Mediterranean Archaeology and Archaeometry, Vol. 17, No 4, (2017), pp. 1-17

DOI: 10.5281/zenodo.893186

A COMBAT ARCHAEOLOGY VIEWPOINT ON WEAPON REPRESENTATIONS IN NORTHWEST ARABIAN ROCK ART

Ömer Can Aksoy

University College London Qatar
Havatek 10015. Sk. No:7, 35620 Atatürk Osb, Çiğli, İzmir, Turkey
(o.aksoy@ucl.ac.uk)

Received: 31/05/2017
Accepted: 19/08/2017

ABSTRACT

This paper seeks to define how far we can associate weapon representations in rock art of northwest Arabia with the technological changes and the artists' perceptions about violence and warfare. In the pursuit of this goal, various representations of weapons and copper alloy weapons from northwest Arabia are discussed with emphases placed on design and use. The rock art representations of bows, daggers, swords, shields and body armours are categorised in respect of their typological features that can be derived from scenes of conflict and hunting. These groupings suggest no detailed typologies can be drawn from the rock imagery of weapons; instead, it is possible entertain only a few typological parallels in respect of the material evidence and imagery from the Arabian Peninsula and Mesopotamia. On the other hand, complex scenes of conflict enable us to explore perceptions about the uses of different types of weapons. Among the twenty-seven examples of complex conflict scenes in my rock art sample, three combinations of weaponry are detected in the setting of combat on foot: (1) bow and dagger, (2) spear and round shield, (3) sword and round shield. These weapon combinations are mostly observed in melee scenes and they reflect versatile combat skills that might have existed or been expected among Pre-Islamic warriors.

KEYWORDS: ancient warfare, rock art, weaponry, Saudi Arabia, weapon use, combat archaeology

1. INTRODUCTION

Weaponry is one of the most prevalent elements of rock art in northwest Saudi Arabia. This paper presents various findings of my rock art survey in this region, an evaluation of copper alloy weaponry housed in the National Museum of Saudi Arabia and a discussion on previously published representations of weapons (Figure 1). The rock art representations of weapons that I recorded in northwest Arabia range from lunate pommelled daggers of the Pre-Islamic period to the 15th-18th century matchlock rifles. By examining diverse weapon types and the scenes in which they were shown, my intention is to illustrate how far we can ascribe these representations to technological changes, combat practices and the artists' notions of violence and warfare. There is one key point to remember in this question: the appearance of each weapon form on a rock art piece does not confidently signify that they were all once used or manufactured in northwest Arabia. Perhaps the rock art representations of weapons will remain a subject of speculation until we reach a typological and metallurgical understanding of the Late Bronze Age and Iron Age weaponry in northwest Arabia. As an attempt to identify the forms of weapon images, some typological parallels between the rock art images and sparse material evidence from different parts of Arabia are proposed in this paper. Yet, these comparisons are not sufficient and sound enough to commence a typological and chronological analysis of weaponry. Instead, this paper should be seen as an evaluation of the current state of evidence which is provided under the titles of production and trade, archery, spearheads, daggers, swords, body armours and shields. The hypotheses proposed under these titles are no more than a cautious attempt to identify and categorise the rock art images of weapons in the view of biases of Arabian rock art studies. My objective in the rest of this paper is to expand on the rock art representations of weapons by comparing – in what are undeniably very broad terms – the rock art images, available weapon finds, and publications about weapon use.

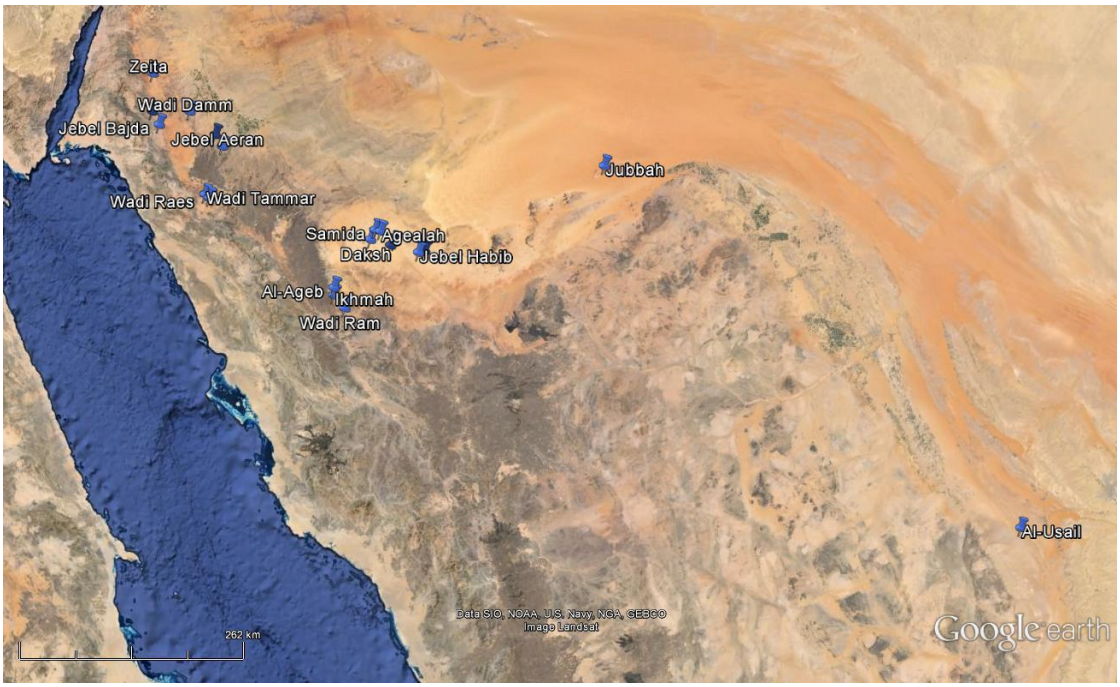


Figure 1: The rock art sites which were surveyed and visited by the author (Google earth, 2016).

2. A REVIEW OF CURRENT MATERIAL EVIDENCE

The production of weaponry in northwest Arabia in the Pre-Islamic period is a puzzling subject. Unlike southeast Arabia, where the Early Iron Age metal workshops were excavated, we cannot hypothesise any weaponry production model for northwest Arabia (See: Genchi *et al.*, 2013; Nashef, 2010). Very little is known about Bronze Age and Iron Age metallurgical activity in northwest Arabia. The copper alloying and refining activities are detected in the settlements of Qurayyah and Tayma. The metallurgical practice in Qurayyah is dated to the Late Bronze Age and in Tayma to the Roman/Late Roman period (Liu *et al.*, 2015, 501-502). Nevertheless, we can speak of a potential for weaponry manufacture based on the knowledge that Pre-Islamic copper mines and ore sources do exist in the region (DeJesus *et al.*, 1982; Kisnawi *et al.*, 1983; The Desert Team, 2013).

The metals trade might have been the alternative choice for the Arabian polities and people of northwest Arabia. To begin with, the discovery of Qurayyah pottery ware at the copper mines in Timna and Feinan mirrors possible metallurgical activities taking place in north Arabia in the Late Bronze Age (Parr, 1996, 214-216; Parr *et al.*, 1970, 240). However, we must not forget that the uncertainties about the dating and provenance of Qurayyah ware cast doubts over this hypothesis (See: Magee, 2014, 261-262). A Middle Bronze Age fenestrated axe and a ribbed dagger from a Mid-Iron Age[1] tomb of Sana'iye cemetery attest to a puzzling link with the Levant (al-Hajiri, 2012, 112). The form of the dagger and fenestrated axe shows close resemblance to the Middle Bronze Age Syro-Levantine examples. This match poses a possible contact between north Arabia and the Levant. Yet, the discovery of the Sana'iye specimens in a secondary context weakens this hypothesis (al-Hajiri, 2012, 112; Eichmann *et al.*, 2006, 165; Morr and Pernot, 2011, 2116-2118). The Early Iron Age metal trade with Oman and the other parts of the Near East is evidenced with portable X-ray fluorescence and lead isotope analyses of metallurgical finds from Area O in Tayma (Renzi *et al.*, 2016). In the middle Iron Age, the Neo-Assyrian records shed light on the involvement of Arabian groups in the metal trade. A correspondence between Bel-Liqbi, the governor of Zobah, and Sargon II (720-705 BC) underscores the involvement of the Arabs in the metals trade in Huzaza in Central Syria. Sargon rebuked Bel-Liqbi for turning the Huzaza into a merchant town and demanded the names of merchants who are selling iron to the Arabs. Bel-Liqbi responded to the king's accusation by asserting that he was selling copper to the Arabs and iron to the settled deportees. Bel-Liqbi continued his response by stressing that a toll officer is assigned to Huzaza and for these reasons the Arabs are not coming to Huzaza any more (Fales, 2002, 150; Parpola, 1987, 179). Hypothetically, this protectionist Assyrian trade policy could be viewed as an attempt to keep the iron weapon technology in Assyrian hands (Retsö, 2003, 152; Dubovsky, 2006, 132).

