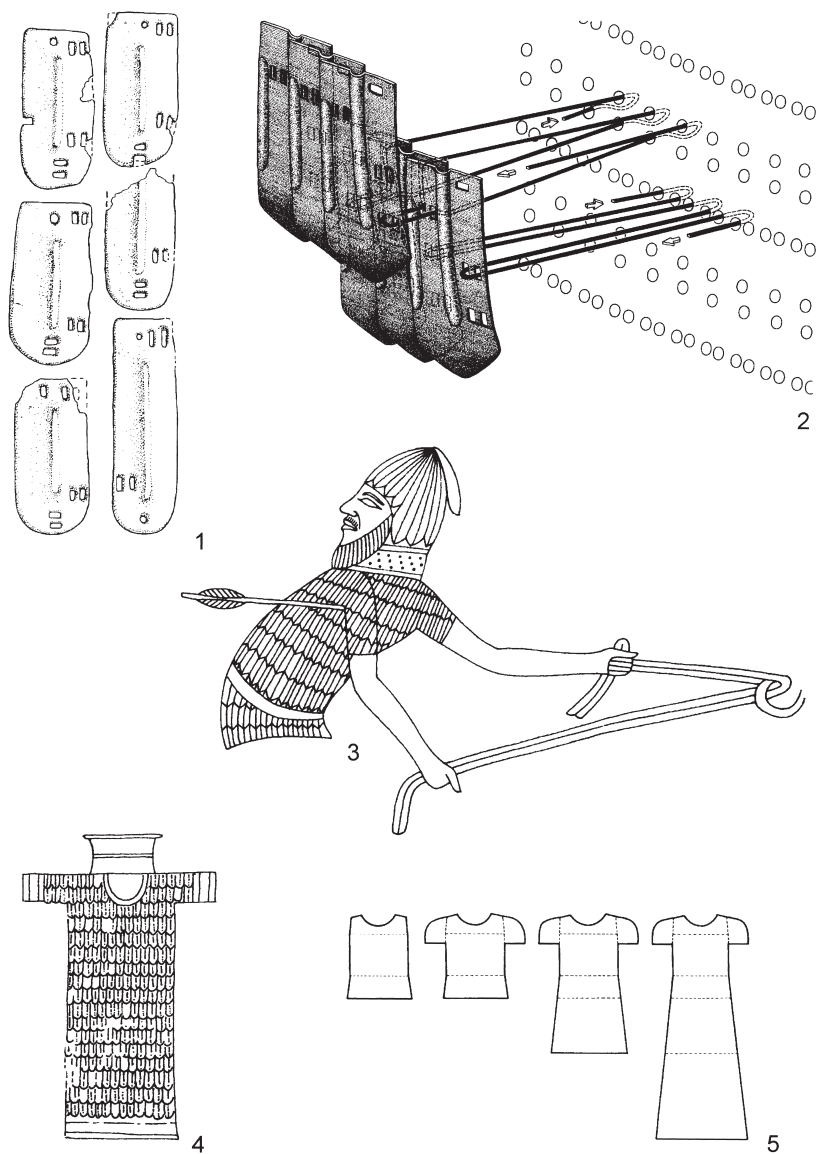


Fig. 2. Scale armour as worn by chariot warriors:

- (1) Typical bronze armour-scales from Boğazköy (after Macqueen 1986, 63, fig. 33);
- (2) Reconstruction of armour-scales from Kamid el-Loz (Lebanon) sewn on a textile or leather undercoat (after Ventzke 1983, 98, fig. 48);
- (3) Chariot warrior protected by helmet and scale armour on a wall-painting from Thebes (Egypt) (after Ventzke 1983, 97, fig. 46);
- (4) Long scale armour coat depicted on an Egyptian wall-painting from Thebes (after Ventzke 1983, 97, fig. 46);
- (5) Different types of scale armour according to their size and number of scales (after Ventzke 1983, 98, fig. 49).

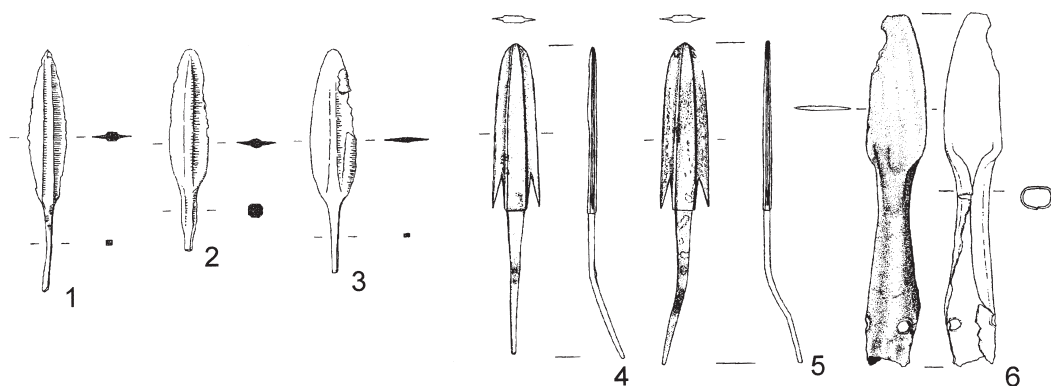


Fig. 3. Arrowheads and a lance head:

(1-3) Elliptical arrowheads from Boğazköy (after Boehmer 1972, Taf. 30, nos. 876-878);

(4-5) Barbed arrowheads from Kuşaklı (after A. Müller-Karpe 2001, 229, Abb. 4.4-5);

(6) Lance head from Kuşaklı, presumably for close combat (after A. Müller-Karpe 2001, 229, Abb. 4.6).

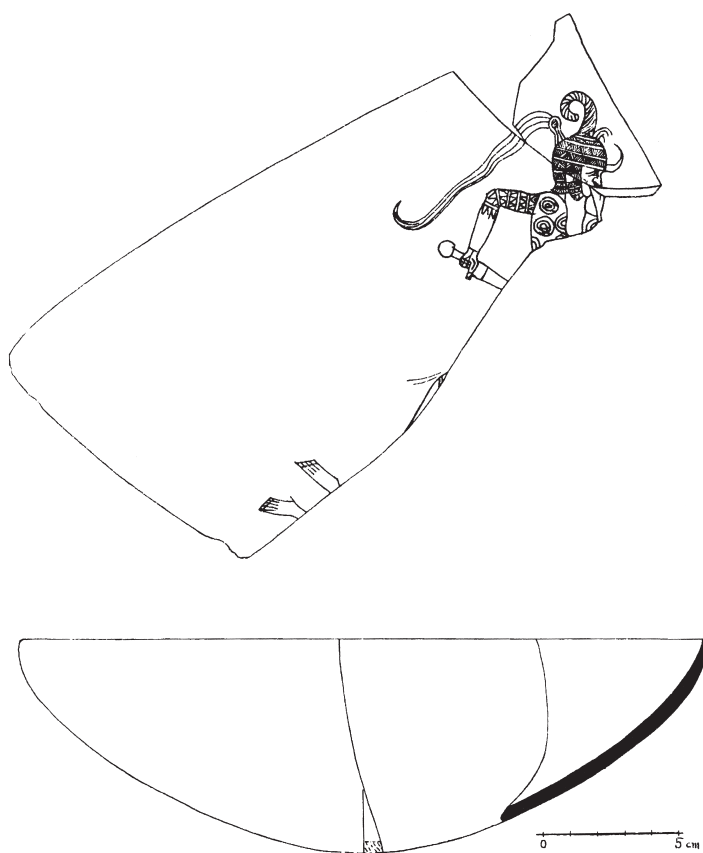


Fig. 4. Sherds of a Hittite bowl with incised depiction of a battle scene with a 'foreign' warrior wearing a helmet and a short sword. The lower part of the scene shows a pair of feet which belonged presumably to a slain warrior (after Bittel 1976, figs. 1 and 3).

major power that had not established peaceful diplomatic agreements with Ḫatti at the time of its downfall.¹²

HITTITE ROYAL IDEOLOGY AND WAR

The king bore the epithet UR.SAG ‘hero’ and was supreme commander of the army. Hittite monumental art portrayed the king regularly carrying lance, sword and bow, but battles are never depicted.¹³ Written records of the kings’ military exploits provide no evidence of the kings revelling in destruction and cruelty. Only Ḫattušili I called himself a lion which kills his prey without mercy and boasted that he had captured and yoked up the king of Ḫaḫḫu.¹⁴ In contrast, Muršili II represents himself as a merciful king, although we can be certain that Muršili’s motivation was political pragmatism rather than humanistic ideals.¹⁵

RELIGION AND MAGIC IN WAR

Fighting external enemies was seen as a natural activity. A considerable number of gods of the Hittite pantheon were clearly associated with warfare, and when the king went to war the gods granted divine protection.¹⁶ The stereotypical phrase ‘...[in the battle], the gods went before me...’ appears regularly in the annals of the kings. Divine intervention is often mentioned in the texts, where sudden fog or the successful approach of the Hittite army, hidden by heavy rainfall, thus undiscovered by enemy forces, are understood as acts of god.¹⁷

Since the final outcome of a campaign depended largely on divine will, the Hittite king tried to explore the chances of military success by means of oracular questions addressed to the gods.¹⁸ Some apparently reflected strategic considerations, such as efforts to avoid entanglement in armed confrontation

¹² On diplomatic matters and relations of the Hittites, see recently Bryce 2002, 245, 329-30; Klengel 2002; Quack 2002; Edel 1997; Murnane 1990, 31-38; Cancik-Kirschbaum 2002; Niemeier 2002.

