
Dull-edged Weapons and Low-level Fighting in the Late Prehistoric Southern Levant

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While duels and other types of fighting with a relatively low level of lethal risk are well known from the ethnographic record, these have been less studied from an archaeological perspective. These fights are different from 'war' in the lack of killing intent and they are commonly referred to as 'ritual fighting', thus implying the social significance of the act and not just the outcome. Our study concentrates on the Late Pottery Neolithic and Chalcolithic periods of the southern Levant from which the physical evidence of violence is relatively scarce, although conflicts are assumed to have intensified due to the increase in long-term settlements and density of population. We will argue that the three types of weapons found during these periods — maceheads, slingstones and transverse arrowheads — are characterized by dull or blunt peripheries and were intentionally designed not to cause maximal injury or inflict lethal blows. These weapons are well represented only after the hunting of wild game dramatically declined and we suggest that they represent the conduct of low-level fighting, consequently indicating the presence of rules and social organization that are essential elements for the formation of early complex societies.

Aggression has been argued to characterize human behaviour from the dawn of prehistory, tracked down to our ancestral primates (e.g. Buss 1997; Kelly 2000; 2005; Wrangham & Peterson 1996). Its occurrence in prehistoric societies and current small-scale societies has been much debated, mostly in regard to the origin of war (e.g. Clare 2010; Ferguson & Whitehead 1992; Kelly 2000; Nielsen & Walker 2009; Thorpe 2003). While most of these studies addressed aggression among groups, violent conflicts within groups were also studied (e.g. Chick & Loy 2001; Kent 1990). However, the issue of duels and other types of fighting with a relatively low level of lethal risk (e.g. 'nothing fight': Rappaport 1967, 119–23; Vayda 1976, 15–22) has been relatively less studied from an archaeological perspective although they are familiar from numerous cultures around the world (e.g. Abbink 1999; Arkush & Stanish 2005; Llaurens *et al.* 2009; Stewart 1986; Van Vleet 2010; Wheeler 1910, 140–47).

While the difficulties entangled with the identification of duels and other forms of non-lethal fighting in the archaeological record are obvious, a recent example of harnessing their potential for understand-

ing the formation of complex societies can be found in the work of Roscoe (2009). In this article we will argue that promoting archaeological studies of low-level fighting that are defined and delineated by various sets of social rules, regulations and constraints, entails great potential for further developing our understanding of the formation of complex societies.

This type of low-level fighting is different from 'war' in that although it might be characterized by, or engaged with lethal weapons, these are not used with the specific and primary *intention* of killing (Kelly 2000, 6). Due to the general lack of killing intentions within these engagements, this activity is also commonly referred to as 'ritual' or 'ritualized fighting' (e.g. Roscoe 2009; Verano 2000) thus implying the social significance of the act and not just the outcome. Although most wars entail ritual elements (e.g. Inomata & Triadan 2009), this aspect usually constitutes a major part of duels and other low-level fights. Furthermore, while war is characterized by 'the use of organized force between two politically independent units' (Malinowski 1936, 444), duels usually occurred amongst people of the same broad social group (i.e.

clan or lineage). As such, it has the potential to reflect on the power relations within the agglutination of the new communities of the late prehistory.

Our study will concentrate on the late prehistoric southern Levant, focusing mainly on the Neolithic and Chalcolithic periods from which the physical evidence of violent conflicts is relatively scarce (Bar-Yosef 2010; Clare 2010). Osteological evidence from the southern Levant bearing indications for violent trauma is sparse and ranges from the later parts of the Epipalaeolithic period through the Chalcolithic period (Bocquentin & Bar-Yosef 2004; Dawson *et al.* 2003; Eshed *et al.* 2010; Ferembach 1959). Notable fortifications, which are argued to be another indication of war (Arkush & Stanish 2005) are also absent during this time span in the southern Levant and appear only during the Early Bronze Age and later periods (Herzog 1997). Although massive walls were found at several Neolithic sites, these usually do not enclose the settlements and thus received alternate explanations (e.g. Bar-Yosef 1986; 2010). However, warfare and increasing conflicts during earlier periods has been suggested to have taken place, particularly during the Chalcolithic period (e.g. Golden 2009; Goring-Morris *et al.* 2009, 217; Levy 1995; Rowan & Golden 2009). This conjecture stems from the assumption that conflicts among the Neolithic–Chalcolithic societies probably intensified due to the increase in long-term settlements, density of population and probable competition over resources (e.g. Clare 2010; Kent 1989; Rosenberg 2009; 2010). In such a social landscape, one may expect not only aggression between groups to arise but also intra-communal conflicts (e.g. Roscoe 2009).

In this article we will endeavour to approach the study of aggression by reviewing a specific pattern among the weapons of the Late Pottery Neolithic and Chalcolithic periods of the southern Levant, including maceheads, slingstones and transverse arrowheads. These weapons are characterized by non-pointed edges (transverse arrowheads) or dull, ‘blunt’ peripheries (maceheads and slingstones), which may have been used for both hunting and fighting, as perceived in the Near East iconography (Amiet 1961, pl. 38:591; Barnett 1983, pl. XIX:a; Black 1996, 29; Eichler 1983, 98; Hayes 1939; Wilkinson 1991, 94, pl. 12).

It is of significance that in the Wadi Rabah culture of the Late Pottery Neolithic, when these three weapons appear for the first time in the same cultural context, hunting dramatically declined and remained marginal also in later periods with most of the economy relying on domesticated flocks (e.g. Horwitz *et al.* 2002). The fact that these three weapons are well represented only after the hunting of wild game declined suggests that they played a different role.

We will argue that these weapons were intentionally designed not to cause maximal injury or inflict lethal blows but rather to be used in fighting entailing different social roles and consequences than war, of which lethal intentions were a major element (Kelly 2000, 6). We will further claim that they could represent the performance of duels, low-level fighting or other type of ‘ritual fighting’ among the late prehistoric populations of the southern Levant.

Although we argue that these weapons were not designed to kill, they can cause death or serious injury and facing that risk is in fact part of the social gain and acknowledged skills (e.g. Roscoe 2009). In order to promote this study we explore three independent fields of research:

1. *Neolithic and Chalcolithic weapons*. This begins with a general perspective on weapons in the Neolithic and Chalcolithic periods and gives detailed descriptions of the maceheads, slingstones and transverse arrowheads.
2. *The probability of organized conflicts within the Neolithic–Chalcolithic southern Levant*. This is based on the literature regarding warfare and aggression as well as its correlation to the specific cultural landscape of the south Levantine late prehistory.
3. *The character of low-level and ritual fighting among small-scale societies as reflected in the anthropological literature*.

The cultural background

The Pottery Neolithic and Chalcolithic periods of the southern Levant reflect the accumulation of social and economic processes that began with the initial steps of the so-called ‘Neolithic Revolution’. These processes are characterized by transformations in the organization of space, accompanied by the domestication of animals and plants and major changes in various realms of material culture. Disagreements still exist (e.g. Banning 2002; 2007; Garfinkel 1999; 2009; Gilead 2009; Gopher & Blockman 2004; Gopher & Gophna 1993; Khalaily 2009) regarding the cultural and temporal subdivision of the time span between the beginning of the Pottery Neolithic period (around 8500 cal. BP) and the onset of the Ghassulian culture of the Late Chalcolithic period (around 6500 cal. BP) of the southern Levant. However, when issues of terminological and chrono-cultural attribution are set aside, there is much consensus with regard to the terms of the social and economic characteristics of the cultural landscape during this time span (see discussion in Rosenberg 2011 and references therein).