There has been little specific recognition or archaeological documentation of the Late Bronze Age and Iron Age weaponry from northwest Arabia. Only a few finds' contexts were identified in the inventories; I could examine only six blades, one possible armour piece and three arrowheads stored in the National Museum of Saudi Arabia and Tayma museum during my PhD research in 2014. Comparatively, the small size of my northwest Arabia sample as against the vast amount of metal weaponry from southeast Arabia recalls Michael Macdonald's argument on the existence of a cultural division between the eastern and western halves of the Arabian Peninsula (Macdonald, 2000-a, 38-40). For my part, this difference does not pose any obvious boundary in terms of weaponry technology and their ways of use. At the moment, this difference can only be explained with the scarcity of archaeological research in Saudi Arabia compared to long-running survey and excavation projects in Oman and UAE (Al-Ghabban, 2012; Al-Rawaibah, 2013; Department of Antiquities and Museums, 1975).

3. ROCK ART AND WEAPONS

In contrast with this scarcity of tangible evidence, the rock art sites of northwest Arabia display a rich corpus of weaponry representations and vivid scenes of conflict and hunting. The analysis of Pre-Islamic weaponry in view of rock art is a very problematic approach because it is notoriously difficult to determine the absolute dates of petroglyphs, and most of the Arabian rock art sites are not static locales: they are constantly produced and re-produced (See: Bednarik and Khan, 2005, 78-79). Given the current standing of absolute dating methods for Arabian petroglyphs, relative dating focusing on superimpositions in patina, overlapping of the figures, imagery of artefacts on petroglyphs, and the archaeological finds in the vicinity of petroglyphs stand out as the main method of estimating their dates. This method was adopted in several studies about Arabian rock art. Anati and Khan proposed different typologies for rock art figures in opposition with each other (Anati, 1968-a, 4-80; Khan, 1998, 427-437;). However, the similarity between Thamudic examples of human figures with more contemporaneous human figures carved on the Hejaz Railway Station buildings indicates that the notion of style has little value in proposing a time span for the rock art of Arabia (Aksoy, 2017, 76-77). Besides rock art typology, the association between rock sites and lake sediments, as well as the material culture in Jubbah, were investigated by the Palaeodeserts project team in 2012 (Jennings *et al.*, 2013, 677-680). This survey revealed different distribution patterns of uninscribed and inscribed rock art panels in regard of the position and the desiccation of the lake in the 1st millennium BC. However, this project did not provide either a clear time frame or an archaeologically proven explanation for the content of the inscribed rock art panels due to the scarcity of material culture, which is also the case in most of the rock art sites I recorded for the present paper. The comparative study of both ethnographic and archaeological artefacts is another facet of this methodology. Ziolkowski's (2007, 1998) and Newton and Zarin's (2000)

[1] Circa 9th-5th century BC.

comparative studies are prominent examples of this approach in Arabian rock art studies. They suggest that a number of iconographic features such as snake, ovoid, cruciform, and lunate pommel-handled daggers can be roughly dated and interpreted by conducting ethnographic research and comparing Arabian petroglyph images with various examples of Mesopotamian art and Bronze Age and Iron Age artefacts. Regarding these comparisons, Michele Ziolkowski points to various technical and compositional similarities between petroglyphs from different regions of Arabia (Ziolkowski, 2007, 208-230; Ziolkowski, 1998, 13-80; Newton and Zarins, 2000, 154-179). I have reservations about these interpretations on the grounds that there are different lunate pommel-handled dagger forms and far-off stylistic parallels can be drawn in the case of snake figures (See section 4.1). For my part, this comparative approach is more applicable to the study of more recent examples of rock art (e.g. Lancaster and Lancaster, 2011; Aksoy, 2017, 76-77).

In the face of the abovementioned biases, my research methodology is expressly formed around a rock art recording scheme aimed at conflict and hunting scenes. The tracks of my field walks and the locations of each rock art panel were recorded with a handheld GPS device. Each point was taken with the 'waypoint averaging' tool of the device in order to collect accurate samples. Rock art panels were photographed with a 10cm long The International Federation of Rock Art Organisations colour scale. Moreover, complex battle scenes were traced onto transparent plastic sheets with soft pointed marker pens. It is important to underline that my tracings and indeed other examples in other publications should not be treated as perfect copies of rock art figures but as only subjective records of patina and image content (See: Bahn 2010, 17-20).

The rock art recording scheme is a significant aspect in the rock art survey and the post fieldwork evaluation of the data corpus. Several variables were recorded from each panel on recording sheets, including GPS coordinates, elevation, and a brief description of their locations. The descriptions were enriched with information about known archaeological sites in their vicinity and observations on the present habitation and uses of the site by local people (e.g. grazing area and trade route etc.). Conversations with the local guides assigned by the Saudi Commission for Tourism and National Heritage (SCTH) for my research particularly contributed to the observations about the sites in Northern Arabia (Selim and Abdullah, pers. comm., 2014). Besides contextualising each panel, this process aimed to define the locations of the petroglyphs, not only with inconstant local names of the sites, as in the case of most publications on Arabian rock art (see: Nayeem, 2000; Ingraham *et al.*, 1981; Olsen and Bryant, 2013; Khan, 2007), but also with the coordinates, visibility and vicinity of each panel. The type of stone and the condition were recorded in order to illustrate preferences behind the artist's choice of stone and degree of weathering. Above all, observations about patina and methods of application on each panel were recorded in the field with the help of x3, x6 and x10 handheld magnifiers. In the recording process, certain figures that helped construct present ideas in this paper were considered: various types of weapons. Overall, this recording scheme formed a comprehensive inventory for the post field analyses, such as comparison of rock art with archaeological and ethnographical data. With these biases and methodological choices in mind, the evaluations in this paper are based on two basic presuppositions: (1) This paper accepts a broad chronological division on the basis of epigraphy and depictions of weaponry and extinct animals: Late Prehistoric, Thamudic (approx. 6th c. BC to the 4th c. AD), Safaitic (approx. 1st c. BC to the 4th c. AD), Hismaic (approx. 1st c. BC to the 4th c. AD), Dadanitic (approx. 5th c. to the 1st c. BC), Nabataean (approx. 1st c. to the 4th c. AD), Arabic (approx. 6th c. to the 21 c. AD) (See: Macdonald, 2000-a, 45; Al-Said, 2011; Macdonald, 2012-b, 366; Safaitic Database Online, 2012; OCIANA, 2015); (2) The rock art images of weapons are not precise depictions of weapons but they are products of artists' mind which have a significant value in understanding what was believed and thought about weapons and their use.

4. ARCHERY

Bows are one of the most frequently depicted weapons in northwest Arabian rock art. Typically, bows were not portrayed in detail. But at least three types of bow can be identified from conflict and hunting scenes through a comparative analysis of the bow profiles with the experimental and anthropological studies on the performance and production of ancient bows.

4.1. Simple Curved Bow

These are convex bows with rigid limbs. They are the most common type depicted in the rock art of northwest and southeast Arabia (Figure 2). At the first glance, these bows could be interpreted as a basic abstraction of any bow type. Alternatively, the rigid form of the bow could be interpreted as a representation of a bow made of a single piece of wood. Experimental studies show that these bows can be manufactured easily and rapidly in comparison to the double convex and curved nock bows. However, the simple curved bow's shooting range is usually

shorter in comparison to the composite bow types due to its rigid form, which can tolerate only low pulling weights (Anati, 1968-b, 64-76; Gabriel, 2007, 72-76; Collon, 1983, 54-56).