¹³ Bryce 2002, 100. For depictions of the king as a warrior, see the contribution by Bryce in this volume, Fig 1.

¹⁴ KBo 10.1 obv. 34-35; translation by Kempinski 1983, 17-19; Bryce 2002, 100. KBo 10.2 rev. III 41-42; Ünal 1983, 167 n. 15.

¹⁵ CTH 61; Bryce 2002, 99; Goetze 1933, 70-73. On Hittite attitudes to war, see Masson 1999.

¹⁶ Bryce 2002, 100. For Hittite deities related to war, see Haas 1994, 363-72.

¹⁷ Goetze 1963, 126-27.

¹⁸ Goetze 1957, 129 n. 1.

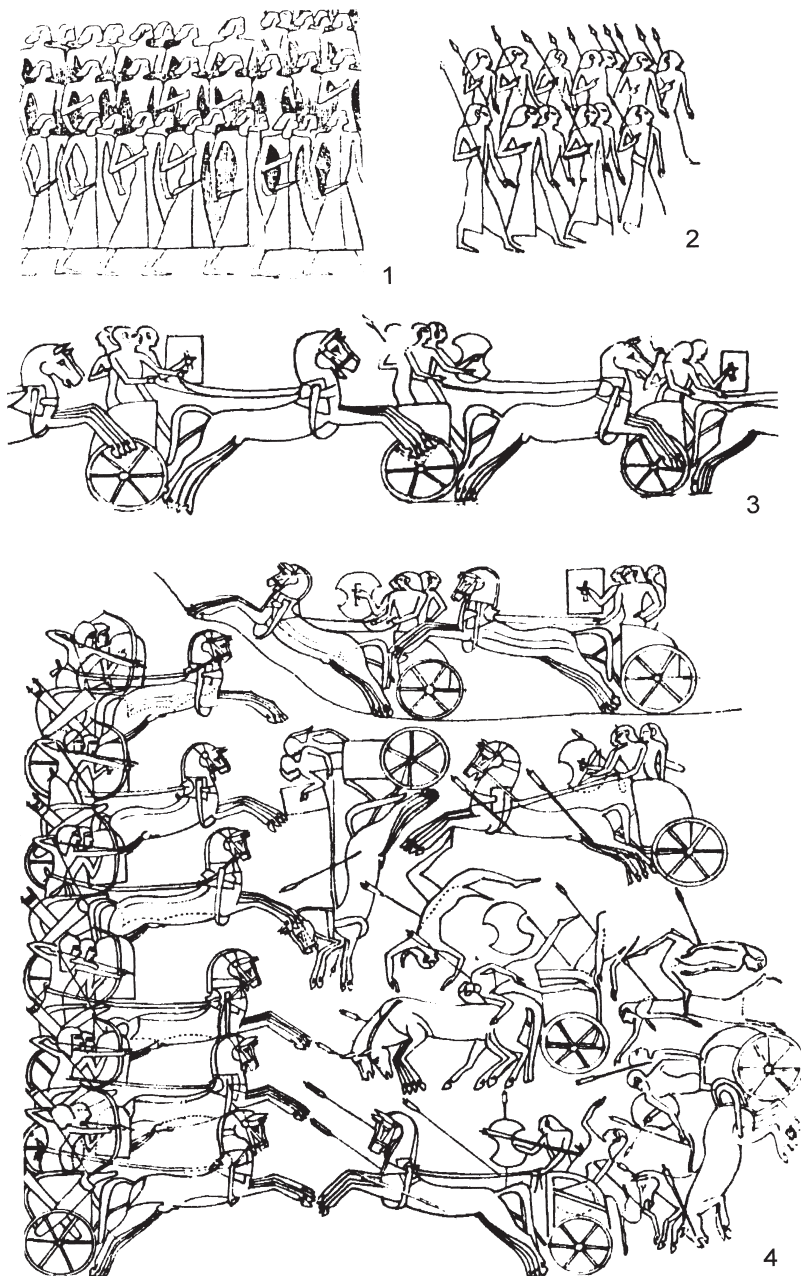


Fig. 5. Scenes from Egyptian reliefs depicting the Battle of Qadeš from Luxor (1) and Abu Simbel (2-4):

- (1) Hittite soldiers armed with swords; (2) Hittite soldiers armed with lances;
 (3) Hittite chariots in advance; (4) Egyptian chariotry (left) charges Hittite chariot troops
 (right) (all after H. Müller-Karpe 1980, Taf. 59-61, 27).

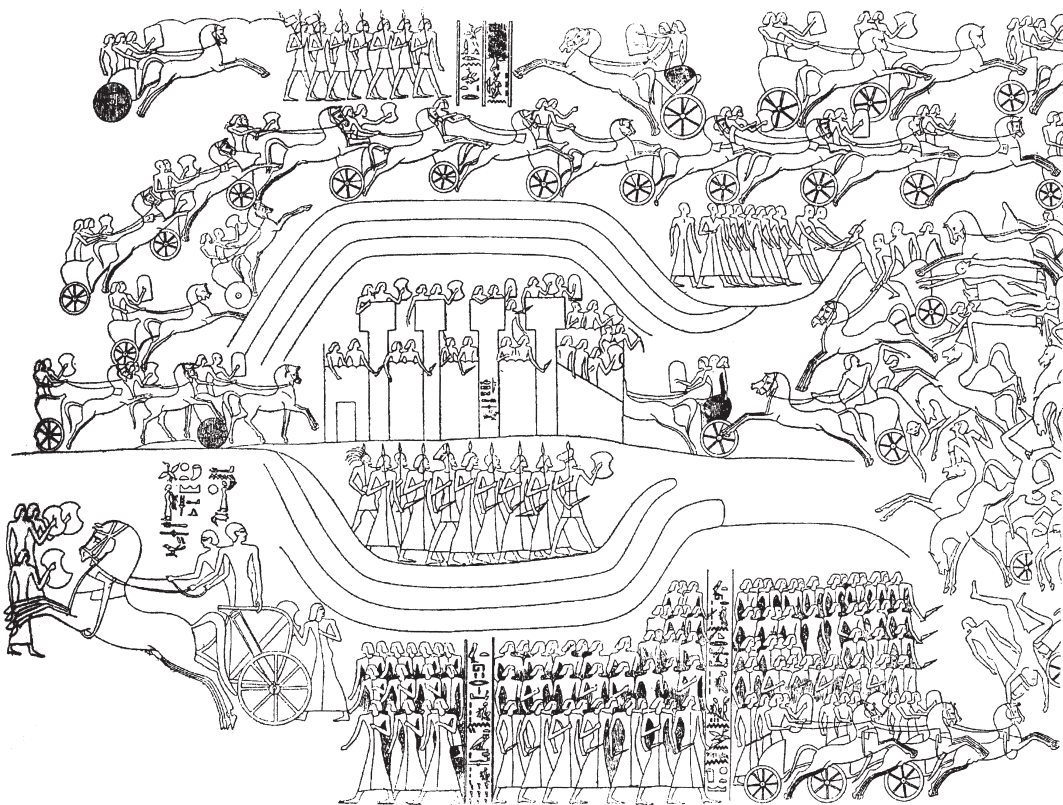


Fig. 6. Hittite infantry and chariot troops in front of the city of Qadeš as portrayed on Egyptian reliefs from Luxor (after H. Müller-Karpe 1980, Taf. 58).

on multiple fronts.¹⁹ Muršili II tells in his annals that he continued an operation after promising omens had been observed.²⁰ It is notable that vassal kings, to prevent their defecting, were not allowed to perform oracles when obliged by vassal treaties to join forces with the king.²¹

War was regarded as a matter of law that was sanctioned by the gods. Thus, if a vassal defected from the Hittite king, the subsequent campaign served to restore order and was legitimated by the gods.²²

¹⁹ Beal 1995, 550.

²⁰ KBo 4.4 obv. II 49-57; Goetze 1933, 118-19; Ünal 1973, 29-30.

²¹ Otten 1961, 382.

²² The interpretation of military conflicts as a lawsuit does not only apply to Hittite warfare, see Houwink ten Cate 1984, 72.