The Pottery Neolithic period of the Mediterranean eco-zone of the southern Levant should mainly

be viewed in a socio-economic context of agricultural village communities practising mixed economies in which domesticated plants (such as cereals, pulses and flax) and livestock (sheep, goats, pigs and cattle) were already part of the cultural landscape. Other characteristics include the introduction of pottery to the southern Levant, the construction of large settlements that include streets, alleys and courtyard buildings, long-distance trade, as well as changes in ritual and mortuary practices and in various realms of material culture (e.g. Freikman & Garfinkel 2009; Garfinkel 1999; 2010; 2011; Gopher & Gophna 1993; Khalaily 2009; Noy-Israeli 1999; Rosenberg 2011).

The Ghassulian culture of the Late Chalcolithic period reflects a culmination of the social and economic processes that developed during the Pottery Neolithic period. Nevertheless, changes can be seen in settlement patterns, craft production, iconographic and symbolic expression as well as mortuary and ritual practices (Epstein 1998; Garfinkel 1999; 2009; Golden 2009; Levy 1995; Rowan & Golden 2009). While the level of complexity in social organization and regionalism during the Ghassulian is still being debated, in terms of subsistence economy, village communities during this time span were still practising mixed agriculture similar in many ways to the economy of the Wadi Rabah culture, including reliance on domesticated plants and animals and most likely in some areas pastoralism as well.

Weapons of the Pottery Neolithic and Chalcolithic periods

Distinguishing between designated weapons intended for human conflict and hunting gear is not always possible and some might be used for both such as the bow and arrow (e.g. Sponsel 1998, 107; Wilkinson 1991). Furthermore, a wide array of domestic tools may have been used as weapons at a time of need (e.g. Milner 1999, 110). The possibility of the existence of weapons made of wood in the south Levantine Neolithic–Chalcolithic such as clubs and spears cannot be confirmed or rejected and thus it is not treated here.

The dominant weapons of the Neolithic period were the bow and arrow, generally assumed to have been used for hunting, although it has been suggested they might also have been used for fighting (e.g. Clare 2010). During the Pre-Pottery Neolithic (PPN), a shift from small to large arrowheads was noticed whereby almost all were elongated and pointed (Gopher 1994, 226–43). Some exceptionally large points, possibly being spear or javelin points, were found as well (e.g. Dag 2008). Flint bifacial tools such as axes, adzes and chisels were common in the Neolithic (Barkai 2005)

and although it was suggested that in general these are a ‘tool-weapon’ (Clare 2010; Thorpe 2003, 150) the flint bifacials of the southern Levant are mainly reconstructed as wood-working tools according to use-wear analyses (Barkai & Yerkes 2005; Yerkes *et al.* 2003). Groundstone celts are rare, usually lacking use-wear and were probably used for non-utilitarian purposes (Barkai 2005; Rosenberg 2011, 309).

At the beginning of the Pottery Neolithic, arrowheads of various types were still prevalent. Arrowheads, however, declined in quantity during the Pottery Neolithic period and become rare in the Wadi Rabah culture (Gopher 1994, 226–43). This change in frequency goes hand in hand with the decline of hunted animals in the faunal assemblages in the Wadi Rabah culture (Gopher & Gophna 1993). In the following Ghassulian culture, arrowheads of all types are almost entirely absent (Rosen 1997, 43–4). It is of note that during the Late Pottery Neolithic period arrowheads appeared in higher quantities in the arid zone of the southern Levant than in the Mediterranean region (Rosen 2010). The relatively rare copper axes and adzes of the Chalcolithic period were interpreted as symbolic tools due to the character of the soft metal and the lack of attempt to harden it (Golden 2009; Tadmor *et al.* 1995).

In contrast to the decline and eventual disappearance of pointed arrowheads in the Wadi Rabah culture, three types of weapons — maceheads, slingstones and transverse arrowheads — characterized the assemblages of this culture. In fact, we do not find any other clearly identifiable weapons throughout the Late Pottery Neolithic and the Chalcolithic periods.

Maceheads

Stone maceheads of the southern Levant are perforated items usually made of small shaped cobbles, which were placed at the top of poles made of perishable materials, affixed to the handles with ropes, strings and/or adhesives. Their final shaping usually included smoothing or polishing of their outer surface (Rosenberg 2010; Sebbane 2009, 18). Maces were one of the most common weapons of the protohistoric periods in the Near East (Sebbane 2009). Scenes of men fighting with maces are portrayed on several items of Predynastic Egypt (Gilbert 2004). In addition to their ‘functional’ aspects, these weapons had a vast symbolic content signifying certain deities and the reign of a ruler (Levy 1995; Nigro 1998; Rowan & Golden 2009, 67, 71; Sebbane 2009, 207). The latter is especially prevalent in the Egyptian iconography, frequently in scenes portraying the ruler subduing the enemies with a mace as on the Narmer palette (Gilbert 2004).

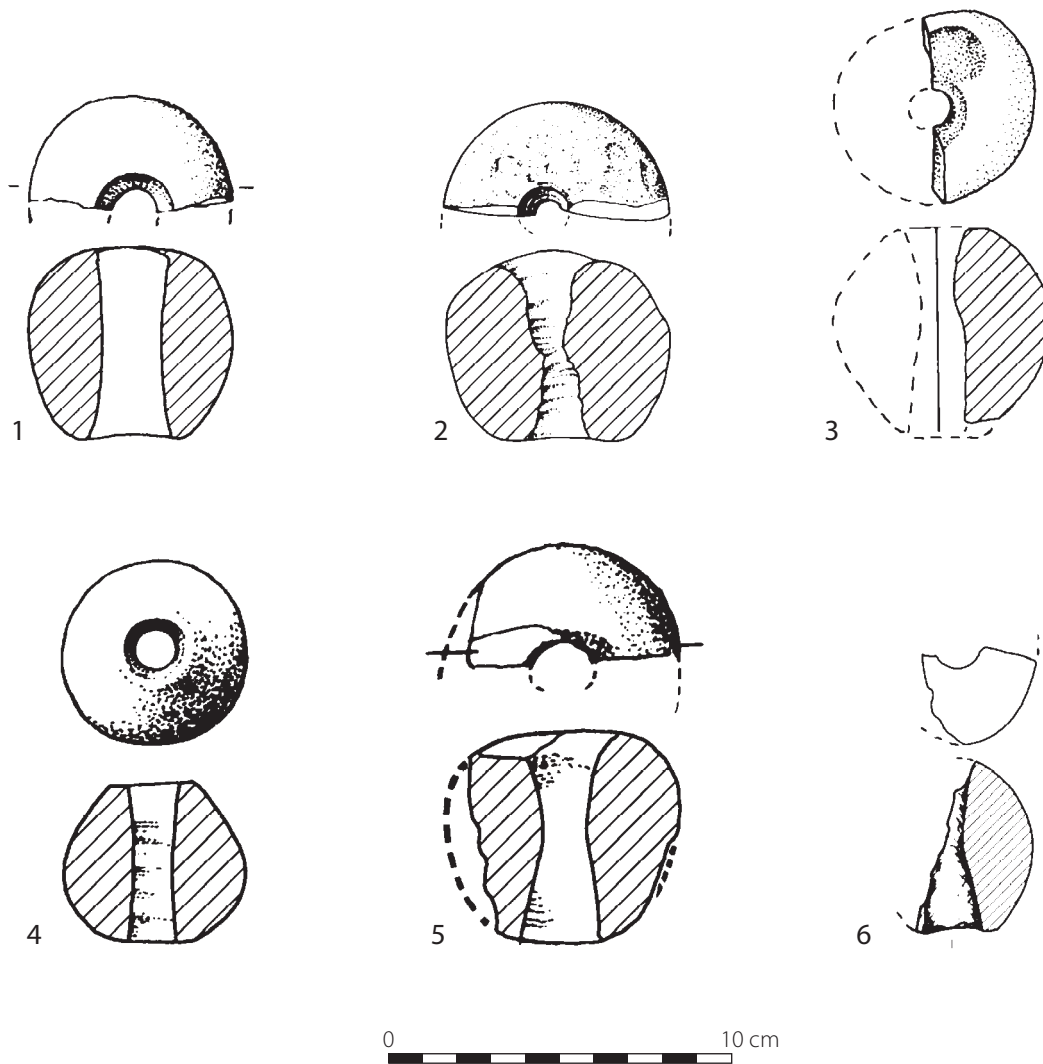


Figure 1. Neolithic maceheads: 1–2. *Sha'ar Hagolan* (Yarmukian, after Rosenberg & Garfinkel *in press*); 3. *Hagoshrim*, Level V (Lodian, after Rosenberg *in press*); 4–5. *Munhata* (after Gopher & Orrelle 1995, fig. 33); 6. *Hagoshrim*, Level IV (Wadi Rabah-related, after Rosenberg *in press*).