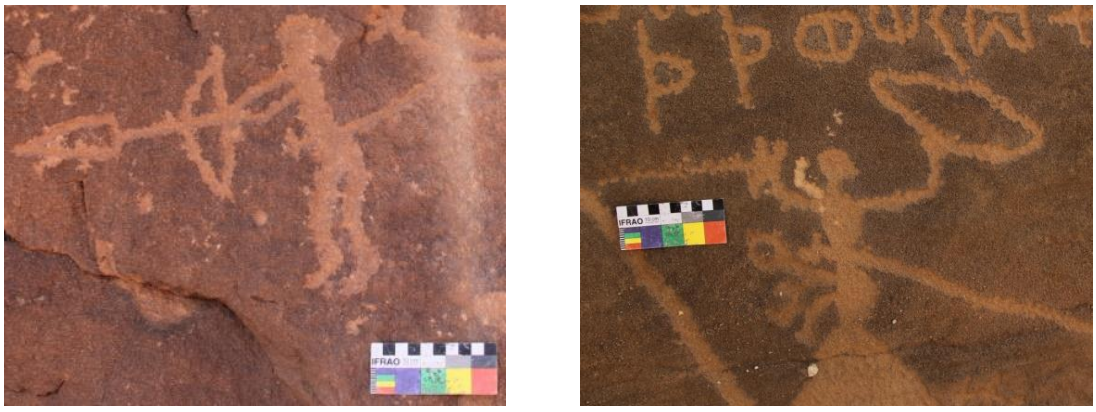


Figure 2: Simple curved bow figures. A: Wadi Ram. Thamudic-D (?) archer figure equipped with a simple convex bow B: Al Naslaa. Thamudic-B cameleer figure waving a simple convex bow (Can Aksoy, 2014).

4.2. Double Convex Bow

Double convex bows' representations are comprised of a concave grip and convex limbs. They were mainly documented in southwest Saudi Arabia (Anati, 1968-b, 62; Poliakoff, 2017, in press). In comparison to southeast Arabia, few examples of these bow depictions could be observed in the rock art scenes of conflict and hunting in northwest Saudi Arabia (Figure 3). Evaluation of these rock art representations through the lenses of archery enables us to entertain possibilities about functions of these bows. Their double convex design brings the nocks of the bow closer to the centre, possibly in order to increase its pull weight. In terms of bow dynamics, this adjustment in the design provides a longer attack range in comparison to the simple curved bow: approximately 90 to 135 meters (Anati, 1968-b, 64-76; Gabriel, 2007, 72-76; Collon, 1983, 54-56; Yadin, 1963, 293-298).

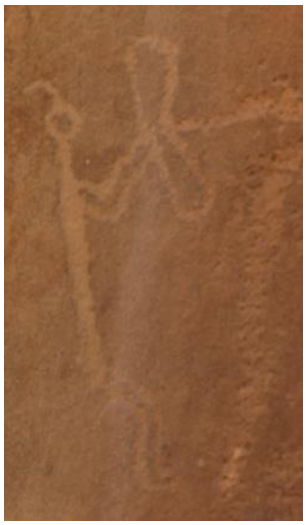


Figure 3: Daksh. A Thamudic rock art figure carrying a double convex bow (Can Aksoy, 2014).

4.3. Curved Nock Bows

In the simplest terms, these are convex bows with curved ends. The curved nock bows were highlighted as elastic weapons, particularly in the Neo-Assyrian wall reliefs. For instance, the North Palace relief scene of two Assyrian soldiers tuning a curved nock arrow illustrates this elasticity (See: Yadin, 1963, 295). In view of this Neo-Assyrian representation, some scholars claim that these bows were made of composite material including wood, bone and pieces of horn (Yadin, 1963, 294-300; Kooi and Sparenberg, 1980, 4; Holmes, 2006, 33). Whether composite or not, the curved ends indicate representation of a flexible material. In terms of archery dynamics, the use of flexible material in bow manufacture is one of the factors that makes these bows better at flying shooting in comparison to self bows made of single piece of wood (Kooi and Sparenberg, 1980, 27; Kooi and Bergmann, 1997, 15). From this perspective, the Assyrian wall relief images of the bows could be interpreted as an expression of Assyrian weopon technology. To my knowledge, the bow of chariot archer in figure 4 from Wadi Asafir is the only published example of a curved nock bow from northwest Arabia (Figure 4-A). It is worth noting that the dismounted camel archer figure on the same rock art panel is armed with a simple curved bow (Figure 4-B). The very same differentiation was made on Slab 12 from room L of the Northern Palace of Ashurbanipal: 'the Arab' cameleer figures are equipped with simple convex bows and they are faced with the Assyrian archers, who draw their curved nock bows wider than the Arab warriors (See: Macdonald, 2009, 170; Collins *et al.*, 2008, 111).

Figure 4: Wadi Asafir. A: Chariot unit. B: Dismounted archer (Nayeem, 2000, 71).

5. DAGGERS AND SWORDS

Most of the close-range combat weapon representations in northwest Arabian rock art are amorphous in form: they do not display noticeable typological features. They are just represented as a single line on the waist or in the hand of human figures. These could be very simplified images of swords and daggers or simply sticks. Only the two following forms can be confidently identified as daggers and swords in the northwest Arabian setting.

5.1. Lunate Pommel-handled Daggers

These are straight blade daggers with lunate-handled pommel. Their images were not just recorded in northwest Arabia but also in southeast, southwest and central Arabia. Lunate pommel-handled daggers were found in a number of sites outside north Arabia: the royal cemetery at UR (Meskalamdug's tomb, 2400 BC), Madinat Hamad in Bahrain (Mound 444, 2200-2000 BC), Ugarit, Byblos, and Canaan in the Levant (Type 12 daggers, the Early Bronze Age IV), Avaris (Tomb F/I-0/20-no. 17, the Middle Bronze Age) and Dahshur (the Tomb of Ita, 1990-1795 BC) in Egypt. Furthermore, their image can also be seen on an Ur III period sealing from Selenkahiye in Syria, ED II and III cylinder sealings, from Fara in Southern Iraq, and menhirs at Wadi Arf in Jawl Highlands/Yemen. In addition, lunate pommel-handled daggers were emphasised possibly under the term 'Amorite dagger', in the Ebla Texts, which are dated to 2200 BC (Newton and Zarins, 2000, 153-160; Potts, 2007, 34-38; SCTA 2009, 107; Lombard, 2000, 55).

The abovementioned specimens from various parts of Western Asia suggest that material choices and blade characteristics are quite diverse. The handle of the Meskalamdug's dagger is plated with gold. The Levantine Type 12 and Egyptian examples are comprised of a copper alloy blade with a central groove with two ribs and a lunate pommeled handle riveted to the blade. Furthermore, the two daggers from the Madinat Hamad tombs are compact copper alloy weapons comprised of a ribbed blade and a lunate-shaped pommel. Their discovery in funerary contexts and their elaborate design indicate that these daggers were possibly designed as objects of prestige not for use in combat conditions. Yet, this hypothesis has to be tested with a metalwork wear analysis in future. Their origin is another subject of speculation. Daniel Potts suggests that lunate pommel-handled dagger is "*a hitherto unrecognised weapon of almost certain South Arabian origin*" (Potts, 2007, 38). Moreover, Newton and Zarins claim that these daggers "*should be associated with Semitic-speaking pastoral people of the Arabian peninsula*" (Newton and Zarins, 2000, 161). These arguments rest on two factors: (1) the widespread spatial distribution of dagger representations in the rock art and menhir sites of southeast Arabia; (2) The association of these daggers with certain contexts and periods outside Arabia, for example the 12th Dynasty in Egypt, the period when 'Asiatic groups' settled in Avaris. I believe that it is not possible to define these daggers as a weapon of either South Arabian or Arabian origin at this stage since there are few recovered finds from the Arabian Peninsula and they were both unearthed in the Gulf coast: Madinat Hamad in Bahrain. Nevertheless, the dateable examples from Madinat Hamad give an anchor point for speculation about the dates of lunate pommel-handled representations in rock art.