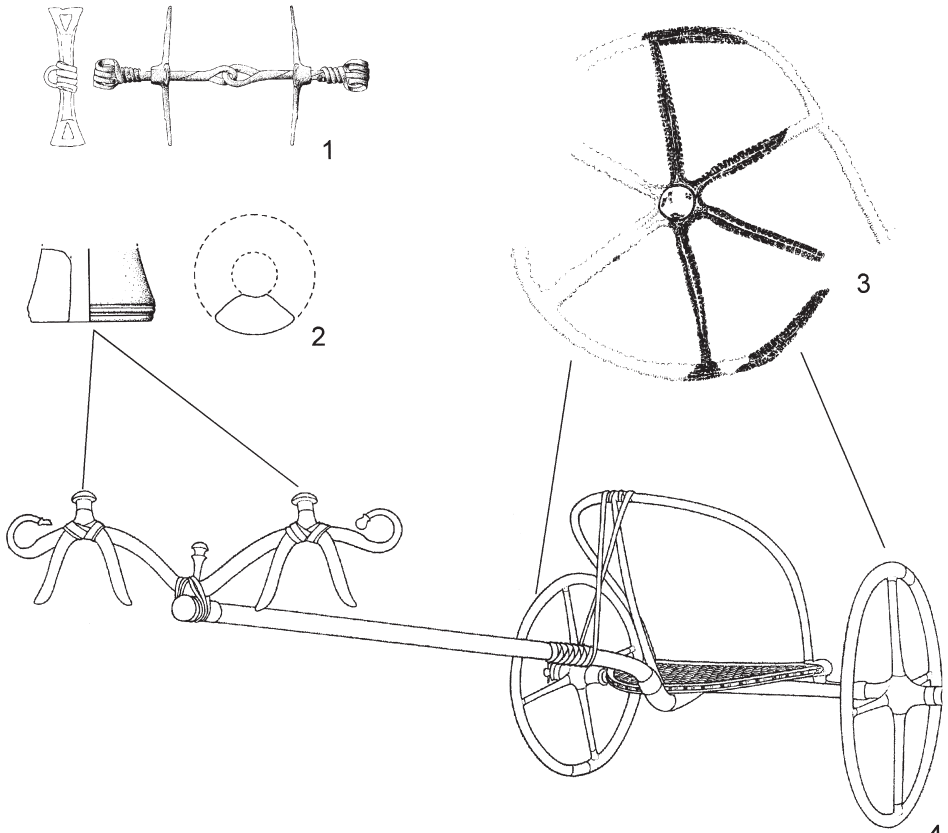


Fig. 7. (1) Horse-bits from Şarkışla (after H. Müller-Karpe 1980, Taf. 159 C1);
 (2) Yoke peg or knob from Kuşaklı (after A. Müller-Karpe 1998, 136, Abb. 27);
 (3) Spoked wheel from Lidar Höyük (after Littauer, Crouwel and Hauptmann 1991, Abb. 3);
 (4) Reconstruction of a typical Late Bronze Age chariot
 (after Littauer and Crouwel 1979, Taf. 42).

Rituals were another means by which the Hittites tried to influence the course of war. Examples of rituals performed before battle may include incantations of gods at the enemy border.²³ The Uršu story mentions a ritual accomplished to weaken enemy weaponry and warriors and to turn them into women.²⁴ Others could be performed in order to keep the army from retreating during

²³ CTH 422, translated by Goetze 1955, 354-55; von Schuler 1965, 168-73; CTH 424.

²⁴ Haas 1994, 364-65. A similar passage is attested in the first military oath (see Oettinger 1976, 11-13).

battle.²⁵ If the army lost a fight it had to undergo a ritual of purification.²⁶ References to bows, arrows and chariots in rituals and curse formulae may perhaps reflect the important role and military value of these weapons.²⁷ These samples testify to the Hittites' endeavour to influence war and demonstrate the integration of warfare into the Hittite world and religion.²⁸

COMPOSITION OF THE ARMY

The king was the supreme commander of the army and usually led his troops on the battlefield.²⁹ It is not known whether the king fought in the first rank with his troops. If the king, because of cultic or military obligations, was not available to lead an army, the crown prince was entitled to command an army on his own.³⁰ The next highest officers after king and crown prince were the remaining sons of the king, the chief of the royal bodyguard and the chief of the wine stewards.³¹ Usually, these high-ranking officers were members of the royal family.³² A variety of middle- and low-ranking officers, their exact function unclear in many cases, are attested in the written sources. They were in charge of leading the troops of the Hittite army during battle: the chariot troops and the infantry.³³

INFANTRY

The infantry formed the major part (some 90%) of the Hittite army.³⁴ The terminology used to describe troops in written records does not provide useful evidence in respect of their arms and equipment. The stereotypical phrase 'foot

²⁵ Beal 1995, 552. For treatments, see CTH 426.

²⁶ Haas 1988, 248-49; Beal 1995, 552.

²⁷ See, for example, Riemschneider 1962, 113-14 with n. 57; Beal 1992, 148 with n. 540; a curse formula in a Kaškean treaty (von Schuler 1965, 109-17) mentions arrows to be turned against the oath-breaker (Oettinger 1976, 79).

²⁸ For more samples, see Polvani 2002. For war rituals in the Ancient Near East in general, see Prechel 2003; Elat 1982. See also the references given by Goetze 1957, 129 nn. 1-5.

²⁹ See the contribution by Bryce in this volume, pp. 86-87.

³⁰ *LÚ tuḫukanti-*; Beal 1992, 319-20; Goetze 1933, 162-63.

³¹ Beal 1992, 320-27.

³² On the commanders of the bodyguard (*GAL MEŠEDI*; *GAL GEŠTIN*), see Beal 1992, 327-57. See also the contribution by Bryce in this volume, p. 94.

³³ For a brief description of the Hittite army, see Beal 1995, 548-49; 1992, 521-27; Bryce 2002, 111. The terms designating 'troops' and 'army' written with the word signs *ÉRIN*^{MEŠ}, *KARAŠ* or Hittite *tuzzi-*, see Beal 1992, 5, 22-23, 28-29. Chariot troops were called *ANŠE.KUR.RA*^{MEŠ/H1.A}, older texts refer to the chariots using the terms *GIŠGIGIR*^{H1.A}, *ÉRIN*^{MEŠ GIŠGIGIR}^{H21.A} and *ŠIMDI ANŠE.KUR.RA*^{H1.A}; see Starke 1995, 120 n. 244; Beal 1992 141-47.

³⁴ Bryce 2002, 111.

soldiers and chariots' differentiates the infantry from the chariot corps but does not give further detail. More illuminating are the terms designating the soldiers of the royal bodyguard that stem from words meaning 'lance'. Troops called 'men of the lance' had the lowest rank within the bodyguard. These were presumably regular soldiers.³⁵ Because sources are rare, even some terms designating types of soldier remain obscure.

Hittite administrative documents contain a large number of terms for weapons and equipment. Some records mention them in such large numbers that the state production and issue of military equipment seems possible, but the written sources are not sufficient to verify this assumption.³⁶

A survey of pictorial and archaeological evidence provides a synopsis of common military equipment and weapons. It must be noted that identification of archaeological types with terms of the cuneiform tradition as well as attribution of weapons to ethnic groups remains in most cases a problem. Reliefs depicting the king as warrior show the Hittite king carrying weapons that were common in the Late Bronze Age, the sword, the lance, a bow and arrows. The swords on the reliefs are characterised by a crescent-shaped pommel. The best example of such a short-bladed sword was found in Tell Atchana (Fig. 1.1).³⁷ The depiction of the sword of the figure at the King's Gate corresponds to this type (Fig. 1.5), but it must be noted that swords of similar shape were not restricted to the Hittites. A detail of a Qadeš relief of Ramesses II shows Hittite infantry equipped only with short swords of the type mentioned above (Fig. 5.1).³⁸ Besides the sword, the relief at the King's Gate shows an axe carried by the warrior figure (Fig. 1.5), but the type attested here might actually be a ritual or cultic weapon. Nevertheless, axes appear to have been weapons of war (Fig. 1.6-9).³⁹ A sword with a votive inscription mentioning the Great King Tuthalya, was found in Hattuša as part of spoils taken in western Anatolia.⁴⁰

A relief of the Great King Tuthalya, identified as posthumously deified by the hieroglyphic inscription, depicts the king carrying a lance. Lance-heads

³⁵ For the guards designated LÚ^{MEŠ} GIŠŠUKUR and the *MEŠEDI*-guard, see Beal 1992, 229-30. The instructions for the Royal Bodyguard (CTH 262) have been published by Güterbock and van den Hout 1991; cf. Beal 1992, 214. On the guards named LÚ^{MEŠ} (GIŠ)ŠUKUR (GUŠKIN/ZABAR/DUGUD) 'men of the (golden/bronze/heavy) lance', see Beal 1992, 227-31.

³⁶ See Beal 1992, 137-39.

³⁷ For Anatolian swords, see A. Müller-Karpe 1994; Geiger 1993, 215 Abb. 2b (Tell Atchana); and the contribution by Siegelová and Tsumoto in this volume, p. 292.

³⁸ See Yadin 1963, 105.

³⁹ For axes from Anatolia see Erkanal 1977; Ökse and Toy 1992; and Siegelová and Tsumoto in this volume, pp. 292-95.

⁴⁰ *Die Hethiter und ihr Reich* 2002, 355, no. 153.

have been found at many sites (Fig. 3.6)⁴¹ and lances were a very common weapon, as illustrated by a detail of a Qadeš relief representing a unit of Hittite infantry equipped with them (Fig. 5.2).⁴²

The bow is regularly depicted as the weapon of the king.⁴³ Written sources do not allow us to determine whether the Hittite infantry contained separate units of archers. Archers as a distinct type of troops are explicitly mentioned only once.⁴⁴ It is possible that troops levied by the king contained soldiers who were trained with bow and arrow, and it is possible that we cannot identify units of archers in the written sources because they were not explicitly designated as such, but only named 'troops'.⁴⁵ It has to be pointed out here that armies of neighbouring states maintained units of infantry archers.⁴⁶ Maintenance of archers seems to have been important; the use of the powerful composite bow in particular required several years of training and experience.⁴⁷ On the basis of well-preserved original composite bows from Egyptian tombs, reconstructions have demonstrated their superior penetration and range compared with the simple bow.⁴⁸ Furthermore, the possibility of keeping the bow braced for a long time without loss of strength allowed archers to be ready to fight at any time, thus predestining the composite bow to be a weapon of war.⁴⁹

Administrative records mentioning large quantities of bows and arrows, as well as the constant appearance of bows and arrows in war rituals, demonstrate the prominent role played by the bow in Late Bronze Age warfare. Thus, it seems very likely that the Hittite army contained units of archers within the corps of infantry. Inventories from Ḫattuša provide us with valuable details: one list mentions some axes, arrows and bows, and again, an amount of

⁴¹ *Die Hethiter und ihr Reich* 2002, no. 125; depiction of a god carrying a lance: no. 127, p. 332, no. 61; see Neve 1993, 76, Abb. 214 for a relief of Great King Šuppiluliuma armed with bow and lance. On lances from Boğazköy, see Boehmer 1972, 75; for an example from Kuşaklı, see A. Müller-Karpe 2001, 228-29, Abb. 4. See also Siegelová and Tsumoto in this volume, p. 292.