Stone maceheads appeared in the southern Levant already during the Late PPNB and PPNC, although only in isolated cases and are found more frequently, although still in small numbers, in Yarmukian, Jericho IX and Wadi Rabah sites (Rosenberg 2010 and references therein). Neolithic maceheads are typically small; usually less than 6 cm in height and their maximum diameters frequently range between 4 and 6 cm. Weights are difficult to accurately reconstruct since many are fragmented but it seems that most were within the 100–200 g range. They are commonly made of limestone but in more infrequent cases also of basalt and other raw materials. These maceheads usually have hemispheric or piriform shapes with a round or oval cross-section. The shaft was usually drilled

from both poles of the macehead and its minimum diameter is frequently small (*c.* 1 cm).

The onset of the Ghassulian Chalcolithic culture features a clear change in the maceheads of the southern Levant both in quantity and in the use of a wider array of raw materials, including metal (Sebbane 2009; Tadmor *et al.* 1995). Furthermore, the increase is visible not only in the general frequency of maceheads in the stone assemblages but also in the number of sites in which they were found (Sebbane 2009). Nevertheless, in most Chalcolithic sites they still usually appear in low frequencies with the exceptions of the Nahal Mishmar Cave, with its hoard featuring nearly 400 maceheads and maces mainly made of copper and less so of limestone and hematite (Bar-Adon 1980; Tadmor

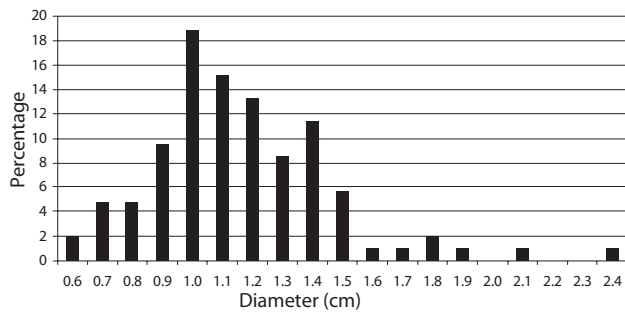


Figure 2. Shaft hole diameter of maceheads from the Ghassulian Chalcolithic ($n = 106$). The data for the graph is retrieved from the analysis of Sebbane (2009, 368–85).

et al. 1995). Other Ghassulian sites usually revealed less than 15 maceheads (Sebbane 2009, 198 and references therein). The number of macehead sub-types in the Chalcolithic increased, although some of the shapes known from earlier periods are still present (Rosenberg 2010). Most Chalcolithic maceheads were found in domestic contexts and rarely in burials (Sebbane 2009, 335). This is in contrast to the case of Predynastic Egypt where they are more common in graves (Petrie 1920; Sebbane 2009, 303).

Although maceheads can be lethal (Dawson *et al.* 2003), many of the maceheads found throughout the Pottery Neolithic and Chalcolithic periods testify otherwise (Rosenberg 2010). In many of them the shaft is small (Fig. 1), with an average of 1.17 cm (s.d. 0.30) for the Ghassulian Chalcolithic (Fig. 2; data from Sebbane 2009, 368–85). A wooden handle that would have fit into maceheads with such narrow shaft holes could not have withstood the shock of the blow, especially if it was supposed to absorb a series of hits as expected from combat weapons. Petrie (1920, 22) observed the same phenomenon and noted as follows: ‘Now the diameter of the hole in the head is often only a quarter of an inch ... it is absurd to suppose that a handle of ivory or horn cut so small would not be snapped if actually used’. He accordingly suggests that they are models of maceheads intended for burial.

Another issue of importance is that many of the maceheads are relatively small and their ability to cause damage is consequently rather small. In order to inflict intentional lethal impact one would have expected that many of them should be larger. It is also of note that maceheads are a dull-edged weapon that would not necessarily inflict damage to blood vessels that will consecutively cause bleeding. Furthermore, due to their round and uniform surface, during impact a relatively large part of the macehead’s surface comes in contact with the body tissue and is thus less effective.

The maceheads might have had potential for causing greater damage if they had adjunct sharp or protruding knobs. The possibility of shaping them differentially can be seen in several examples. In the ancient Near East, we find ‘disc maceheads’ that are characterized by a round sharp edge as well as maceheads with protruding knobs or with two sharp pointed edges (Sebbane 2009, 331–4). These examples, however, are extremely rare in comparison to predominant piriform maceheads. Maceheads of these types would clearly not only deliver a hard and accurate blow, but might tear tissue as well. Additional examples are of the clubs of the Maya and Aztecs which in some cases obsidian blades were inserted into them with the intent of causing greater damage (Taube 1991) or the case of the Carib of South America that placed sharp stones on their clubs (Whitehead 1990, 151).

The Narmer palette testifies as well that the role of the mace is to *subdue* the enemy, not to *kill* him. Further illustrating the fact that the impact of such tools is not necessarily lethal can be drawn from the fact that clubs are used by many law-enforcement forces around the world precisely because they cause more limited and controlled damage.

We suspect that the effort invested in the making of the rounded shape of the maceheads was not aimed at making it a more lethal weapon, but rather had different aim. Furthermore, in terms of their potential for causing damage during fighting, it might have been preferable to leave them in their natural state — rough and crude.

Slingstones

Slingstones are typically made of small pebbles shaped to an elongated, biconical or ovoid form (Fig. 3). These items are characterized by a narrow outline shaped like an olive pit, sometimes slightly flattened or oblate. In contrast with the northern Levant, where slingstones were also made of clay or stone coated with clay, in the southern Levant only a few slingstones made of clay were found (Kaplan 1969, 25; Rosenberg 2009). Evidence of these items being used as slingshots is found by fracture characteristics of impact damage (Reichel 2009, 81–2; Rosenberg 2009). The Sumerian literature indicates the use of slings in hunting and war, usually during siege (Black 1996, 28–9; Eichler 1983, 98). Slings were also used in numerous herding cultures to frighten predators away from the flocks and to control the movement of the herd through the landscape (e.g. Lustig-Arecco 1975, 32; Rosenberg 2009).