I recorded numerous representations of lunate pommel-handled daggers in Wadi Ram, Wadi Damm, Zeita, Daksh, Jubbah and Al-Usail and they are also known from a number of rock art sites in southwest and southeast Arabia (Nayeem, 2000, 253; Olsen, 2012). In the context of northwest Arabian rock art, they were either depicted without any associated figure or on the waists of anthropomorphic figures posing in an 'orant posture' (Figure 5). The

close resemblance between this posture and the skeleton figures in the rock art of northwestern and central Arabia suggest that this posture may have been associated with death and corpses in northwest and central Arabian rock art (Figure 5-D). In view of Madinat Hamad grave goods and this stylistic resemblance between anthropomorphic figures, it is plausible to assume that these dagger representations were associated with burial rites and death.

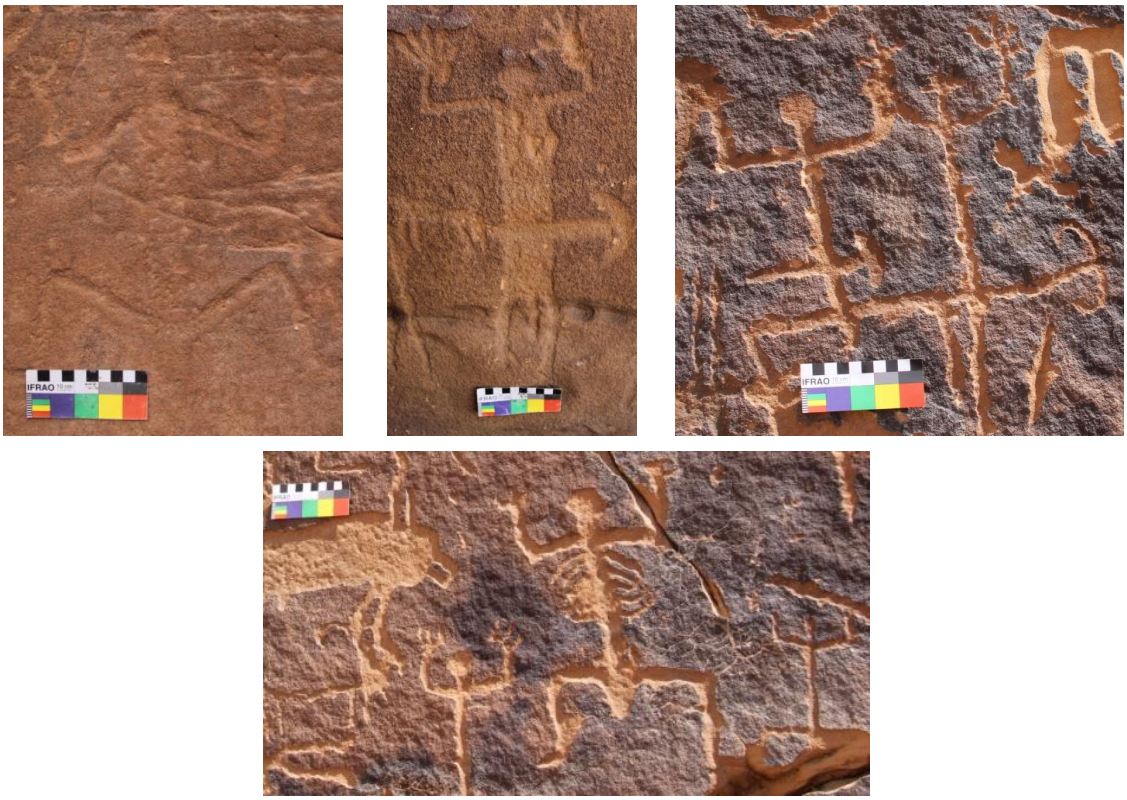


Figure 5: Lunate pommel-handled dagger representations from north and central Arabia. A: Wadi Damm. B: Daksh. C: Al Usail (Can Aksoy, 2014).

5.2. Curved Swords and Daggers

Rock art representations of curved blade weapons are often associated with the Islamic period (Olsen, *et al.*, 2012; Olsen and Bryant, 2013). Some of the petroglyphs in my rock art sample argue in favour of their interpretation – for example, Figure 6 from Agealah. This particular petroglyph features two anthropomorphic figures carrying matchlock rifles and curved swords. These rifle figures clearly mark a period from the Early 16th century AD up to the 19th century AD in view of the history of rifles in the Arabian Peninsula (See: Elgood, 1995, 85-90).

However, a number of iconographic occurrences from southeast Arabia and Syria highlight that curved blade weapons were part of weaponry design in Iron Age Western Asia. Two cylinder seals, which were found at the Iron Age contexts of Qidfa and Kalba-4, show anthropomorphic figures equipped with curved blade weapons (Potts, 2010, 34). Moreover, a curved sword can also be seen in the wall painting from the Til Barsip palace which is dated to a period between 735 BC and 710 BC. According to Julian Reade, the wall painting features the execution of two Arab male prisoners by an Assyrian solider holding a curved sword. He further notes that a curved sword is quite an unusual choice in the context of execution scenes in the Assyrian art, where typically mace is often illustrated as an execution weapon. Hypothetically, this quite exceptional depiction of a curved blade in the Til Barsip painting could be interpreted as a signifier of Arabian identity in Neo-Assyrian art (Reade, 1998, 224).

Figure 6: Agealah. Two figures carrying lock rifles and curved swords (Can Aksoy, 2014).

Table 1: Copper Alloy Curved Blades of Saudi Arabia								
Object	Site/Museum no	Trench/ Locus	Material/Object Status	Blade Length	Hilt Length	Mid-Blade Width	Weight	Possible Period
Curved tip of a dagger (?)	Al Hijr/NM: 1424	91/20	Cu alloy / fractional	5.6 cm	NIL	2 cm	14.5 g	?
Curved blade of a sword (?)	Tayma TA 7039	E26/NIL	Cu alloy / fractional	6.5 cm	NIL	3 cm	29.5 g	?
Curved Blade Weapon	Kharj/Not Specified	Tomb AD-1 05	Cu alloy / fractional	30 cm	10 cm	4 cm	Not specified	LBA
Curved Blade	Al-Hasa/ NM: NIL	NIL Donation	Cu alloy / fractional	31 cm	NIL	3.5 cm	215 g	?

Figure 7: Curved blades from Saudi Arabia.
A: Al Hijr, NM 1424. B: Al-Hasa. C-D: Tayma, TA 7039 (Can Aksoy, 2014).

It is hard to support this claim with material evidence. Whether the curved blades were part of Iron Age armament or not is an enigmatic question in the Arabian setting. Only a few shreds of evidence stand out and their contexts are arguable (Table 1). NM 1424 from Al Hijr and TA 7039 from Tayma could be interpreted as fragments of curved blades (Figure 7). Yet, it is not possible to date them since the exact contexts of both of these specimens are not known, according to the object tags and the inventory of the Saudi National Museum. Three copper alloy specimens which were found outside the northwest Arabia can be identified as curved blades. These examples were discovered in Kharj at Riyadh province and in Al-Hasa province. The former is recovered from Tomb AD-1 05 in the Bronze Age Necropolis, Ayn al-Dila 1. It is a hilted curved blade weapon whose tip is missing (Table 1). Its blade is reported to be rhomboid in section. It is important to note that a similar curved blade fragment was also found on the surface of Ayn al-Dila, K7 (Schiettecatte *et al.*, 2013, 59-79). The grip is flattened and its pommel slightly widens on both extremities. The excavators propose stylistic parallels between this blade weapon and the sickle sword of Middle Assyrian King Adad-Nirari I (1307-1275 BC), (See: Gernez, 2007, 130-131). I find it hard to draw this stylistic parallel since the blade forms of these two weapons are quite

different. The closest example that I can offer from my metallic weapons sample is the curved blade fragment from Al-Hasa province (Figure 7-B), (Table 1). Unfortunately, its context was not recorded since it was donated by an individual along with two other straight blades (Khalifa al-Khalifa, pers. comm., 10.02.2014).

6. SPEARS

The majority of spear images in northwest Arabian rock art are shown as a long single line associated with mostly mounted human figures. Few examples of rock art do display the form of a spearhead and at least four types of spearhead can be parsed out from these rock art scenes.