⁴² Relief from Abu Simbel, see Yadin 1963, 238.

⁴³ Relief of Great King Šuppiluliuma from Boğazköy; see Neve 1993, 76, Abb. 214; rock carving from Karabel, see *Die Hethiter und ihr Reich* 2002, 221, Abb. 3.

⁴⁴ A brief description of archers (LÚ^{MES} GIŠBAN) is provided by Beal 1992, 72, 201; 1995, 548; on archers in Hittite laws, see Friedrich 1971, 34-35; Roth 1997, 225; Houwink ten Cate 1984, 56. For more references, see Taracha 2004, 458-59.

⁴⁵ See Mayer 1995, 469; Korfmann 1972, 17-20.

⁴⁶ According to texts from, for example, Ugarit und Nuzi; see Vita 1995, 149-53, 181; Kendall 1974, 260-61.

⁴⁷ CTH 16a; Beal 1992, 65 n. 232; and compare the translation of §54 of the Old Hittite laws by Houwink ten Cate 1984. See also Taracha 2004, 459 §4.

⁴⁸ Moorey 1986, 208-11; Miller, McEwen and Bergmann 1986, 182-87. For the manufacture of composite bows as documented in Middle Assyrian administrative texts, see Jakob 2003, 469-72; Frahm 2002, 75-80.

⁴⁹ Miller, McEwen and Bergmann 1986, 185.

200 bows. Another inventory records ‘43 bows decorated with gold’ and some quivers and arrows, and the text states ‘4 Hittite quivers, 930 arrows therein [these may not be usual quivers but rather containers for storing arrows in the arsenal], 4 Hurrian quivers, 127 arrows therein, 4 Kaškan quivers, 87 arrows’.⁵⁰ Excavations in Kuşaklı-Sarissa have shown an interesting ensemble of arrowheads. In the entrance area of a building (Building C) some arrowheads have been discovered, all of which point towards the inside of the building. These arrowheads evidently testify to fighting that took place within this building when it was captured (Fig. 3.1-5).⁵¹

The written sources do not allow us to draw any conclusion concerning the use of the sling in the Hittite army, whereas it seems likely that the enemies of the Hittites made use of this weapon. Slingshot documents that the sling has been used as a weapon of war since the Neolithic period, thus it would be surprising if the Hittites had not used it. A late Hittite stele from Tell Halaf depicts a single soldier using a sling.⁵²

The mace and the sickle sword do not appear to have been ‘Hittite’ weapons of war, since both are shown merely in a cultic context: the Yazılıkaya reliefs, for example, depict Hittite gods carrying sickle swords.

THE CHARIOT TROOPS

Around 1650 BC the light, horse-drawn chariot with spoked wheels was present in most parts of the Near East.⁵³ During the Late Bronze Age, the kings of Assyria, Babylonia, Egypt and Mitanni held the chariot in great esteem. Already

⁵⁰ CTH 242; KUB 42.81 7’-9’; Košak 1982, 98-100; Haas 1989, 32-33; Taracha 2004, 458-59 with more references.

⁵¹ A. Müller-Karpe 1999b, 65-66, Abb. 10. See also Siegelova and Tsumoto in this volume, p. 292.

⁵² According to Beal (1992, 522) the sling was used by the enemies of the Hittites, but the question of its use by the Hittites is problematic. For the sling, see Korfmann 1972, 4-16; 1986; Mayer 1995, 466-70. Korfmann (1986, 134 n. 11) mentions an orthostat from the Kapara palace at Tell Halaf dating to the 9th or 8th centuries BC showing a slinger. Perhaps, the use of the sling is attested at Ugarit: According to Dietrich and Loretz (1983, 217-18) an inventory from the palace of Ugarit includes, besides bows, arrows and further chariot equipment, 1000 sling bullets and 2 slings. For a more recent interpretation of the terms in question as designations for a type of arrow and shield, see Vita 1995, 51, 64-65, 70; Heltzer 1998, 140; del Olmo Lete and Sanmartín 2003, 700. A possible reference to the use of slings by Kaškans is provided by a historical fragment according to which Kaškans attacked Hittite troops with bows and arrows and stones which might refer to slingstones (KBo 16.36 rev. III 7-9; see Taracha 2004, 459 §3; Riemschneider 1962, 112-14; Ünal 1984, 75 with n. 16).

⁵³ For the dating of the introduction of the light chariot, see Littauer and Crouwel 1996; Moorey 1986, 197. For horses, see the recent contribution by van den Hout 2004. On the light, horse-drawn chariot in the Near East during the 2nd millennium, see most recently Richter 2004.

Ḫattušili I led larger contingents of chariots into battle.⁵⁴ The composite bow was the weapon of the chariot warriors.⁵⁵ One or more quivers were attached to the chariot box; if needed, the crew could carry quivers on the body. The capacity of quivers is documented in various administrative records, showing that the average was about 25-35 arrows.⁵⁶ An Egyptian papyrus tells us that an Egyptian chariot carried 80 arrows, equalling the contents of two or three quivers (Fig. 5.4 left)⁵⁷ – additional loads of quivers carried on the body were surely not included in this calculation. An administrative text from Ḫattuša mentions a quantity of 17,000 arrows along with additional chariot parts and equipment. Similar records from Nuzi, mentioning thousands of arrows, easily spring to mind.⁵⁸ A Hittite literary text describes training and manoeuvres for chariot crews under the supervision of two officers.⁵⁹ This text supposes that training with a bow and arrow, as well as the training for chariot horses, was significant to the maintenance of the Hittite army.

Ramesses II dedicated a series of monuments to the Battle of Qadeš that provide the major pictorial sources for the Hittite army (Figs. 5.3-4; 6). The reliefs show Hittite chariots carrying a crew of three: driver, warrior and a third man whose task was to protect the crew with a shield.⁶⁰ The shields are either rectangular or of the figure-of-eight type. Excavations in Pi-Ramesses have uncovered a workshop in which arrowheads, lance-heads and moulds for

⁵⁴ Beal 1992, 142 n. 511; Kempinski 1983, 46-49; Mayer and Mayer-Opificius 1994, 326; Beal 1992, 277-96; Moorey 1986; Houwink ten Cate 1984, 59 n. 25.

⁵⁵ On the bow in Hittite texts, see most recently Taracha 2004. Taracha (2004, 459 §3) states that in Hittite sources the bow is mentioned in most cases, in connection with chariotry. On the manufacture of bows in the ancient Near East, see the references given in Postgate 2004, 457; Taracha 2004, 458 §1; Haas 1989, 34-36. On typology and terminology of bows, see most recently Collon 2004, 461-62.

⁵⁶ See, for example, Kendall 1974, 212.

⁵⁷ Mayer and Mayer-Opificius 1994 (327 n. 36) cite Papyrus Koller 1.4.

⁵⁸ KBo 18.170 (+) 170a; on this text, see Košak 1982, 110-11; Siegelová 1986, 482-88. According to Taracha (2004, 459) this document provides evidence of an inventory of an armoury or store place (*cf.*, for example, Kendall 1974, 254). See also the remarks of Beal 1992, 138-39. For similar references from Nuzi, see Kendall 1974, 255-56; Zaccagnini 1977, 35 n. 77 with references. The Nuzi text HSS 14, 264 provides a description of the typical chariot equipment (see Zaccagnini 1977, 31). For finds of Hittite arrowheads, see Boehmer 1972, 104-106; and the contribution by Siegelová and Tsumoto in this volume, p. 292.

⁵⁹ KBo 3.34 II 21-35; Beal 1992, 535-36. On training in general, see Beal 1992, 127-29. The so-called 'Court Chronicle' (CTH 8) mentions a competition of archers (see Klinger 2001, 64). For further references, see Taracha 2004, 459.

⁶⁰ For the crew of the chariot, see Beal 1992, 153-62; for the driver, *išmeriyaš išḫa-*; ŠA KUŠ KIR, TAB.ANŠE / ^{LU}APPATI and KARTAPPU, and the chariot fighter ^{LU}KUŠ, see Beal 1992, 162-78; *cf.* Beal 1992, 178-84. It may be noted that Hittite records describing images of gods frequently mention shields as part the armament among other weapons. For references, see von Brandenstein 1943, 6-7, 18-19, 64-65, Taf. 1.

hammering shields of the type mentioned above and of trapezoid shape have been discovered.⁶¹ According to the excavator, E.B. Pusch, this workshop was part of a chariot garrison, which may have included Hittite troops. This garrison may have provided a bodyguard for the Hittite princess after she was married to the Pharaoh.⁶² Representations of Hittite chariots on reliefs dating from the reign of Seti I show the Hittite chariot carrying only two crewmen; the job of the shield-bearer was assigned to the driver in this case.⁶³

Some scholars postulate the lance as a weapon of Hittite chariot warriors, since the Qadeš reliefs portray the Hittite king in his chariot armed with a bow and arrow whereas the ordinary Hittite chariots are equipped with lances (Figs. 5.3-4; 6). But this representation is the result of a taboo according to which the enemies of the Pharaoh must not be depicted as too powerful.⁶⁴ Moreover, practical considerations show that lances were not the weapons of Hittite chariot warriors – fighting with a lance from a chariot has been shown to be impossible for many reasons.⁶⁵ In addition, all textual sources provide ample evidence to show that the Hittite chariot warriors carried bows and arrows.