Biconical slingstones are considered as one of the *fossiles directeurs* of the material remains of the

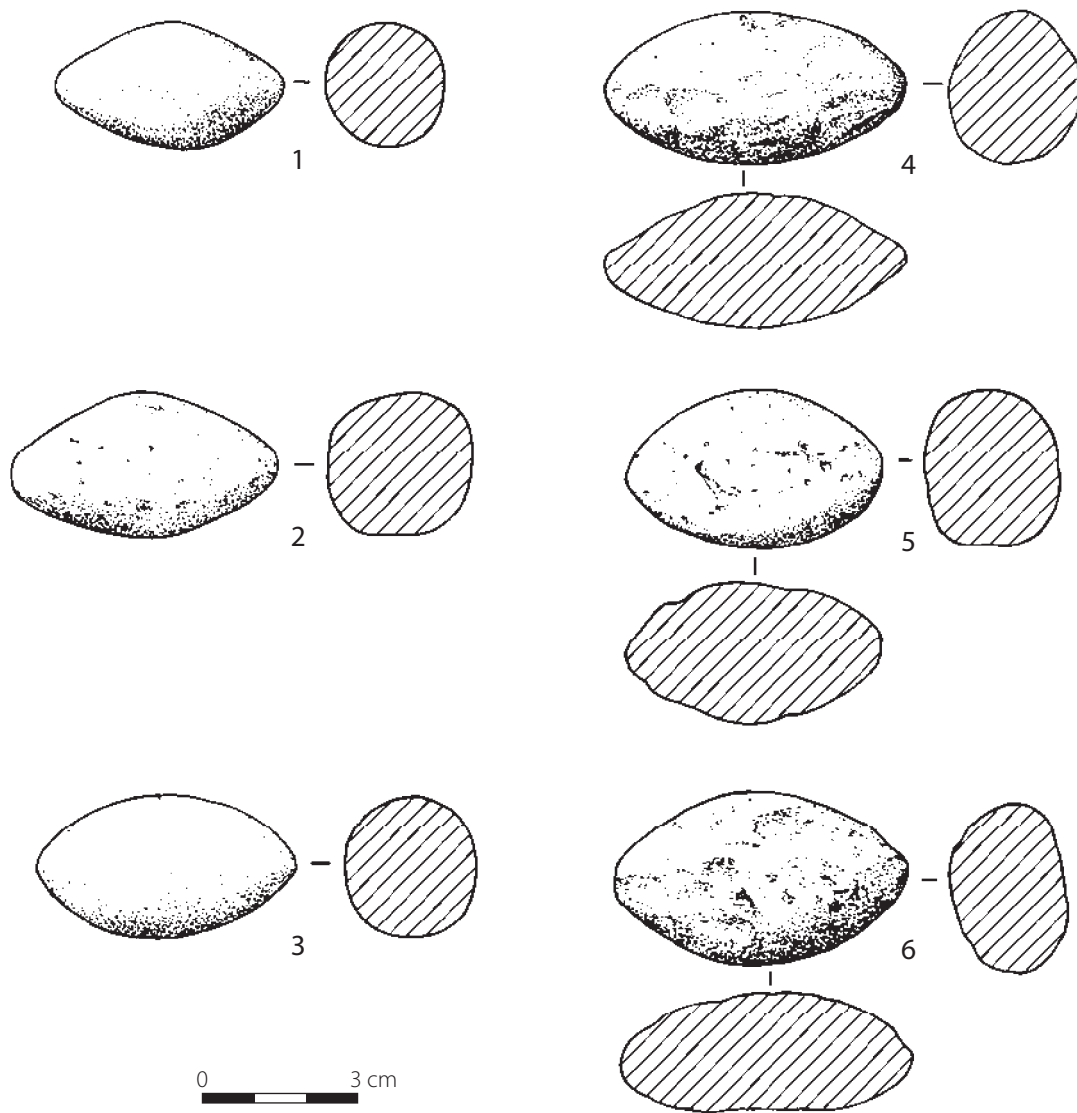


Figure 3. *Slingstones from Kabri.*

Wadi Rabah culture (Gopher & Gophna 1993; Kaplan 1972; Rosenberg 2009). Slingstones from different sites in Israel were recently studied and a few points regarding their provenance, chronology, technology and use were raised (Rosenberg 2009) and are summarized below.

To date, most of the slingstones of the southern Levant were found in northern Israel, mainly in two surface collections at sites of the Wadi Rabah culture (Kabri in the Galilee, where over 160 slingstones were found, and the area near Kibbutz Hazorea featuring several excavated sites and find spots, where nearly 130 slingstones were noted). Only a few other sites feature slingstones, usually containing a few items only. The slingstones of the southern Levant are

generally found whole. Most are made of limestone while other raw materials are rare. Slingstones were usually made by flaking and/or smoothing. Most have rounded blunt poles and only rare examples have truly pointed extremities. Most slingstones average 4–6 cm in length and weigh 69.4 g (s.d. 36.1) (Fig. 4).

The prehistoric biconical slingstones of the southern Levant represent a short-lived artefact type, probably in use for only a few centuries. Notably, items similar in form and size reappeared only in the classical periods (Korfmann 1973). Although slingstones can inflict substantial harm and fly relatively far, unless charged from a close range, they can usually cause only limited damage due to their small mass and dull poles; their possible lethal affect comes only by

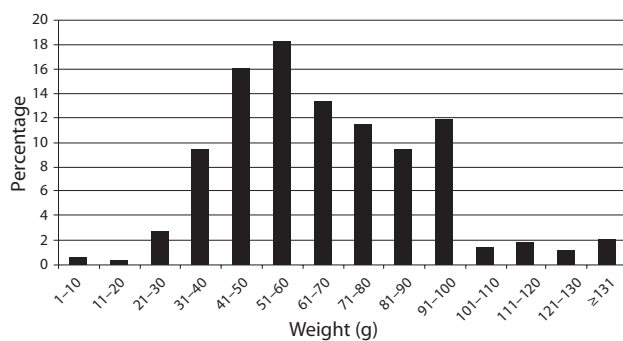


Figure 4. Weight of slingstones (n = 330).

hitting a crucial spot as was described in the biblical story of David and Goliath.

Mesopotamian literature mentions the use of slingstones in battle, usually in reference to siege (Eichler 1983) and combats fought by the rulers. In the latter case, Black (1996, 29) identified the unclear choice in their use for lethal combat and wrote: 'Whether these are methods which would usually be used in war, or whether they instead suggest the killing of the king's enemies as a form of sport, is unclear.' Another case demonstrating that their use was not engaged with the intent of causing lethal damage is from the site of Hamoukar, in northern Syria where 'hundreds of "squashed" sling bullets, which had been distorted upon impact ... hence must have been malleable when launched ...' were found (Reichel 2009, 81). In other words, these items were even used when not hard at all. Although the excavators suggested this is indicative of acting under pressure of a siege, we find such a scenario unlikely since we do not expect that people with a threat to their life waste energy on making and throwing wet clay that cause minor damage if at all.

Transverse arrowheads

Transverse arrowheads were made of flint in the southern Levant, while in the northern Levant they were commonly made of obsidian (e.g. Copeland 1996; Gopher 1994; Rosen 1984). They have a triangular or trapezoidal shape; some are squat and others are elongated. The narrow part was hafted into the shaft and the broad part served as the 'tip' (e.g. Clark *et al.* 1974) suggesting a 'blunt-tipped' arrowhead. The lateral edges were retouched and the broad tip was left unshaped and sharp (Fig. 5).

According to Egyptian and Mesopotamian iconography they were used for both fighting (Hayes 1939) and hunting, though in the latter case they represent, for the most part, ritual and mythical events rather than ordinary hunting (Amiet 1961, pl. 38:591;

Barnett 1983, pl. XIX:a; Wilkinson 1991, pl. 12). Bows from the discussed periods were simple while complex bows of a stronger velocity and accuracy appear only much later (Miller *et al.* 1986).