6.1. Lobate Spearheads

These spearheads consist of a blade with lobate sides and a sharp angular point. Their rock art representations bear some typological resemblances with the metallic spearheads that were recovered from the Iron Age contexts of Tayma and the Bronze Age contexts of various southeast Arabian sites (Potts, 1998, 183; Jasim, 2012, 230-265; Sebastiano Lora, pers. comm., 22.12.2014). This form widely depicted in both uninscribed and inscribed the rock art scenes (Figure 8). It is not possible to detect whether these are the depictions of lithic or metal spearheads, but what they do show us is their contexts of use, varying from confrontations on foot to mounted combats.

Figure 8: Representations of lobate-sided spearheads A: Agealah B: Jubbah (Can Aksoy, 2014).

6.2. Triangular Spearheads

These spearheads are comprised of a triangular blade and a sharp-cut neck between the socket (or tang) and the blade (Figure 9). They were usually shown while being used on horseback in rock art scenes.

Figure 9: Jabal Aeran. Representations of triangular spearhead (Can Aksoy, 2014).

6.3. Barbed Spearheads

Barbed spearheads feature a triangular blade with barbed ends. The rock art images of these spearheads are often linked with Arabic rock inscriptions (Figure 10). The barbed design speaks for the hypothesis that these spearheads were particularly designed for conducting effective thrusting attacks that would not allow the target to remove the projectile from his or her body easily (Holmes, 2006, 31-79).

Figure 10: Thautla. Barbed spearhead (Can Aksoy, 2014).

6.4. Disc Shaft Spearheads

Disc shaft spearheads are composed of a lobate-sided blade and two discs on the shaft. These spearheads were usually depicted in mounted combat and hunting scenes accompanying Arabic inscriptions. Olsen and Bryant claim that the discs of these spearheads are a feature characteristic of the Bir Hima rock art site in southwest Saudi Arabia[2] (Olsen and Bryant, 2013, 159). However, the images of horsemen wielding these spears are also abundant in the rock art sites of northwest Arabia: Jabal Aeran, Jubbah, Thautla, Daksh and Agealah (Figure 11).

Figure 11: Disc Shaft Speaheads A: Daksh. B: Agealah (Can Aksoy,2014).

[2] The majority of the names of rock art sites in Saudi Arabia are inconstant and polyonomous. In the case of Bir Hima, some researchers working in southwest Arabia associate this site with Jabal al-Kawkab or Jabal al-Qara (Charly Poliakoff, pers. comm., 22.05.2017)

7. BODY ARMOURS

There is sparse evidence for the use of body armour equipment in northwest Arabian pictographic and archaeological records. I did not detect a clear depiction of any kind of body armour in Thamudic and Dadanitic conflict scenes in my rock art corpus, nor in the publications. The exceptions are the Wadi Asafir chariot rider wearing a conical helmet in figure 4-A and figures wearing a tunic-like cloth, or possibly body armour (Figure 12-A, B). These tunic-like features bear close resemblance to some anthropomorphic figures that I recorded in the rock art sites of Jebel Akhdar in Oman. The depiction of body armour seems to occur in more recent examples of rock art, especially in Bir Hima in southwest Arabia where human and horse armours were seemingly depicted (Olsen and Bryant, 2013, 147-148). Hitherto, I recorded only a single possible find which could be part of metal body armour: a 3.40 x 1.50 cm and 8.4 g copper alloy plate from Al Khuraybah / Dedan. The plate features two holes which were possibly created for either stitching the plate to some kind of soft support material or lacing it with other plates (Figure 12-C). Since no other plates seem to have been found alongside this plate in Dedan, I cannot pursue this interpretation much further. The irregular rectangular shape of the plate shows a resemblance to the two armour scales from Asyut in Egypt. These Egyptian specimens are dated to the 11th Dynasty (Petrie Museum, 2015, UC38049A).

8. SHIELDS

Rock art and Neo-Assyrian reliefs afford significant pictorial material regarding shield forms. At least two broad typological groups can be proposed within the framework of rock art: (1) round shields, and (2) rectangular shields. Before we start to evaluate these typological groups it is important to underline that no particular period can be attributed to these rock art images with certainty. Consequently, the following analysis relies on very broad time frames built on comparative analyses of rock art images with the Neo-Assyrian reliefs and ethnographic data from the region.

8.1. Round Shields

The round shield is the most widely depicted shield type in northwest Arabian rock art. Since there is not a known archaeological find from the region, it is not possible to detect their materials and any variation in their sizes (Figures 10, 14, 16). At this stage, only ethnographic evidence stands out as a reference point on these issues. The 18th and the 19th century Arabian round shields show similarities with the Thamudic and Hismaic rock art representa-

tions of round shields in terms of form. This resemblance, and the absence of these shields in the archaeological context, brings forth the hypothesis that these shields may have been made of a perishable material like hardened leather (Hess, 1938, 103-106; Elgood, 1994, 100-120; Madhloom, 1970, 14).

Figure 12: Possible body armour depictions and gear from northwest Arabia. A: Naejmaat, a Lihyanite era figure wearing tunic-like clothing or possibly body armour. B: Wadi Ram. A Thamudic-E(?) spearman figure wearing tunic-like clothing or possibly body armour. C: Al Khuraybah/Dedan. Copper alloy plate stored in the National Museum of Saudi Arabia (Can Aksoy, 2015).

The petroglyphs in both north Arabia and southeast Arabia suggest that these shields might have been designed particularly for swordsmen and spearmen. Their deployment alongside long swords and spears in these pictorial narratives mirrors a conventional military dilemma: mobility versus protection. The small form of these shields offers little protection, while the long swords require space and stamina (Molloy, 2011, 69; Peatfield, 1999, 69; Molloy, 2007, 129-130; Potts, 1998, 199). Therefore, these images illustrate a choice: prioritising mobility over protection. To this end, northwest Arabian scenes of conflict distinguish themselves from the scenes of conflict in the Neo-Assyrian palatial art. In the case of Neo-Assyrian art, the echoes of mobility versus the protection dilemma can be heard through the depictions of a large variety of shield forms in various combat settings: archery, siege, combat on foot and mounted warfare (Aksoy, 2011, 44-47; Madhloom, 1970, 54-59; Yadin, 1963, 294-297).

8.2. Rectangular Shields

I encountered only one depiction of a rectangular shield, on a petroglyph in Hafrat Berd (Figure 13-A). In contrast, rectangular shields are a more common feature of the rock art of Jebel Akhdar in Oman. Back to the example of Hafrat Berd, the association of a shield bearer with a chariot unit on this rock art panel raises questions about foreign influence (See: Macdonald, 2012, 379). The Neo-Assyrian and Egyptian pictographic examples suggest that these rectangular shields were employed in both the Neo-Assyrian and Egyptian armies throughout the Bronze Age and the Iron Age (See: Yadin, 1963, 385).