The chariot crews were protected by long scale armour, which could cover the whole of the body and the upper parts of the arms and legs (Fig. 2.3-5).⁶⁶ This expensive armour consisted of a garment of linen and leather with overlapping scales of bronze sewn onto it (Fig. 2.1-2). Scales of bronze were found in many different Near Eastern sites.⁶⁷ Written evidence from Nuzi and finds of armour-scales allow us to reconstruct scale armour of various types ranging in weight from 9.5 to 27 kg (Fig. 2.5).⁶⁸ According to reconstructions based on finds from Kamid el-Loz, the most expensive scale armour covering the whole of the body (Fig. 2.5 right) weighed up to 27 kg and may have contained up to 4000 scales of different sizes and shapes.⁶⁹ Horses also appear to have been protected by scale armour.⁷⁰

⁶¹ See Pusch 1990, 103-04, 106.

⁶² Pusch 1990, 108; Klengel 2002, 54 with n. 12.

⁶³ Beal 1992, 148 n. 540.

⁶⁴ Starke 1995, 50; Mayer and Mayer-Opificius 1994, 324 n. 22, 344 n. 101.

⁶⁵ See Littauer and Crouwel 1983; Beal 1992, 149 n. 544.

⁶⁶ On the introduction of scale armour in the ancient Near East, see Deszö 2004, 319-20.

⁶⁷ For finds of armour-scales in the ancient Near East, see Deszö 2004, 319-21; for textual references, Deszö 2004, 321-22.

⁶⁸ See Beal 1992, 150 n. 546; Boehmer 1972, 102-04; Moorey 1986, 210-11. Ventzke (1983, 94-100) gives a detailed reconstruction of scale armour from Kamid el-Loz. For comparable finds, see Deszö 2004, 321-22. The weight of bronze scale armour from Nuzi could range from 17 to 25 kg (see Kendall 1979, 277; 1981, 212-13; Zaccagnini 1979, 26-27). According to Nuzi texts, different types of armour usually contained 700-1200 scales.

⁶⁹ Deszö 2004, 322; Ventzke 1983, 100.

⁷⁰ See Beal 1992, 152-53; Kendall 1974, 264.

The Qadeš reliefs do not provide any evidence about Hittite helmets, nor are any Hittite helmets known from excavations so far, but written sources demonstrate that helmets were part of the equipment of chariot crews. A first impression of the shape and design of Hittite helmets can be derived from the relief at the King's Gate in Ḫattuša, which shows a high conical helmet with cheek-pieces, neck-guard and a plumed crest (Fig. 1.5). Another helmet, which might not be of Hittite origin however, is illustrated on a graffito on a sherd from Boğazköy (Fig. 4). The fragment shows remains of a second figure, presumably a slain warrior (as K. Bittel has assumed), and is, so far, the only known battle scene in Hittite art.⁷¹ The most detailed information about Late Bronze Age helmets is provided by a group of texts from Nuzi mentioning up to 15 distinct types or subtypes of helmet, made of leather, textiles and bronze armour-scales. The weight of the helmets depended on the number of scales that had been used. Textual evidence allows the reconstructions of helmets consisting of 120-200 scales with a weight of about 2-3.5 kg (similar to Fig. 2.3).⁷²

Both of the chariot crew – driver as well as archer – and the chariot horses had to be well trained in order to guarantee their effectiveness in battle. The Kikkuli text illustrates the importance of horse training and chariot warfare in the Late Bronze Age. Two further Hittite horse training manuals are known, though badly preserved.⁷³

Material evidence for chariots is rare and includes, for example, finds of bronze horse-bits (Fig. 7.1), a few examples of what may have been pegs once applied to the chariot yoke (Fig. 7.2), and the traces of a spoked wheel from Lidar Höyük (Fig. 7.3).⁷⁴ There is no evidence for armed cavalry in the Hittite army, though both pictorial evidence and some Hittite texts indicate that messengers on horseback may have formed part of Late Bronze Age armies.⁷⁵

⁷¹ For Hittite helmets, see Calmeyer 1972, 313-14; for the helmet depicted at the King's Gate, see Borchardt 1972, 101-03; for the helmet shown on the ceramic fragment, see Bittel 1976. Furthermore, Deszö (2004, 321) considers this graffito to be one of the earliest depictions of scale armour and helmet.

⁷² For helmets in the Nuzi tablets, see Kendall 1981, especially 201, 211-13. On the matter of chariotry and horses in Nuzi, see Zaccagnini 1977.

⁷³ Lately, the Kikkuli text (CTH 284) has been subject to discussion; for a recent summary, see Raulwing and Meier 2004; Raulwing 2002, xiv d; 1999, 353, 354 n. 15; Starke 1995, 3. See also the references given by van den Hout 2004, 486-87.

⁷⁴ For the spoked wheel from Lidar Höyük, see Littauer and Crouwel in Raulwing 2002, 314-26; Littauer, Crouwel and Hauptmann 1991. On chariot yoke pegs in general, see Littauer and Crouwel 1979, 85; plus bibliographical references given by A. Müller-Karpe 1999 135-37. H. Müller-Karpe 1980, Taf. 159 C1-2 provides a depiction of the horse bits mentioned above.

⁷⁵ The term *PITHALLU* seems to designate horse-riding messengers; compare the hippologic considerations by Littauer and Crouwel 1979, 98; Goetze 1957, 124 n. 7 mentions KUB 21.38 obv. 18; Bryce 2002, 111; Yadin 1963, 113; Beal 1992, 190-91. For the term *PITHALLU*, see Beal 1992, 190-91.

RECRUITMENT AND MAINTENANCE

Large-scale military operations generally demanded an effective striking force. The Hittite king had various methods at his disposal for levying and recruiting troops. In addition to the standing army,⁷⁶ contingents of vassal troops, levied by vassal kings obliged to join the Hittite king's army,⁷⁷ and contingents of short-term conscripts, troops raised in the case of immediate need, may have been common parts of the Hittite army. In times of dire need, the Hittite army may have included mercenaries, too.

Campaigning was restricted to the summer months, as civilians performing military service had to be available for the autumn harvest.⁷⁸ Furthermore, the Anatolian winter prohibited any major military operations – snow and ice made all communication routes impassable. Although Muršili II commemorates the building of military camps before the first snow, long-term campaigns that lasted longer than summer were exceptional.

In some cases, administrative records from Ḫattuša shed light on the recruitment, maintenance and composition of the army. The troops of the standing army – only free citizens were allowed to perform military service here – were stationed in barracks in Ḫattuša when not on campaign,⁷⁹ or were garrisoned in other parts of the empire.

It is not entirely clear how these troops were recruited, maintained and supplied. Land tenure was certain a well-known method. People designated as 'men of the weapon' performed military service in the standing army and received land as a payment.⁸⁰ Using this method of supplying his standing army troops, the king could obtain better-trained troops than by levying civilians. Due to lexical problems it is uncertain if and how far this method was practised in the time of the Hittite empire. The provinces of the Hittite empire provided another type of soldier. In the Hittite texts, these contingents were designated according to their homeland and fought under the command of their own officers. It is quite possible that such contingents were part of the standing army. Furthermore, the Hittite king could raise levies from civilians. In accordance to their capabilities, these troops would serve in infantry units, as archers or in the chariot corps, or they might be obliged to undertake building activities. For the duration of the campaign the king provisioned these troops, and

⁷⁶ UKU.UŠ, *šarikuwa-*; Beal 1992, 37. For the composition of the army, see Beal 1992, 139-40; for the size of the army see and its units, see Beal 1992, 277-96.

⁷⁷ On the treatment of vassals, see Bryce in this volume, pp. 95-96.

⁷⁸ Beal 1992, 413-25; Bryce 2002, 102.

⁷⁹ Beal 1992, 39, 41-42 nn. 163-164.

⁸⁰ Beal 1992, 55-56.

when the campaign was concluded, the levies returned to their civil life. If necessary, the Hittite king could call vassals and allies to support him with reinforcements. The type and size of vassal contingents were fixed by treaties, and defection from military service was seen as an act of open rebellion. In exchange for major payments of gold, vassals could get an exemption from this obligation.

When the standing army, the vassal troops, levies and allies joined forces at the rallying point, the Hittite king mustered his army and took command. The size of such an army might have been remarkable, but the sources do not provide us with exact numbers. A Hittite campaign army may have consisted of an estimated total of 10,000 men and 1000 chariots. The Hittite army at Qadeš is supposed to have been the largest Hittite army ever led into battle. Egyptian sources compute a total of 3500 Hittite chariots and 37,000 infantry. Without doubt this would have been the maximum striking force the Hittite king was able to raise.⁸¹

THE HITTITE ARMY IN BATTLE

The written sources do not give any information about the conduct of battles.⁸² The annals of the kings consist entirely of highly formalised and stereotypical phraseology, which do not allow us to derive information useful for the reconstruction of a typical battle in open terrain. We do not have real descriptions of the localities of major battles. Only single pieces of information, scattered through the corpus of Hittite literature, reveal evidence of particular aspects of warfare. Thus, attempts to reconstruct battle tactics must remain partially speculative.