Transverse arrowheads are found during the Pottery Neolithic and Chalcolithic periods (with isolated cases in the Pre-Pottery Neolithic), however in most of the sites where they were found they appear only as single items (e.g. Barkai & Gopher 1999; Betts 1992; Bourke 2007; Dag & Garfinkel 2007; Prausnitz *et al.* 1970; Rosenberg & van den Brink 2005). The site of Kvish Harif where 37 of these arrowheads were found (Rosen 1984) is an exception. In contrast to the case of the early part of the Pottery Neolithic where transverse arrowheads constituted a minor fraction of the variety of arrowhead types, during the Wadi Rabah period and Chalcolithic they usually constitute the only arrowhead type (Gopher 1994; Rosen 1997). The major change in their frequency is during the Wadi Rabah culture when the number of pointed arrowheads dramatically declines and practically vanishes from the southern Levantine archaeological record. It is of note that in the arid zone transverse arrowheads are more frequent and are even argued to be one of the characteristics of the contemporary Timnian culture (Rosen 2010). Nevertheless, faunal assemblages are extremely rare in the arid region and therefore we cannot assess whether in this case the arrowheads played a role in hunting or fighting.

Numerous studies have examined the mechanics of projectiles and most of them have also emphasized the importance of the tip (e.g. Bergman & Newcomer 1983; Fischer *et al.* 1984; Nuzhnyĭ 1990; Yeroshevich *et al.* 2010). Friis Hansen's (1990) study placed due emphasis on the role of the projectile point in piercing the elastic skin and penetrating the tissue as deeply as possible while causing maximal bleeding. The maximal bleeding is enhanced by the cutting edges that characterized most projectiles.

The transverse arrowheads lack both of these features — they do not have a pointed tip or sharp cutting edges. Thus, their potential for deep penetration and massive cutting of blood vessels or other important body tissue is relatively minor. Broad-end arrowheads also increase the chance of hitting bones when shot and thus further reduce their penetration potential (Friis Hansen 1990). This can be illustrated by experimental study (Yeroshevich *et al.* 2010, 372) in which 22 per cent of the transversal microlithic arrowheads shot at an animal carcass bounced back and did not penetrate. A similar problem was observed in other cases of projectiles lacking a pointed end (e.g. Joel *et al.* 2003; Odell & Cowan 1986). Such low damage potential is by no means suitable for combat. Despite

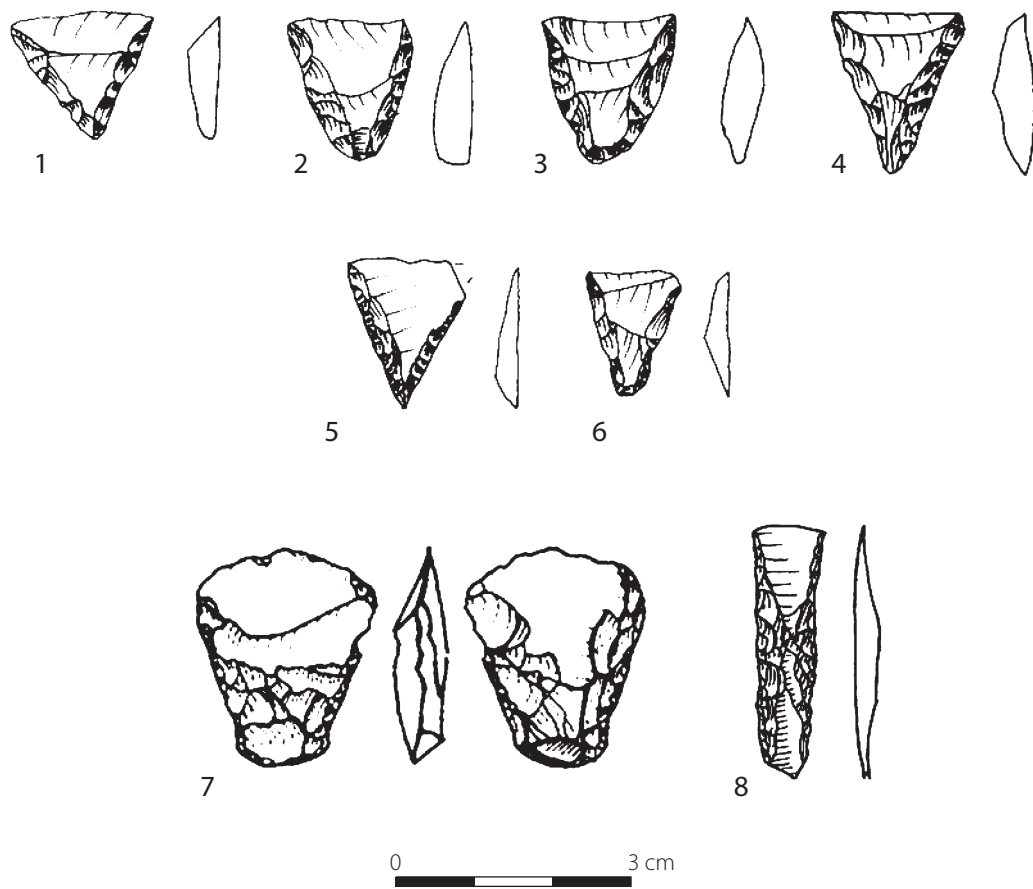


Figure 5. Transverse arrowheads: 1–6. Kvish Harif (after Rosen 1984, 114, fig. 6:1–6); 7. Qidron (Rosenberg & van den Brink 2005); 8. Nahal Zehora I (after Barkai & Gopher 1999, fig. 10.1).

this, transverse arrowheads were used by numerous cultures of the Old World. In the case of the southern Levant their late appearance is suggested to represent a changing focus on prey (such as birds) as traditional hunting of mammals declined (Goring-Morris 1993, 85). However, to date no faunal evidence supporting such a trend has been found.

With regard to hunting, it has also been suggested that the arrowheads were used by applying poison (Rosen 1997, 39) and that they were highly advantageous in tracking the game after it was shot since they caused greater external bleeding (Clark 1975, 146). Our central interest though regards their potential as weapons against humans, as depicted in Near East iconography (Hayes 1939). Their minimal ability for penetration and for causing much internal bleeding thus greatly diminished their capacity to cause lethal damage. In the case of poison, it is of note that the affect is usually not immediate (Whitehead 1990, 150) and therefore less effective in battle, although examples of its use against humans are found (Otterbein 1968,

206). In the latter case it has been argued that the main benefit of using poison is its psychological effect on the enemy (Miller *et al.* 1986, 190). It is also of note that while the use of poisoned arrowheads was identified in Predynastic Egypt, transverse arrowheads were found to lack poison (Clark 1975, 145–6).

The possibility of organized conflicts during the late prehistoric southern Levant

Aggression is embedded in humans as well as in our ancestral primates (Buss 1997; Kelly 2000), however, as noted by de Waal (1989), mechanisms for controlling it are also included. In fact, many scholars chose to emphasize the fluctuations between ‘war and peace’ (e.g. Kelly 2000; Lee 2007). Numerous expressions of human aggression exist, war being the most commonly discussed of these (e.g. Buss 1997; Ember & Ember 1992; Ferguson 1990; Kelly 2000). War has a variety of definitions, of these we opted for the definition offered by Kelly (2000, 3–4):

War entails armed conflict that is collectively carried out. It differs from other (often antecedent) forms of conflict such as disputes and altercations by the fact that the participants employ *deadly weapons with deadly force*. *One of the key features of war is that the deaths of other persons are envisioned in advance and this envisioning is encoded in the purposeful act of taking up lethal weapons*.

Another significant theme in the study of war is that it is conducted between (independent) political groups (e.g. Carneiro 1994; Malinowski 1936).

In the case of war amongst small-scale societies, raids are the most frequently discussed and they are found among many of the hunter-gatherer cultures documented ethnographically (e.g. Kelly 2000; Lambert 2002; Sponcel 1998 and references therein). While it was argued that war amongst modern hunter-gatherers was enhanced by the influence of European colonization (e.g. Albert 1990; Lee 2007), it is clear that in many places it appeared prior to this (e.g. Lambert 2002; Milner 1999; Thorpe 2003 and references therein). The graves from the Sudanese Late Epipaleolithic (Wendorf 1968) were interpreted as being an example of this (e.g. Kelly 2000, 148–51; Thorpe 2003). While some track the origin of war to the Upper Palaeolithic and possibly earlier (Gat 2006), Ferguson (2000) argues that only in the last 12,000 years or so do we have clear evidence of war.