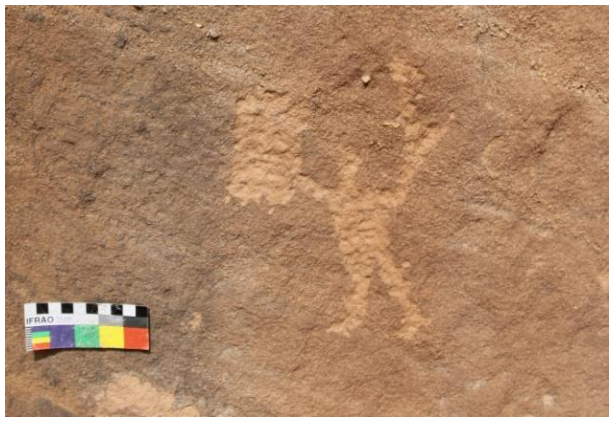


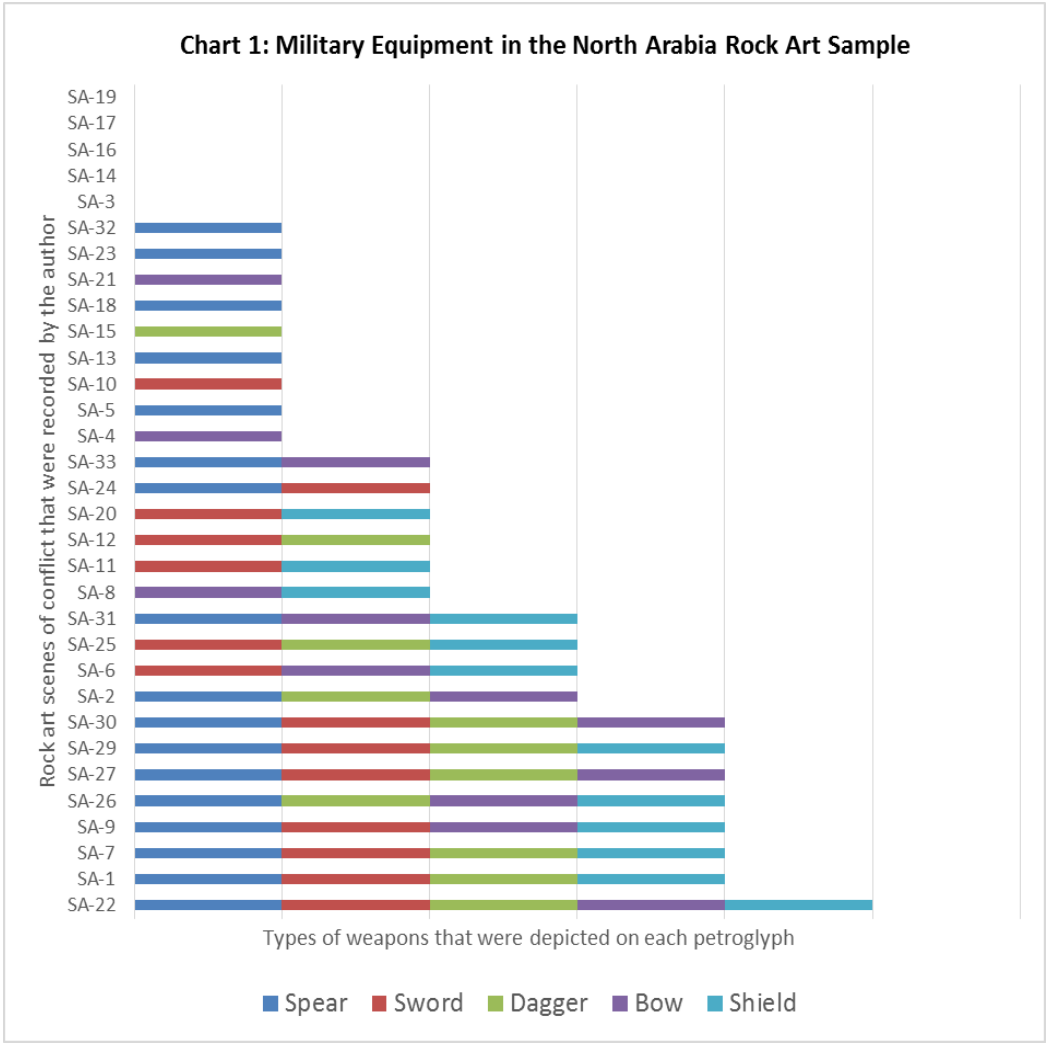
Figure 13: Hafrat Berd. Rectangular shield (Can Aksoy, 2014).

9. FINAL REMARKS

No detailed typologies can be produced from the rock art representations of weapons; instead, I could propose only a few typological parallels in respect of the material evidence and imagery from the Arabian Peninsula and Mesopotamia. These comparisons generated specific discussions about the design of the lunate pommel-handled daggers and the possible role of curved blade weapons in Pre-Islamic warfare in this paper. If we look at the rock art imagery of weaponry in northwest Arabia from a broader perspective, its value for the exploration of warfare in Pre-Islamic Arabia becomes more evident. Weaponry representations ranging from spearheads bows, daggers, spearheads of the Pre-Islamic period

to the 15th–18th century matchlock rifles can be observed in northwest Arabian rock art (Figure 6). In view of these images, it is safe to propose that the rock art representations of weaponry bear witness to the age-long changes that occurred in weaponry technology. Above all, rock art representations of weapons have a significant value in proposing theories about their use. The abovementioned features of weapon representations allow us to evaluate their technical capabilities to a certain degree in the light of experimental and experiential studies on weapons. Yet the settings in which the military equipment is shown in rock art are equally crucial to explore perceptions about their use. Twenty-seven examples of complex conflict scenes in my northwest Arabia rock art sample show warrior figures equipped with numerous and various types of weaponry (Chart 1). For instance, SA-7 (Jebel Bajda) in Chart 1 displays 30 pieces of military equipment on 20 human figures: nine spears on nine mounted warriors, nine swords and nine round shields carried by nine foot soldiers, two bows and one possible dagger figure on two archers (Figure 14).

Figure 14: Jebel Bajda, a Hismaic conflict scene. Confrontations between swordsmen (red), horsemen versus swordsmen duels (green), a chain of attack between a swordsman and an archer (yellow), and a hunting scene (purple) (Can Aksoy, 2014).



If we look closer at the large battle scenes of rock art in southwest Arabia, the picture gets more complex. Emmanuel Anati counted 53 weapons on 23 anthropomorphic figures on a petroglyph at Jabal al Qara; only two of them are not associated with weapons, three have one weapon each, and eight of them are armed with two weapons; six have three weapons and four of them carry four different kinds of weapons (Anati, 1968-b, 65-70). By comparison, the rock art conflict scenes in northwest Arabia are apparently less complex and show a maximum of three combinations of military equipment in the context of combat on foot: (1) bow and dagger, (2) spear and round shield, (3) sword and round shield.

Bow and Dagger: this combination is often associated with archer figures aiming their bows and carrying a dagger on their waists (Figure 15-B). Given the relative weakness of archers in close-range combat against swordsmen or spearmen this weaponry arrangement seems to serve a precautionary purpose: daggers offer secondary protection to the archer in case he is faced with an attack at close-range (Figure 15-A).

Figure 15: Bow and dagger combinations in rock art. A: Jubbah, SA 31. An archer figure waging a close-range combat. B: Wadi Ram, SA-26. An archer figure carrying both dagger and bow (Can Aksoy, 2014).

Spear and Round Shield: this is not a common combination in the rock art of northwest Arabia. The three examples in my rock art corpus differ greatly in terms of style and setting. The figure from Wadi Ram is not just carrying a spear and a round shield but a dagger as well (Figure 12-B). The combination of these three types of weapon reflects their expected capability of coping with both the punctuality of the spear combat and hand-to-hand dagger combat. Figure 10 from Thautla shows a confrontation with a swordsman. This particular conflict scene raises theories behind the choice of this combination in light of various experimental studies: the small round design of the shield enables the spearman to be more rapid and execute thrusting attacks from several directions (See: Clements, 2002; Myers, 2013).

Sword and Round Shield: this is a simultaneous defensive and offensive weapon combination. If one views these images through the lenses of sword and buckler experiments and martial arts, the small round shield stands out as an ideal defence weapon for mobile groups. Its small size and round design makes it convenient to be carried on the waist (Figure 12-B). The design of the shield gives versatility to the swordsman to attack around it in several directions. On the downside, these shields offer little protection against long range combat weapons and heavier weapons like axes (Clements, 2002; Clements, 2007).

What do these weapon combinations and the aforementioned weapon representations signify in the wider world of conflict in Arabia and beyond? I suggest that these combinations mirror versatile combat skills that might have existed or been expected among Pre-Islamic warriors. These rock art images offer an utterly different rhetoric of war than those we see in elaborate images of war that were commissioned by the Bronze Age and Iron Age polities of Western Asia: there is no sign of large single task forces equipped with one or two weapons and engaging in battle in an organised manner. The image reflected on these petroglyphs is rather of melee warfare waged by a small number of combatants who are apparently not following a formation. To this end, it is vital to highlight that we cannot define the factual or unrealistic aspects of these conflict scenes precisely, since there are not sufficient weapon finds from the region, nor an apparent medium, for detecting a deliberate falsehood in pictorial evidence. Unrealized thoughts of the past can be just as enlightening as realized actions and technologies in the study of ancient warfare and I believe the role of northwest Arabian rock art in the study of weaponry should be determined in line with this statement. It is hoped that this paper will add new interpretative dynamics to the present debates surrounding weapon representations by introducing the available material evidence in the National Museum of Saudi

Arabia and reflecting the potential role of rock art for evaluating individuals' perceptions about violence and warfare. A wide-ranging research focussing on weapon findings from northwest Arabian settlements and the records of the Saudi comprehensive survey will surely enable us to this discuss the weapons and their representations more confidently in future. Even if such an investigation proves the constructs discussed here to be incorrect, this article will have reached its objective.