The chariot was the supreme weapon of the Late Bronze Age. The speed of the horses, the remarkable firepower and long range of the composite bow and the defensive capabilities of scale armour made the chariot the elite weapon. Chariots seem to have been used in larger units that harassed the enemy with a shower of arrows fired at long range. Perhaps these chariot units approached the enemy and, when in range, travelled parallel to the enemy lines, showering them with arrows. The combat speed of chariots has been estimated at 16 km/h, and experimental archaeology postulates a maximum speed of 30-35 km/h on

⁸¹ Numbers according to Beal 1992, 277-96, especially 291-92 and 296; 1995, 547. In his annals (KBo 4. 4 II 3), Muršili II mentions an enemy force of 10,000 troops and 700 chariots (Goetze 1933, 122).

⁸² On this general problem, see Riemschneider 1962, 110-11; Ünal 1983, 166-167; Mayer and Mayer-Opificius 1994, 322-23; Joannès 2001, 120-21; also Haas 1999.

the basis of reconstructions of ancient Near Eastern chariots. The effective range of a composite bow may well have been 200 m. Bearing in mind that a chariot archer might have had 120 or 150 arrows at his disposal, and that he fired them at an estimated frequency of 6 to 10 arrows a minute, one can easily imagine what devastating effect the charge of a unit of 100 chariots would have had on a unit of simple infantry.⁸³ The designation of a pair of officers in Hittite records, namely as ‘Overseer of the 1000 Chariot Warriors of the Left / Right’, gives a hint at chariot battle tactics, putting the chariot units on the left and the right flanks of the army, whose centre consisted of infantry. Thus, it seems very likely that destroying the enemy chariots (and archers) was the main objective.

The infantry, although its role in open battle may have been subordinate, was essential nevertheless to the Late Bronze Age army. Scholars have recently come to view the infantry as having an entirely subordinate role in Late Bronze Age warfare, noting the fact that, in contrast to the numerous ‘chariot texts’ preserved from the ancient Near East, there are no comparable texts for the infantry.⁸⁴ However, a more likely explanation is that the chariot units required full-scale organisation, administration and to be supplied for the entire year, which, clearly, was not the case with levies, allies and other types of infantry. Foot soldiers would have played a more vital role when a battle took place in a region lacking the open terrain necessary for chariot units.

SIEGE WARFARE

Siege warfare is already attested in Old Hittite written records. If the enemy withdrew into a fortified city, the Hittites might decide to besiege it. Hittite administrative records are silent on siege warfare and related matters, but a literary text called ‘The Siege of Uršu’, dating from the reign of Ḫattušili I, provides us with detailed information about it and testifies to knowledge of various siege techniques common in 2nd-millennium warfare.⁸⁵ The Uršu text mentions reconnaissance of the territory surrounding the enemy city by officers and goes on to describe the use of siege towers, earthen siege ramps and

⁸³ On chariot speed, see Mayer 1995, 330; Herold 2004 a, 138-39; on firing speed of archers, see Mayer and Mayer-Opificius 1994, 334 n. 62; Miller, McEwen and Bergmann 1986, 188 (10 arrows a minute).

⁸⁴ Goetze 1957, 124; Gurney 1961, 106; Drews 1993, 135, 138; Mayer and Mayer-Opificius 1994, 332; Littauer and Crouwel 1996, 936; Yadin 1963, 111-12 for differing views on this topic.

⁸⁵ CTH 7 = KBo 1.11; recently Beckman 1995; Bryce 2002, 116 n. 29. For a discussion of this text, see Beal 1992, 144 n. 517; Bryce 1998, 97-98; Ünal 1983, 167 n. 25; Beal 1992, 278.

battering rams.⁸⁶ According to the Mesopotamian cuneiform tradition, such methods may have constituted the common repertoire of siege warfare in the Near East. The undermining of fortified structures and the use of storm-ladders were surely techniques in common use as well.

The annals of the Hittite kings regularly refer to the burning of enemy cities, and archaeological horizons of destruction levels have been discovered at several sites. But it remains impossible to equate the destruction of cities mentioned in the cuneiform sources with the archaeological evidence.⁸⁷ The last means to force a besieged city to surrender was to surround it in order to cut off supplies. It is very likely that starvation proved to be a powerful weapon of siege warfare, but long lasting sieges consumed too many resources of men and materials. Sieges outlasting the campaign season between spring and autumn were, of course, exceptions. In these cases, a small contingent maintained the siege during the winter,⁸⁸ while the major part of the army returned home to Ḫattuša.

TROOPS IN A BORDER CITY

During excavations at Maşat Höyük, a Middle Hittite border city, a corpus of approximately 100 letters was recovered, some of which form part of the correspondence kept between the Hittite king and the commander of the outpost, the 'Lord of the watchtower' (Akkadian *BĒL MADGALTI*; Hittite *auriyaš išḫa-*). The documents witness to the presence of the complete range of troops – chariot, infantry, scouts (written *LÚ^{MEŠ} NÍ.ZU* / *ÉRIN^{MEŠ} NÍ.ZU*) dispatched for reconnaissance, and messengers who served for communication between the king and the commander of the city. The function of the Maşat garrison seems mainly to have consisted of reconnaissance of enemy movements, in order to enable the Hittite king to react quickly in case of a major threat. The texts, some of which mention skirmishes, clearly confirm the function of Maşat as a defensive outpost in the northern border region designed to secure the Kaškan frontier. This assumption is corroborated by copies of the so-called instructions for the *BĒL MADGALTI* from Ḫattuša.⁸⁹ Thus, it seems very likely that Maşat was only one of a series of border garrisons.

⁸⁶ Houwink ten Cate 1984, 52 Rs. 5; Goetze 1933, 190-91.

⁸⁷ Ünal 1983, 177.

⁸⁸ Attested in the Anitta text, the Uršu story and the annals of Muršili II. See Neu 1974, 14 rev. 70-71; Goetze 1933, 63; Beal 1995, 552.

⁸⁹ See nn. 6 and 9. The instructions for the 'Lord of the watchtower' have been treated by von Schuler 1957.

HITTITE CITY FORTIFICATIONS

Every campaign drawing the mass of troops from the homeland meant a substantial weakening of Ḫattuša's defensive capabilities. The Hittites relied on different means to maintain an effective defence of their homeland. In case of major campaigns, additional troops were levied from the civil population and might be assigned to guard duties or to serve in garrisons or other places. The last but not least line of Hittite defence was the strong fortification of cities, already referred to in Old Hittite times, best documented by the fortification system of the capital, Ḫattuša.

The fortification walls were built in a casemate system with a width of up to 8 m. Two parallel walls were connected by diagonal walls, and the compartments thus constructed were filled with rubble. Towers protruded at regular intervals from the outer face of the walls. The walls are always situated on earthen ramparts, which provided protection against battering rams. As usual in Hittite architecture, the foundations and the lower parts of the walls were made of stone, whereas the upper parts consisted of a timber-framed structure of mud-brick. The superstructure of the walls can be reconstructed with a high degree of certainty thanks to the discovery of vessels showing fortification walls with battlements and towers.⁹⁰

The gates were always flanked by towers. The Lion's Gate in Ḫattuša was approached via a ramp, which ran parallel to the wall to the right, thus exposing the unshielded side of potential attackers to fire from the wall. Every gate could be closed on the outer and inner side by heavy wooden doors, which could be bolted with copper bars.

A peculiarity of Hittite fortifications is the so-called postern, a narrow tunnel of up to 50 m in length and 3-4 m in width and height that led through the earthen ramparts on which the fortification stood. According to one theory these posterns may have served as sally ports, enabling the defenders to make quick sorties. The length and the narrowness of the posterns made them easily defensible against intruders who, on the other hand, were exposed to fire from the fortification walls during their approach.

⁹⁰ On Hittite fortifications, see most recently Schirmer 2002, 206-07; Seeher 2002, 159; Mazar 1995, 1531-32; for an extensive description, see Naumann 1971. The fragments of decorated vessels referred to above have been dealt with by Parzinger and Sanz 1992, Taf. 60-62; Naumann 1971, 255, 310-11, Abb. 327, 328; *Die Hethiter und ihr Reich* 2002, 342 no. 99; Neve 1993, 28-29 Abb. 68; A. Müller-Karpe 1999a, Abb. 6; most recently V. Müller-Karpe 2003. See also the contribution by Mielke in this volume.

CONCLUSION

Archaeological remains and written sources offer a rich documentation for study of military issues. In a world where war was more normal than peace, war and warfare were integrated in religion, mythology and society. The Hittite war machine played an important and sometimes predominant role in Near Eastern history and, due to its strike-power, had nothing to fear from armed confrontation with any other major power of the Late Bronze Age. Nevertheless, the Hittite army was unable to avert collapse. Thus, it is even more surprising that both material and written sources do not shed any light on the events that led to the empire's decline.