Aggression is assumed to increase when the pressure on resources grows (e.g. Rosenberg 1998). Carneiro (1994, 12) argued that increase in aggression is expected to occur following the formation of agricultural life and specifically to the stage in which it crystallized into a settlement system. Generally speaking, it is agreed that during the Neolithic–Chalcolithic periods of the southern Levant, the population in the area, as well as the density of sites and their size, increased (Bar-Yosef 1995; Gopher 1995). This might have been cause for more frequent disputes between groups sharing the landscape. In this social atmosphere of tension between different social groups disputing over territory, agriculture or grazing lands, or simply the harsh environmental conditions and the shrinking of the overall resources, created a high probability for clashes and eruptions of violence (see Clare 2010).

Violence is also more likely to increase in relation to the size of the group (Kent 1990). While among hunter-gatherers individuals can choose to depart due to disputes among the members (Thomas 1994, 77), in the case of farming communities, moving from one group to another might be more difficult since the land is more densely occupied and there might not be available land. The conflicts may have been even more

acute between the farmers and herders of the Pottery Neolithic and the Chalcolithic periods in the southern Levant (Rosenberg 2009). It is of note, however, that archaeological evidence of violence from these periods of the southern Levant is rare (e.g. Dawson *et al.* 2003; Eshed *et al.* 2010; Röhrer-Ertl *et al.* 1988; Rollefson 2010; Rollefson & Kafafi 1996, 22).

Quantifying the correlation between the osteological evidence and the intensity of war is virtually impossible. While Ferguson (1997) argued that violence and war should leave recoverable traces, Kelly (2000, 158) argues that among small-scale societies the evidence might represent a minute fraction out of the entire population so that if the archaeological finds are scarce, the absence cannot serve as an indication. In this case, we must admit that the human remains of the Pottery Neolithic period are scarce (e.g. Eshed *et al.* 2010). In contrast, human remains from the Pre-Pottery Neolithic and the Chalcolithic periods are relatively common and the paucity of evidence of trauma resulting from violence within them is a clear fact (Eshed *et al.* 2010; Rowan & Golden 2009 and references therein).

Fortifications, which are argued to represent aggression among groups (Arkush & Stanish 2005), are also not clearly identified in the southern Levant. While some regard the Jericho walls, as well as other massive Neolithic walls as fortifications (Clare 2010; LeBlanc 2010), others offered alternate interpretations, not relating to war (Bar-Yosef 1986; 2010; Naveh 2003). LeBlanc (2010) raised the possibility that the clusters of buildings in some of the Neolithic sites might have served for defence purposes as well and are thus an indication of aggression. Similar arguments regarding the character of the houses in the Pottery Neolithic of Sha'ar Hagolan (Clare 2010) and the underground dwellings of the Ghassulian Chalcolithic were also raised (Levy 1995).

LeBlanc (2010) addressed the case of several burnt levels at some of the Neolithic sites and expressed his opinion that such extensive burning is not likely to occur unintentionally due to the local building practice of mud bricks. Rollefson (2010) pointed out the presence of several mass graves in the Pre-Pottery Neolithic such as in the case of Jericho (Kenyon 1981, 33, 78) which may be an indication of war (although no violence-related trauma is mentioned). In all, we found little clear evidence of aggression in the discussed periods within the southern Levant, denoting its presence but leaving uncertainty as to its level of intensity and scale.

Whatever the scale of violence, building social mechanisms through which to control it to some extent is of benefit (Fry 2001). This is especially relevant to intra-group violence that potentially occurs

from time to time. In order to understand the social role of violence, it is important to state that physical violence is more common among men than women (Buss 1997), although exceptions are known (e.g. Arkush & Stanish 2005, 13). Rare cases of female warriors are also familiar (Koehler 1997) but this does not seem to have occurred in the Near East since it is not represented in the continuous traditions evident in the historic periods nor in depictions on walls and objects. Furthermore, most of the trauma-laden osteological specimens from these periods in the southern Levant are of men (Eshed *et al.* 2010).

While aggression was affected by numerous aspects, as described above, we argue that it might also have been influenced by the gradual decline in hunting throughout the Neolithic–Chalcolithic periods of the southern Levant and the changes in the social importance of hunting. A similar observation was made regarding other societies in which hunting declined (Maschner & Reedy-Maschner 1998).

The decline in hunting is evident by the decreasing percentage of wild game among the faunal assemblages, forming only minor percentages at the Wadi Rabah culture. In our view its effect on aggression is reflected in two main aspects. The first regards hunter-gatherer and farmer-hunter cultures where big game is shared with the community which is an act that reinforces the solidarity among its members (Kent 1993). Since there is a decline in wild animal bones within the archaeological assemblages of the Neolithic and Chalcolithic periods of the southern Levant, it is clear that there was a decline in the frequency of wild game sharing. A decline in such sharing is consequently assumed to contribute to a rise in tension among the community due to the loss of its reciprocity mechanism (Ferguson 1992, 206; Kelly 2000, 123). Second, fighting serves in many societies as a medium of transmitting and reflecting men's abilities and in building their identities (e.g. Inomata & Triadan 2009). Accordingly, controlled violence in the Late Pottery Neolithic could have been a partial replacement for some of the social displays embedded in the hunting of large game. Hunting in hunter-gatherer societies is not only a source of food but also an agent by which men can express and acquire their prestige and rite of passage (e.g. Lee 1979, 236–42; Marshall 1976, 130).

Even among hunter-farmer societies hunting is still of social importance (Kent 1989). Furthermore, a clear correlation between hunting performance and reproduction success was found in several societies (Kaplan & Hill 1985; Smith 2004), indicating its role in social discourse. The choice of hunting animals that demands sharing was also questioned in terms of cost and benefit and was found in several cases not

to be the most efficient solution thus indicating costly signalling — an extra effort that usually young men choose to pursue (e.g. Bliege Bird *et al.* 2001). This, however, could not have served a major component by which men defined and expressed their manhood in the southern Levant in later parts of the Pottery Neolithic and the Chalcolithic periods, as evident by the paucity or even lack of wild game in the faunal assemblages. As noted by Hawkes and Bliege Bird (2002) this trait is fundamental in human behaviour, especially among men and thus the 'void' created was surely replaced by different forms of interaction. Costly signalling can be performed in a variety of arenas (Bliege Bird & Smith 2005) in which fighting is one option among them (e.g. Roscoe 2009).

While evidence of war in the Neolithic and Chalcolithic periods is scarce, from the Early Bronze Age onwards fighting became more common in the Near East, as is reflected by massive fortifications and a variety of metal weapons (Herzog 1997; Yadin 1963). Nevertheless, in northern Mesopotamia, where indications of hierarchical society appear earlier than in the southern Levant, indications of war were retrieved already from the beginning of the fourth millennium BC (e.g. McMahon *et al.* 2011). From this point onwards, duels and warriors are also clearly represented in iconography (e.g. Carroll 1988; Quibell & Green 1902, pl. LXXVI), as well as in the written record such as in the story of Gilgamesh (Abusch 2001). During the Akkadian period these became more pronounced, as evident for example, from depictions of Sargon, the warrior king of Akkad (Westenholz 1983). The role and importance of the warriors within these early societies of the Near East in all probability had its roots in the Neolithic and Chalcolithic periods.

The character of low-level and ritual fighting among small-scale societies

Ritual fighting can occur either as a duel or as a fight including a larger number of participants which nevertheless maintains a low level of lethal blows. We chose to concentrate on the issue of ritual fighting through duels since there is a large amount of data regarding this form of engagement in the literature. We will, however, endeavour to show that duels entail many similarities to other forms of low-level lethal fights thus allowing us to use them as an example in the role of ritual fighting within small-scale societies.