ACKNOWLEDGEMENTS

I would first like to thank Dr Sherine Menshawy, Dr. Katham al-Ghanim and Prof. Hussein Maraqten for inviting me to present this paper at the Rock Art in Pre-Islamic Arabia conference. I would also like to thank Charly Poliakoff, Prof. David Wengrow and Dr. Sherine Menshawy for reading drafts of this paper and their constructive feedback. Many thanks to Dr. Jamal Ömer, Dr. Arnulf Hausleiter, Prof. Robert Carter, Prof. Thilo Rehren, and Samovar Sami for their support to my field investigations, and the anonymous referees for constructive critical comments.

REFERENCES

Aksoy Ö.C. (2017) Framing the Primordial: Heritage Management in Saudi Arabia, in Rico T. (Ed.) , *The Making of Islamic Heritage: Muslim Pasts and Heritage Presents,* Singapore: Palgrave Macmillan pp 67-89

Aksoy Ö.C. (2011) *An Analysis of the perceptions about the Arabs in the Neo-Assyrian ruling class.* Unpublished MA essay, University College London.

Anati E. (1968-a) *Rock Art in Central Arabia, Vol. 1. The'Oval-Headed' People of Arabia.* Louvain: Bibliotheque du Museon

Anati E. (1968-b) *Rock Art in Central Arabia, Vol. 2/2. The 'Realistic-Dynamic' Style of Rock Art in the Jebel Qara*. Louvain: Bibliotheque du Museon

Al-Ghabban A. (2012) Kingdom of Saudi Arabia and It's Heritage in Al-Ghabban A. I. ,Salvini B.A., Demange F., Juvin C. and Cotty M.(Eds.),*Roads of Arabia: Archaeology and History of Kingdom of Saudi Arabia,* Paris, Musée du Louvre pp 35-39.

Al-Hajiri M. (2012) Syrio-Levantine Bronze Weapons from Tayma, In Franke U. and Gierlichs J. (Eds.) *Roads of Arabia: The Archaeological Treasures of Saudi Arabia.* Berlin, Wasmuth, pp 112.

Al-Rawaibah A. (2013) Archaeological Site Management in the Kingdom of Saudi Arabia: Protection or Isolation, in Exell K. and Rico T.(eds.) *Cultural Heritage in the Arabian Peninsula: Debates, Discourses and Practices,* Surrey, Ashgate, pp 143-156.

Al-Said S. F. (2012) Dedan (Al-Ula), In Ghabban A. I., Salvini B.A., Demange F., Juvin C. and Cotty M. (Eds.) *Roads of Arabia: Archaeology and History of Kingdom of Saudi Arabia.* Paris: Musée du Louvre, pp. 263-269.

Bahn P.G. (2010) *Prehistoric Rock Art: Polemics and Progress*, Cambridge: Cambridge University Press.

Baron A. (2010) *Late Assyrian Arms and Armour: Art versus Artefact.* Unpublished Ph.D. thesis, University of Toronto.

Bednarik R.G. and Khan M. (2005) Scientific Studies of Saudi Arabian Rock Art, Rock *Art Research,* Vol. 22, pp. 49-81

Burton R.F. (1884) *The Book of Sword.* London, Chatto and Windus

Clements J. (2002) *The Sword and Buckler Tradition*. retrieved on 20.10.2013 from World Wide Web: http://www.thearma.org/essays/SwordandBuckler.htm.

Clements, J. (2007) The myth of thrusting versus cutting swords in Molloy B. (ed.) *In The Cutting Edge: Studies in Ancient and Medieval Combat.* Stroud: Tempus, pp. 168–176.

Collins P., Baylis L. and Marshall S. (2008) *Assyrian Palace Sculptures.* Austin: University of Texas Press (BM Copyright).

Collon, D. (1983) Hunting and shooting. *Anatolian Studies,* Vol.33, pp. 51–56.

Department of Antiquities and Museums (1975) *An Introduction to: Saudi Arabian Antiquities,* Riyadh, Ministry of Education.

DeJesus, P.S., al-Suqiran S., Rihani B., Kesnawi A., Toplyn M. and Incagnoli J. (1982) 2A- Preliminary Report of the Ancient Mining Survey 1981 (1401). *Atlal*, Vol.6, pp. 63-79.

Dubovský P. (2006) *Hezekiah and the Assyrian spies: reconstruction of the neo-Assyrian intelligence services and its significance for 2 Kings 18-19.* Rome: Pontificio Istituto Biblico.

Eichmann R., Schaudig H. and Hausleiter A. (2006) Archaeology and Epigraphy at Tayma (Saudi Arabia), *Arab. arch. epig.* Vol. 17:, pp 63–176.

Elgood R. (1994) *Arms and Armour of Arabia in the 18th-19th and 20th Centuries,* London: Ashgate Publishing.

Elgood R. (1995) *Firearms of the Islamic World: In the Tared Rajab Museum Kuwait.* London: Tauris.

Fales F.M. (2002) Central Syria in the Letters to Sargon II in Weippert M., Hübner U. and Knauf E.A.(Eds.) *Kein Land für sich allein: Studien zum Kulturkontakt in Kanaan, Israel/Palästina und Ebirnari für Manfred Weippert zum 65. Geburtstag*. Göttingen: Vandenhoeck & Ruprecht, pp 134-152.

Gabriel R.A. (2007) *The Ancient World: Soliders' Lives Through History.* Westport: Greenwood Publishing Group.

Genchi F., Giardino C. and Castelluccia M. (2013) *Explorations at As-Safah: An Early Iron Age Metal Workshop at the Edge of the Rub Al-Khali,* Unpublished Excavation Report, Ministry of Heritage and Culture of the Sultanate of Oman, Italian Archaeological Mission.

Gernez G. (2007) Des armes et des hommes. La question des modèles de diffusion des armes au Proche-Orient à l'âge du Bronze in Rouillard P. (Ed.) *Mobilités, immobilismes. L'emprunt et son refus.* Paris: De Boccard / Maison René-Ginouvès, pp. 119-134.

Hess J.J. (1938) *Von den Beduinen des Innern Arabiens. Erzählungen I Lieder I Sitten und Gebrauche.* Leipzig: Niehans Verlag.

Holmes R. (2006) *Weapon: A Visual History of Arms and Armour.* London: DK.

Horoz K. (2007) *Namlu Dinamiği Üzerine.* Retrieved on 09.03.2013 from World Wide Web: http://www.cebehane.com/a_nmldnm.html.

Ingraham M.L., Johnson T.D., Rihani B. and Shatla (1981), Saudi Arabian Comprehensive Survey Program: C. Preliminary Report on a Reconnaissance Survey of the Northwestern Province, *ATLAL,* vol.5, pp. 59-plate-97

Jasim S.A. (2012) *The Necropolis of Jebel al-Buhais: Prehistoric Discoveries in the Emirate of Sharjah, United Arab Emirates,* Sharjah: Department of culture and Information.

Jennings R.P., Shipton C., Al-Omari A., Alsharekh A.M., Crassard R., Groucutti H. and Petraglia M.D. (2013) Rock Art Landscapes Beside the Jubbah palaeolake, Saudi Arabia, *Antiquity,* Vol. 87, pp. 666–683

Khan M. (1998) A Critical Review of Rock Art Studies in Saudi Arabia, *East and West,* Vol. 48, No: 3/4: pp. 427-437

Khan M. (2007) *Rock Art of Saudi Arabia Across Twelve Thousand Years*, Riyadh: Deputy Ministry of Antiquities and Museums

Kisnawi, A., de Jesus P. and Rihani B. (1983) Preliminary Report on the Mining Survey, Northwest Hijaz 1982. *Atlal*, Vol.7, pp. 76-83.

Kooi B.W. and Sparenberg J.A. (1980) On the static deformation of a bow. *Journal of Engineering Mathematics*, 14 pp. 27–45

Kooi B.W. and Bergmann C.A. (1997) An Approach to the Study of Ancient Archery using Mathematical Modelling, *Antiquity* Vol. 71, pp. 124–134

Lancaster W. and Lancaster F. (2011) A discussion of rock carvings in Ra's al Khaimah Emirate, UAE, and Musandam province, Sultanate of Oman, using local considerations, *Arab. arch. epig.* Vol. 22 pp. 166–195

Liu S., Rehren Th., Pernicka E. & Hausleiter A. (2015) Copper processing in the oases of northwest Arabia: technology, alloys and provenance. *Journal of Archaeological Science* Vol.53, pp. 492–503.