BIBLIOGRAPHY

- Alp, S. 1991: *Hethitische Briefe aus Maşat-Höyük (TTKY VI.35)* (Ankara).
- Beal, R.H. 1992: *The Organisation of the Hittite Military (THeth 20)* (Heidelberg).
- 1995: 'Hittite Military Organization'. In Sasson, J. (ed.), *Civilizations of the Ancient Near East* (New York), 545-54.
- 2002a: 'I reparti e le armi dell'esercito ittita'. In Guidotto and Pecchioli Daddi 2002, 93-108.
- 2002b: 'Le strutture militari ittite di attacco e di difesa'. In Guidotto and Pecchioli Daddi 2002, 109-21.
- Beckman, G. 1995: 'The Siege of Uršu Text (CTH 7) and Old Hittite Historiography'. *JCS* 47, 23-34.
- 1999: *Hittite Diplomatic Texts* (Atlanta).
- Bittel, K. 1976: 'Tonschale mit Ritzzeichnung von Boğazköy'. *RA*, 9-14.
- Boehmer, R.M. 1972: *Die Kleinfunde von Boğazköy-Ḫattuša aus den Grabungskampagnen 1931-1939 und 1952-1969* (Boğazköy-Ḫattuša VII = WVD OG 87) (Berlin).
- Borchhardt, J. 1972: *Homerische Helme. Helmformen der Ägäis in ihren Beziehungen zu orientalischen Helmen in der Bronze- und frühen Eisenzeit* (Mainz).
- Bryce, T.R. 1998: *The Kingdom of the Hittites* (Oxford).
- 2002: *Life and Society in the Hittite World* (Oxford).
- Calmeyer, P. 1972: s.v. 'Helm. B. Archäologisch'. *RLAss* IV, 313-17.
- Cancik-Kirschbaum, E. 2002: 'Konfrontation und Koexistenz. Ḫattusa und die nord-mesopotamischen Staaten Mittanni und Assyrien'. In *Die Hethiter und ihr Reich* 2002, 282-87.
- Collon, D. 2004: s.v. 'Pfeil und Bogen. B. In der Ikonographie'. *RLAss* X, 461-69.
- de Martino, S. 2005: 'Hittite Letters from the Time of Tuthaliya I / II, Arnuwanda I and Tuthaliya III'. *AoF* 32, 291-321.
- del Olmo Lete, G. and Sanmartín, J. 2003: *A Dictionary of the Ugaritic Language in the Alphabetic Tradition*, vol. 2 (*HdO* 67) (Leiden).
- Deszö, T. 2004: s.v. 'Panzer'. *RLAss* X, 319-23.
- Die Hethiter und ihr Reich* 2002: *Die Hethiter und ihr Reich. Das Volk der 1000 Götter* (Bonn).

- Dietrich, M. and Loretz, O. 1983: 'Dokumente aus Alalach und Ugarit'. In Kaiser, O. (ed.), *Rechts- und Wirtschaftsurkunden, historisch-chronologische Texte* (Texte aus der Umwelt des Alten Testaments I.3) (Gütersloh), 210-19.
- Drews, R. 1993: *The End of Bronze Age. Changes in Warfare and the Catastrophe ca. 1200 B.C.* (Princeton).
- Edel, E. 1997: *Der Vertrag zwischen Ramses II. von Ägypten und Hattušili III. von Hatti* (WVDOG 95) (Berlin).
- Elat, M. 1982: 'Mesopotamische Kriegerituelle'. *BiblOr* 39, 5-25.
- Erkanal, H. 1977: *Die Äxte und Beile des 2. Jahrtausends in Zentralanatolien* (PBF IX. 8) (Munich).
- Faivre, X. 1991: 'Déportation et Butin'. *Les Dossiers d'Archéologie* 160, 70-75.
- Fansa, M. and Burmeister, S. (eds.) 2004: *Rad und Wagen. Der Ursprung einer Innovation. Wagen im Vorderen Orient und Europa* (Archäologische Mitteilungen aus Nordwestdeutschland, Beiheft 40) (Oldenburg).
- Frahm, E. 2002: 'Assur 2001: Die Schriftfunde'. *MDOG* 134, 47-86.
- Friedrich, J. 1971: *Die Hethitischen Gesetze. Transkription, Übersetzung, Sprachliche Erläuterung und Vollständiges Wörterbuch* (Documenta et Monumenta Orientis Antiqui 7), 2nd ed. (Leiden).
- Gelb, I.J. 1973: 'Prisoners of War in Early Mesopotamia'. *JNES* 32, 70-98.
- Geiger, A. 1993: 'Ein Schwertheft aus dem Tempelviertel der Oberstadt von Boğazköy-Hattuša'. *IstMitt* 43, 213-17.
- Goetze, A. 1933: *Die Annalen des Muršiliš* (Leipzig).
- 1955: 'Hittite Rituals, Incantations, and Description of Festivals'. In Pritchard, J.B. (ed.), *Ancient Near Eastern Texts Relating to the Old Testament*, 2nd ed. (Princeton), 351-60.
- 1957: *Kulturgeschichte Kleinasien* (Handbuch der Altertumswissenschaft III.2), 2nd ed. (Munich).
- 1963: 'Warfare in Asia Minor'. *Iraq* 25, 124-30.
- Guidotto, M. C. and Pecchioli Daddi, F. (eds.) 2002: *La battaglia di Qadesh. Ramesse II contro gli Ititi per la conquista della Siria* (Florence).
- Gurney, O.R. 1964: *The Hittites* (London).
- Güterbock, H.G. 1956: 'The Deeds of Suppiluliuma as told by his Son, Muršili II'. *JCS* 10, 41-68, 75-99, 107-130.
- Güterbock, H.G. and van den Hout, T.P.J. 1991: *The Hittite Instruction for the Royal Bodyguard* (Assyriological Studies 24) (Chicago).
- Haas, V. 1988: s.v. 'Magie und Zauberei. B. Bei den Hethitern'. *RLAss* VII, 234-25.
- 1989: 'Kompositbogen und Bogenschießen als Wettkampf im Alten Orient'. *Nikephoros* 2, 27-41.
- 1994: *Geschichte der hethitischen Religion* (HdO Abteilung 1.15) (Leiden/New York/Cologne).
- 1999: 'Natur- und Landschaftsbeschreibungen im hethitischen Schrifttum: Ein literarischer Spaziergang'. In Milano, L., de Martino, S., Fales, M.F. and Lanfranchi, G.B. (eds.), *Landscapes. Territories, Frontiers and Horizons in the Ancient Near East* (Papers presented to the XLIV. Rencontre Assyriologique Internationale, Venezia, 7-11 July 1997), vol. 1 (History of the Ancient Near East Monograph III.1) (Padua), 17-27.
- Heltzer, M. 1998: Review of J.-P. Vita, *El ejército de Ugarit* (Madrid 1995). *Orientalia* 67, 139-43.

- Herold, A. 2004a: 'Funde und Funktionen – Streitwagentechnologie im Alten Ägypten'. In Fansa and Burmeister 2004, 123-42.
- 2004b: 'Streitwagen und Zubehör'. In Petschel, S. and von Falk, M. (eds.), *Pharao siegt immer – Krieg und Frieden im Alten Ägypten* (Hamm), 98-107.
- Hoffmann, I. 1984: *Der Erlaß Telipinus* (THeth 11) (Heidelberg).
- Houwink ten Cate, P.H.J. 1983-84: 'The History of Warfare according to Hittite Sources: The Annals of Hattusilis I'. *Anatolica* 10, 91-110; 11, 47-83.
- Jakob, S. 2003: *Mittelassyrische Verwaltung und Sozialstruktur. Untersuchungen* (Cuneiform Monographs 29) (Leiden/Boston).
- Joannès, F. (ed.) 2001: *Dictionnaire de la civilisation mésopotamienne* (Paris).
- Kempinski, A. 1983: *Syrien und Palästina (Kanaan) in der letzten Phase der Mittelbronze IIB-Zeit (1650-1570 v. Chr.)* (Ägypten und Altes Testament 4) (Wiesbaden).
- Kendall, T. 1974: *Warfare and Military Matters in the Nuzi Tablets* (Ann Arbor).
- 1981: 'gurpīsu ša awēli: The Helmets of the Warriors at Nuzi'. In Morrison, M.A. and Owen, D.I. (eds.), *Studies on the Civilization and Culture of Nuzi and the Hurrians* (Winona Lake, IN), 201-31.
- Klengel, H. 1983: s.v. 'Kriegsgefangene'. *RLAss* VI, 241-46.
- 2002: 'From War to Eternal Peace: Ramesses II and Khattushili III'. *Canadian Society for Mesopotamian Studies Bulletin* 37, 49-56.
- Klinger, J. 1995: 'Das Corpus der Maṣat-Briefe und seine Beziehungen zu den Texten aus Hattuša'. *ZAss* 85, 74-108.
- 2001: 'Hethitische Texte'. In Kaiser, O. (ed.), *Texte aus der Umwelt des Alten Testaments, Ergänzungslieferung* (Gütersloh), 61-81.
- 2005: 'Das Korpus der Kaskäer-Texte'. *AoF* 32, 347-59.
- Korfmann, M. 1972: *Schleuder und Bogen in Südwestasien von den frühesten Belegen bis zum Beginn der historischen Stadtstaaten* (Antiquitas 13) (Bonn).
- 1986: 'Die Waffe Davids. Ein Beitrag zur Geschichte der Fernwaffen und zu den Anfängen organisierten kriegerischen Verhaltens'. *Saeculum* 37, 129-49.
- Kořak, S. 1982: *Hittite Inventory Texts* (THeth 10) (Heidelberg).
- Littauer, M.A. and Crouwel, J.H. 1979: *Wheeled Vehicles and Ridden Animals in the Ancient Near East* (Leiden).
- 1983: 'Chariots in Late Bronze Age Greece'. *Antiquity* 57, 187-92.
- 1996: 'The Origins of the True Chariot'. *Antiquity* 70, 934-39.
- 2002: 'A Late Bronze-Age Spoked Wheel from Lidar Höyük in Southeast Turkey'. In Raulwing, P. (ed.), *Selected Writings on Chariots, other Early Vehicles, Riding and Harness* (Culture and History of the Ancient Near East 6) (Leiden/Boston/Cologne), 314-26.
- Littauer, M.A., Crouwel, J.H. and Hauptmann, H. 1991: 'Ein spätbronzezeitliches Speichenrad vom Lidar Höyük'. *AA*, 349-58.
- Macqueen, J.G. 1986: *The Hittites and their Contemporaries in Asia Minor*, revised ed. (London).
- Masson, E. 1999: 'L'esprit conquérant des Hittites'. In Nehmé, L. (ed.), *Guerre et conquête dans le Proche-Orient ancien* (Antiquités Sémitiques IV) (Paris), 41-49.
- Mayer, W. 1995: *Politik und Kriegskunst der Assyrer* (Münster).
- Mayer, W. and Mayer-Opificius, R. 1994: 'Die Schlacht bei Kadesch – Der Versuch einer neuen Rekonstruktion'. *UF* 26, 321-68.
- Mazar, A. 1995: 'The Fortification of Cities in the Ancient Near East'. In Sasson, J. (ed.), *Civilizations of the Ancient Near East* (New York), 1523-38.