Duels are a physical combat between two persons from the same or different social groups (e.g. Keeley 1996). Duels, as we refer to them here, are different from war in that they are not performed with the intention of killing (Kelly 2000, 5) or taking

captives (Inomata & Triadan 2009). Among state societies lethal duels do exist (e.g. Taube & Zender 2009), however these are not treated here. Duels are further different from war in that the latter is specifically performed between different territorial/political units (Ember & Ember 1992, 172). It should be emphasized, however, that even wars involve elements of ritual and the difference between ritual fighting and war is between 'contained, festive combat' and 'potentially destructive warfare' (Arkush & Stanish 2005, 11).

Ritual fighting appears not only among humans but also among various animals. In the latter case its effect on the productivity of the participants is clear (e.g. Pfeiffer & Linsenmair 2001). In the case of humans there is a clear effect on the prestige and status of the individuals participating. However, while in some cases it is translated into reproductive success (e.g. Faurie *et al.* 2004; Llaurens *et al.* 2009) in others it is not (e.g. Abbink 1999). Nevertheless, in general, a correlation between status and reproductive success is common among many small-scale societies (Smith 2004, 358). Although the term 'ritual fighting' might hint at 'pretend' fighting, we specifically refer to fights that are real but are bound with a set of strict rules that may differ from culture to culture. These rules differentiate these fights from an 'ultimate combat' conducted with the pronounced intent of killing one's opponent. It is true, however, that in some cases, these are also practice-for-war against real enemies (Abbink 1999) or constitute an attempt to avoid more lethal fights (Rappaport 1967, 123).

Examples of duels are numerous: of these the stick-fight (*sagine*) of the African Surma (*Suri*) (Abbink 1999), the *Tinku* of the Andes (Van Vleet 2010) and the chest-pounding of the *Yanomami* (Ferguson 1992, 221) are the more familiar, but other cases are known as well (e.g. Stewart 1986; Wellenkamp 1988). Following the literature, we proposed the following guidelines as general characteristics of duels (this of course does not contradict human variation, and exceptions are present).

Rules

In contrast to warfare or raids, duels are characterized by a more restricted set of 'rules' regarding how the fighting should be conducted (e.g. Demarest 1978; Otterbein 1968). Abbink (1999, 236) argues that there is a difference in the rules since, while in the case of battles and raids it is clearly conducted with an 'enemy', in the case of ritual fighting, especially dueling, this is usually not the case. These rules include the scheduling of the event, the chosen weapons and their ways of use, and the circumstances in which one of the sides is declared the winner. These duels are

also usually performed under the supervision of the elders (Abbink 1999, 231; Ferguson 1992, 220; Lukacs 2007; Otterbein 1968, 200; Sponsel 1998, 100). However, in some cases these rules are far from restricted (Van Vleet 2010). Several weapon types might be engaged in a single combat and even regarding scheduling their use there are certain rules (Lukacs 2007).

Context

The duel generally happens at a specific time and place. The presence of an audience usually constitutes a major part of it: it is a display of the participants' capabilities and the visibility of participation and its results is of great importance. In some of the literature it is even defined as a 'festival' (e.g. Abbink 1999; Arkush & Stanish 2005; Llaurens *et al.* 2009; Stewart 1986; Van Vleet 2010). While in some cases it does not follow a specific event and is regarded as a phenomenon similar to an 'athletic event' (Abbink 1999, 230), in others it is in correlation with the agricultural seasons (e.g. Carroll 1988; Topic 2005; Wellenkamp 1988) or due to a dispute between the participants (e.g. Gallant 2000; Otterbein 1968; Sponsel 1998, 100; Verano 2000).

Participation and prestige

Participating in a duel is not only about winning but also about the partaking in the act itself. As stated by Abbink (1999, 233): '... displaying courage in fighting is said to be more important than winning'. Refusing to participate would result in a 'loss of honor'. When it is conducted as an 'athletic event'

(t)he dueling is a socially framed status contest allowing young men who are eager to start life as independent household heads to show their strength and virility ... in a socially accepted manner both *vis-à-vis* older males and potential wives in the audience (Abbink 1999, 232).

In this case it is mostly unmarried and young men that participate (Abbink 1999; Ferguson 1992, 220).

Physical risk

The duel includes physical risk, but fighting usually continues until injury is incurred or a 'technical position' is reached and not until death (Abbink 1999, 231; Sponsel 1998, 100). Even when using potentially lethal weapons such as knives, 'They (were) aimed not to kill but to maim, not to slay but to scar' (Gallant 2000, 363). Facing the risk is part of the challenges imbedded in the ritual. The fact that sometimes the participants are seriously injured despite the rules intended to minimize these cases is part of the mechanism contributing to the honour of participating in these events. Notably, when the rules are broken, even by accident, or are

intentionally compromised, the duel might escalate into war (e.g. Sponsel 1998, 100).

While duels do occasionally lead to death (Kruger & Nesse 2006), it is clearly not the intent as described for example by Abbink regarding the Surma (1999, 231):

Although deep flesh wounds and bone fractures are common, killing an opponent, either on purpose or accidentally, is prohibited. If it occurs, all duels immediately cease, and the mechanism of homicide compensation payment is set into motion (Abbink 1999, 233).

Abbink further adds that 'The death of a contestant is unacceptable; it is out of place, it shows a break in the Surma peace. With such a misfortune, the duel arena becomes a lethal battle ground, which should be reserved for real enemies only' (1999, 233).

This testifies that great caution is taken by the participants of the fight not to seriously injure the opponent, since otherwise they risk an unacceptable death. An exception can be found in the case of the *Tinku* where accidental deaths are accepted as part of the event and are not avenged (Topic 2005). A way of reducing the cases of serious injuries and death but still conducting brutal fights is by wearing defensive gear, mostly of leather (e.g. Abbink 1999; Van Vleet 2010).

The scars a man incurs during such fights are a mark of honour of facing real danger and surviving to tell the tale (Abbink 1999). This can be illustrated by the words of Homer in the *Iliad* (22, 80): 'all wounds are marks of glory'. In many cultures battle scars and wounds are a reflection of a man's heroic past (e.g. Silvester 2002). People who have participated in ritual fighting might repeatedly tell of this event during their entire lives (Van Vleet 2010). The importance of this aspect can be seen in the words of San (2002, 396) who wrote in reference to the *Tynku* that 'Young males returning to their community without signs of having participated are not welcomed. Years ago they were even isolated.'

Ritual fighting involving a larger set of participants is slightly different character but shares several important similarities. The 'nothing fights' of the Maring of New Guinea are one of the most familiar cases of fighting in which the ritual element overshadows the physical engagement (Rappaport 1967, 118–23; Vayda 1976, 9–42). In these fights, as documented in the example below, two groups of men position themselves at a close distance at a place arranged and prepared in advance by both parties, following a dispute between or an injury to one of its members. Rappaport (1967, 121) described it as follows:

... hand-to-hand weapons such as axes and jabbing spears are not even brought to the fight ground. The antagonistic groups line up on the fight ground within easy bow shot of each other ... The shields, which are very large ... are propped up, permitting bowmen to dart out from behind them to take shot and leap back again. To demonstrate their bravery, men also emerge from behind the shields to draw enemy fire. Casualties are not numerous and death infrequent, for the unfletched arrows of the Maring seldom kill.

Rappaport (1967, 121–3) notes that while in some cases these 'nothing fights' escalated into real fights they were a very effective medium through which the antagonists could resolve their dispute. Similar fights were also observed in Australia where Wheeler (1910, 141) notes that if during their performance 'nothing worse has happened than severe wounds, peace is made' and further added 'that some accounts seem to indicate that on a man being wounded the fight stops, either altogether or for a time'.