Lombard P. (2000) Early Dilmun Burial Offerings, in Crawford H.and Rice M. (eds.) *Traces of Paradise: The Archaeology of Bahrain 2500 BC-300 AD*. London: The Dilmun Committee, pp. 40-60.

Macdonald M.C.A. (2000-a) Reflections on the Linguistic Map of Pre-Islamic Arabia. *Arab. arch. epig*. Vol.11, pp. 28-79.

Macdonald M.C.A. (2000-b) Thamudic, in Bearman P.J., Bianquis Th, Bosworth C.E., van Donzel E. and Heinrichs W.P. (Eds.) *the Encyclopaedia of Islam Vol.10.* Leiden: Brill, pp. 436-438.

Macdonald M.C.A. (2009) Wheels in a Land of Camels: another look at the chariot in Arabia, *Arab. arch. epig.* Vol.20, pp. 156-181.

Macdonald M.C.A. (2012) Wheeled Vehicles in the Rock Art of Arabia, In Khan M., Bednarik R. and Macdonald M.(Eds.), *The Arabian Horse Origin, Development and History,* Riyadh: Layan Cultural Foundation pp. 357-390

Madhloom T.A. (1970) *the Chronology of Neo-Assyrian Art.* London: Athlone Press.

Magee P. (2014) *The Archaeology of Prehistoric Arabia: Adaptation and Social Formation from the Neolithic to the Iron Age*. Cambridge: Cambridge University Press.

Metz S. and Johnson D.V. (2001) *Asymmetry and U.S. Military Strategy: Definition, Background, and Strategic Concepts*. Pennsylvania: U.S. Army War College, pp. 1-30.

Molloy B. and Grossman D. (2007) Why can't Johnny kill?: the psychology and physiology of interpersonal combat, in Molloy B.(ed.) *The Cutting Edge: Archaeological Studies in Combat and Weaponry.* Stroud: Tempus, pp.188-202.

Molloy B. (2011) Use Wear Analysis and Use Patterns of Bronze Age Swords, in Uckelmann M. And Mödlinger M. (Eds.) *Bronze Age Warfare: Manufacture and Use of Weaponry.* Oxford: Archaeopress, pp. 67-84.

Nashef K. (2010) Saruq Al-Hadid, An Industrial Complex of The Iron Age II Period, in Avanzini A.(Ed.), *Eastern Arabia in the First Millennium BC* ,Rome, L'Erma di Bretschneider pp. 213-224.

Morr Z.E., Pernot M. (2011) Middle Bronze Age metallurgy in the Levant: evidence from the weapons of Byblos, *Journal of Archaeological Science* Vol.38, pp 2613-2624.

Myers K.P. (2013) *Lignitzer's Sword & Buckler Teachings.* Retrieved on 21.10.2013 from World Wide Web: http://www.thearma.org/essays/LeignitzerSandB.htm.

Nayeem M.A. (2000) *The Rock Art of Arabia: Saudi Arabia, Oman, Qatar, the Emirates & Yemen,* Hyderabad: Hyderabad Publishers.

Newton L.S. and Zarins J. (2000) Aspects of Bronze Age art of southern Arabia: The pictorial landscape and its relation to economic and socio-political status, *Arab. arch. epig.* Vol.11, pp. 154–179.

OCIANA (2015) Online Corpus of the Inscriptions of Ancient North Arabia. Retrieved from World Wide Web on 09.02.2016:http://krcfm.orient.ox.ac.uk/fmi/webd#ociana.

Olsen S.L., Khan M., Byrant T.L. and Beard C. (2012) *Layan Cultural Foundation Project: Arabian Rock Art Heritage*, retrieved on 18 November, 2012, from World Wide Web http://saudi-archaeology.com/.

Olsen S.L. and Byrant T.L. (2013) *Stories in the Rocks: Exploring Saudi Arabian Rock Art.* Pittsburgh: Carnegie Museum of Natural History.

Parr P. J., Harding G.L. and Dayton J.E. (1970) Preliminary Survey in N.W. Arabia, 1968, *Bulletin of the Institute of Archaeology*, Vol.8-9, pp. 193-242.

Parr P.J. (1996) Further Reflections on Late Second Millennium Settlement in North West Arabia, in J. D. Seger (ed.), *Retrieving the Past: Essays on Archaeological Research and Methodology in Honor of Gus W. Van Beek*. Winona Lake, pp. 213–218.

Parpola S. (1987) *the Correspondence of Sargon II, Part I.* Helsinki: Helsinki University Press.

Peatfield A. D. (1999) The Paradox of Violence: Weaponry and Martial art in Minoan Crete, in Laffineur R. (Ed.) *Polemos*: *Le contexte guerrier en Egée à l'âge du Bronze. Actes de la 7e Rencontre égéenne international*. Liege: Aegeum, pp. 67–74.

Petrie Museum (2015) *UC38049A.* Retrieved from World Wide Web on 09.10.2015: http://petriecat.museums.ucl.ac.uk/photo.aspx?maxphotos=1

Poliakoff Ch., in press (2017) L'évolution de l'armement par le prisme de l'art rupestre dans la région de Najrân (Arabie saoudite) : tentative de synchronisation de l'iconographie et du matériel archéologique, *Archéodoct* Vol. 10.

Potts D.T. (1998) Some Issues in the Study of the Pre-Islamic Weaponry of Southeast Arabia. *Arab. arch. epig.* Vol. 9 pp. 182-208.

Potts D.T. (2007) Meskalamdug's Dagger, in al-Zayla'i A.U.(ed.) *Studies on the History and Civilization of Arabia, Volume that is dedicated to Prof. Dr. Abul Rahman T. al-Ansary on the Occasion of his 70th birthday.* Riyadh: Ministry of Culture & Information, pp. 35-40.

Potts D.T. (2010) Cylinder Seals and Their use in the Arabian Peninsula. *Arab. arch. epig.* Vol. 21, pp. 20-40 .

Reade J.E. (1998) Assyrian Illustrations of Arabs. In Phillips C.S., Potts D.T. and Searight S.(eds.) *Arabia and its neighbours: essays on prehistorical and historical developments; presented in honour of Beatrice de Cardi.* Turnhout: Brepols pp. 221-232.

Renzi M., Intilia A., Hausleiter A., Rehren T. (2016) Early Iron Age metal circulation in the Arabian Peninsula: the oasis of Taymā as part of a dynamic network (poster). *Proceedings of the Seminar for Arabian Studies* Vol. 48:237-246

Retsö J. (2003) *The Arabs in antiquity: their history from the Assyrians to the Umayyads.* London: Routledge Curzon.

Safaitic Database Online (2012) *Inscriptions and Rock Drawings from the Basalt Desert Rescue,* retrieved on 19.02.2013 from World Wide Web: http://krcfm.orient.ox. ac.uk/fmi/iwp/cgi ?-db=AALC_BDRS&-loadframes.

Schiettecatte J., Crassard R., Cuny J., Hilbert Y., and Siméon P. (2013) *Preliminary Report. Third season of the Saudi French Mission in al-Kharj, Province of Riyadh. 24 October - 29 November 2013.* Unpublished Excavation Report.

SCTA (2009) *Unity within cultural diversity: second joint exhibition for the antiquities of the Gulf Countries Council*. Riyadh: SCTA.

The Desert Team (Farig Al Sahra) (2013) *The Reports Page*. Retrieved on 14.10.2013 from World Wide Web: http://alsahra.org/?page_id=290.

Yadin Y. (1963) *The Art of Warfare in Biblical Lands in the Light of Archaeological Discovery.* London: London Weidenfeld & Nicolson.

Ziolkowski M.C. (1998), A study of the petroglyphs from Wadi al-Hayl, Fujairah, United Arab Emirates (1), *Arab. arch. epig.* Vol. 9, pp. 13-89

Ziolkowski M.C. (2007), Rock on art: petroglyph sites in the United Arab Emirates, *Arab. arch. epig.* Vol. 18, pp. 208-238