- Miller, R., McEwen, E. and Bergmann, C. 1986: 'Experimental Approaches to Ancient Near Eastern Archery'. *World Archaeology* 18, 178-95.
- Moorey, P.R.S. 1986: 'The Emergence of the light, horse-drawn chariot in the Near East c. 2000-1500'. *World Archaeology* 18, 196-215.
- Müller-Karpe, A. 1994: 'Anatolische Bronzeschwerter und Südosteuropa'. In Dobiati, C. (ed.), *Festschrift für Otto-Herman Frey zum 65. Geburtstag* (Marburger Studien zur Vor- und Frühgeschichte 16) (Marburg), 431-44.
- 1998: 'Untersuchungen in Kuşaklı 1997'. *MDOG* 130, 93-174.
- 1999a: 'Ein Großbau in der hethitischen Stadtruine Kuşaklı'. *Alter Orient Aktuell* 1, 19-22.
- 1999b: 'Untersuchungen in Kuşaklı 1998'. *MDOG* 131, 57-113.
- 2001: 'Untersuchungen in Kuşaklı 2000'. *MDOG* 133, 225-50.
- Müller-Karpe, H. 1980: *Handbuch der Vorgeschichte*, vol. 4, Pt 3 (Munich).
- Müller-Karpe, V. 2003: 'Eine Kultvase aus Kuşaklı-Sarissa'. In Özdoğan, M. and Başgeçen, N. (eds.), *From Villages to Towns. Studies Presented to Ufuk Esin* (Istanbul), 307-12.
- Murnane, W.J. 1990: *The Road to Kadesh. A Historical Interpretation of the Battle Reliefs of King Sety I. at Karnak*, 2nd ed. (Studies in Ancient Oriental Civilization 42) (Chicago).
- Naumann, R. 1971: *Architektur Kleinasiens von ihren Anfängen bis zum Ende der hethitischen Zeit*, 2nd ed. (Tübingen).
- Neu, E. 1974: *Der Anitta-Text* (StBoT 18) (Wiesbaden).
- Neve, P. 1993: *Ḫattuša: Stadt der Götter und Tempel. Neue Ausgrabungen in der Hauptstadt der Hethiter* (Mainz).
- Niemeier, W.-D. 2002: 'Ḫattuša und Aḫḫijawa im Konflikt um Millawanda/Milet'. In *Die Hethiter und ihr Reich 2002*, 294-99.
- Oettinger, N. 1976: *Die militärischen Eide der Hethiter* (StBoT 22) (Wiesbaden).
- Ökse, A.T. and Toy, N. 1992: 'Sivas Müzesi'nde Bulunan Tunc Baltalar'. *TAD* 30, 135-47.
- Otten, H. 1961: 'Das Hethiterreich'. In Schmökel, H. (ed.), *Kulturgeschichte des Alten Orients: Mesopotamien, Hethiterreich, Syrien-Palästina, Urartu* (Stuttgart), 311-446.
- Parzinger, H. and Sanz, R. 1992: *Die Oberstadt von Ḫattuša. Hethitische Keramik aus dem zentralen Tempelviertel. Funde aus den Grabungen 1982-1987* (Boğazköy-Ḫattuša XV) (Berlin).
- Pecchioli-Daddi, F. 1982: *Mestieri Professioni e Dignità nell'Anatolia Ittita* (Rome).
- Polvani, A.M. 2002: 'Le divinità ittite e la guerra'. In Guidotto and Pecchioli Daddi 2002, 122-25.
- Postgate, D. 2004: s.v. 'Pfeil und Bogen. A. I. Nach schriftlichen Quellen. In Mesopotamien'. *RLAss* X, 456-58.
- Prechel, D. 2003: 'Von Ugarit nach Uruk'. In Sallaberger, W., Volk, K. and Zgoll, A. (eds.), *Literatur, Politik und Recht in Mesopotamien. Festschrift für Claus Wilcke*. (Orientalia Biblica et Christiana 14) (Wiesbaden), 225-28.
- Pusch, E.B. 1990: 'Metallverarbeitende Werkstätten der frühen Ramessidenzeit in Qantir-Piramesse/Nord'. *Ägypten und Levante* 1, 75-113.
- Quack, J.F. 2002: 'Da wurden die zwei großen Länder zu einem Land. Die Beziehungen zwischen Ḫattuša und Ägypten im Lichte ihrer diplomatischen Korrespondenz'. In *Die Hethiter und ihr Reich 2002*, 288-93.
- Raulwing, P. 1999: 'Neuere Forschung zum Kikkuli-Text. Eine kleine Bestandsaufnahme trainingsinhaltlicher Interpretationen zu CTH 284 vier Jahrzehnte nach

- A. Kammenhubers *Hippologia Hethitica*. In Anreiter, P. and Jerem, E. (eds.), *Studia Celtica et Indogermania. Festschrift für Wolfgang Meid zum 70. Geburtstag* (Archaeolingua 10) (Budapest/Innsbruck), 351-64.
- (ed.) 2002: *Selected Writings on Chariots, other Early Vehicles, Riding and Harness* (Culture and History of the Ancient Near East 6) (Leiden/Boston/Cologne).
- Raulwing, P. and Meier, H. 2004: 'Der Kikkuli-Text. Hippologische und methodenkritische Überlegungen zum Training von Streitwagenpferden im Alten Orient'. In Fansa and Burmeister 2004, 491-506.
- Richter, T. 2004: 'Der Streitwagen im Alten Orient im 2. Jahrtausend v. Chr. – eine Betrachtung anhand der keilschriftlichen Quellen'. In Fansa and Burmeister 2004, 507-54.
- Riemschneider, K. 1962: 'Hethitische Fragmente historischen Inhalts aus der Zeit Hattušili III'. *JCS* 16, 110-21.
- Roth, M.T. 1997: *Law Collections from Mesopotamia and Asia Minor*, 2nd ed. (Atlanta).
- Schirmer, W. 2002: 'Stadt, Palast, Tempel. Charakteristika hethitischer Architektur im 2. und 1. Jahrtausend v. Chr.'. In *Die Hethiter und ihr Reich* 2002, 204-17.
- Seeher, J. 2002: 'Hattuša-Boğazköy – Hauptstadt eines Reiches'. In *Die Hethiter und ihr Reich* 2002, 156-63.
- Siegelová, J. 1986: *Hethitische Verwaltungspraxis im Lichte der Wirtschafts- und Inventardokumente* (Prague).
- Sommer, F. and Falkenstein, A. 1938: *Die hethitisch-akkadische Bilingue des Hattušili I* (Abhandlungen der Bayerischen Akademie der Wissenschaften. Philosophisch-historische Abteilung, N.F. Heft 16) (Munich).
- Starke, F. 1995: *Ausbildung und Training von Streitwagenpferden. Eine hippologisch orientierte Interpretation des Kikkuli-Textes* (StBoT 41) (Wiesbaden).
- Taracha, P. 2004: s.v. 'Pfeil und Bogen. A. II. In Anatolien'. *RLAss* X, 458-461.
- Ünal, A. 1973: 'Zum Status der 'Augures' bei den Hethitern'. *RHA* 31, 27-56.
- 1983: 'Untersuchungen zur Terminologie der hethitischen Kriegsführung I. "Verbrennen, in Brand stecken" als Kriegstechnik'. *Orientalia* 52, 164-180.
- 1984: 'Studien über das hethitische Kriegswesen II: Verba Delendi *ḫarnink-/ḫarganu-* "vernichten, zugrunde richten"'. *SMEA* 24, 71-85.
- van den Hout, T.P.J. 2004: s.v. 'Pferd (und weitere Equiden). A. II. In Anatolien'. *RLAss* X, 482-490.
- Ventzke, W. 1983: 'Zur Rekonstruktion eines bronzenen Schuppenpanzers'. In Hachmann, H. (ed.), *Frühe Phöniker im Libanon* (Mainz), 94-100.
- Vita, J.-P. 1995: *El ejército de Ugarit* (Madrid).
- von Brandenstein, C.-G. 1943: *Hethitische Götter nach Bildbeschreibungen in Keilschrifttexten* (Mitteilungen der Vorderasiatisch-ägyptischen Gesellschaft 46.2) (Hethitische Texte in Umschrift 8) (Leipzig).
- von Schuler, E. 1957: *Hethitische Dienstanweisungen für höhere Hof- und Staatsbeamte* (Graz).
- 1965: *Die Kaškäer* (Berlin).
- Yadin, Y. 1963: *The Art of Warfare in Biblical Lands in the Light of Archaeological Discovery* (London).
- Zaccagnini, C. 1977: 'Pferde und Streitwagen in Nuzi, Bemerkungen zur Technologie'. *Jahresbericht des Instituts für Vorgeschichte der Universität Frankfurt a. M.* 1977, 21-38.