These fights of multiple participants show a set of characteristics such as those found in duels, including specific rules, a specific context of engagement, elements of prestige and attempts to minimize casualties. One major difference between these and duels, however, is that these multi-participant fights, although being a specific type of ritual fighting with their distinct characteristics, are closer in character to 'real' and lethal war and in some cases foreshadow its beginning. Nevertheless, in their essence they are a mechanism for resolving disputes and are similar to duels in many respects.

Discussion

In this article, we have promoted the view that ritual fighting became an integral part of the social life during the later prehistory of the southern Levant by exploring the character of the weapons, the socio-economic landscape and the characteristics of ritual fighting as it is represented in the anthropological record. In this section we will discuss how these three topics bind together and provide a new venue of archaeological interpretation. The results not only signify the probable presence of ritual fighting in the Neolithic and Chalcolithic of the southern Levant but also entail new aspects regarding the organization of these early communities.

One of the principal contributions of this study is the identification of a distinct pattern regarding the presence of three types of dull-edged weapons — maceheads, slingstones and transverse arrowheads, which were used collectively only during the time

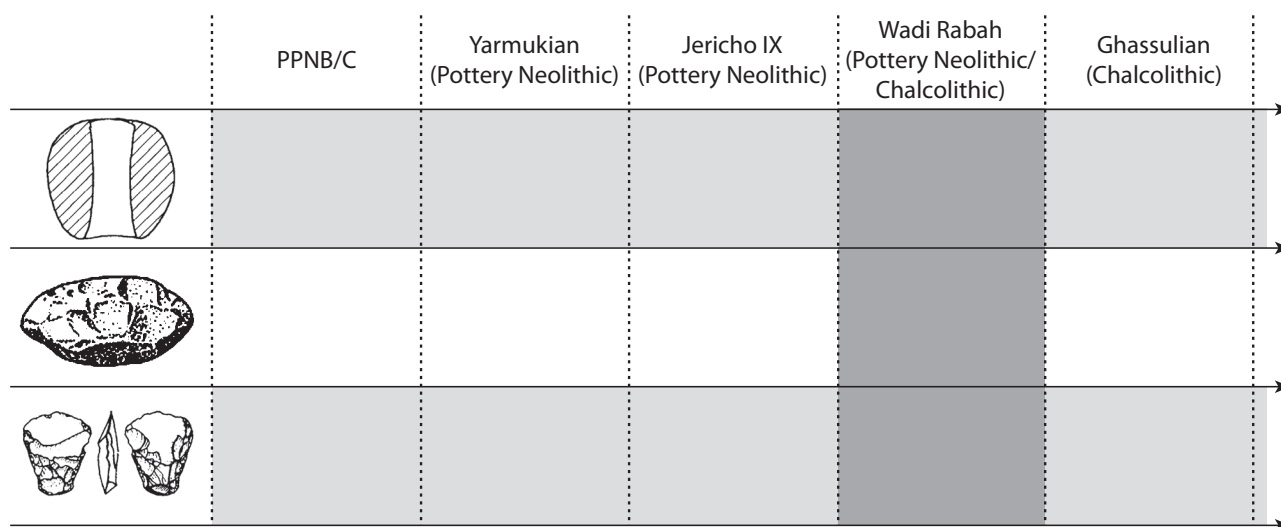


Figure 6. A schematic representation of the three weapon types (maceheads, slingstones and transverse arrowheads) in the Neolithic–Chalcolithic periods of the southern Levant.

span of the Wadi Rabah culture (Fig. 6). Of these only the maceheads are associated exclusively with combat, while slingstones and transverse arrowheads were also used for herd management, hunting or other purposes. The fact that these three types of weapons are prominent within the archaeological assemblages only after the hunting of wild game declined, suggests that their central role did not relate to hunting, but rather to the new social organization that characterized the later parts of the Pottery Neolithic and Chalcolithic periods, when their economic merits were invested in domesticated resources and their products.

We claim that these three weapons were not designed with the intent of achieving lethal impact, even though the technology and know-how were readily available. For example, the low penetration potential of the transverse arrowheads that sometimes even bounced back when hitting the target could have been overcome if pointed tips had been used. The maceheads could have been combined with protruding or cutting elements and more importantly made with a larger shaft hole that could sustain repeated hits. The fact that within the Wadi Rabah culture weapons characterized by a higher lethal potential such as pointed arrowheads are almost entirely absent is of relevance. It is also of great importance that while occasional appearances of two of the three discussed weapons (e.g. maceheads and transverse arrowheads) can already be found in the Pre-Pottery Neolithic, it is only in the Wadi Rabah culture that the three appeared together and with more evident representation within the assemblages.

The evidence for aggression in the southern Levant as it appears in the osteological record, as well as in other aspects such as fortifications, suggests that it was present but probably only at a low intensity. This is further supported by comparing the osteological record to other archaeological cases from various parts of the world (e.g. Lukacs 2007; Walker 1989) as well as by the lack of mass graves of victims of warfare (e.g. Lambert 2002; Milner 1999). Although this suggests that war was not common in these periods, it does not reject the presence of aggressive acts on a different scale.

While, it is generally accepted that aggression already appears among hunter-gatherers, it is still expected to be more intense among settled communities of larger population densities (e.g. Kent 1989; Rosenberg 1998). Accordingly, aggression and war form a recurring issue in studies of the Neolithic and Chalcolithic of the southern Levant despite the scant evidence.

In our opinion, one would gain a better understanding of the character of aggression in the Neolithic–Chalcolithic southern Levant by taking into account the frequency of potential weapons found at archaeological sites. In general, the numbers of the three types of weapons under discussion here are usually low (compared, for example, to the number of pointed arrowheads during the PPNB) with only singular items found at most sites (with exceptions such as the slingstone assemblages of Kabri and Hazorea and the maceheads from the Nahal Mishmar). Aside from these, no other obvious weapons

have been found from these periods. Of course, many types of artefacts could have been used as weapons in a time of need (Chapman 2004; Clare 2010) but this would not be an indication of a society where war or aggression is common and organized. Thus, the small numbers point towards their infrequent use. The probability that each man was equipped with one or more of these weapons is unlikely. This is different from the case of the Bronze Age where the status of the warrior was more pronounced (e.g. Garfinkel 2001) as is also the case among some later prehistoric societies and contemporary small-scale societies (e.g. Carneiro 1990, 200; Otterbein 1968; Ringle 2009).

The anthropological literature provides a possible interpretation for the unique character of the dull-edged weapons. One of the main aspects of the various representations of ritual fighting is the clear avoidance of causing the opponent's death and therefore minimizing the use of lethal weapons and blows. Such behaviour is decidedly in line with the unique character of the weapons of the late Pottery Neolithic and Chalcolithic periods of the southern Levant.

Several more points of similarity might be found between the social landscape of the Late Pottery Neolithic and Chalcolithic periods of the southern Levant as it is perceived through the archaeological record and the literature regarding ritual fighting. While among hunter-gatherers power relations are usually restrained, among Neolithic (and later) societies power relations are an open arena (e.g. Hayden 1990) and thus ritual fighting may take part in this venue (Roscoe 2009). Furthermore, the fact that most examples of ritual fighting come from small-scale societies practising agriculture or pastoralism is not surprising since ritual fighting is a reflection not only of aggression but also of collaboration. Sponsel (1998, 100) argued that 'Duels are simultaneously a controlled release of aggression and usually an effective form of conflict resolution.' Topic (2005, 19) proclaimed the same idea in his discussion of the *Tinku*:

Tinku battles are fought between closely related communities, even between moieties of a single lineage. These battles renew social identity, creating a 'whole' from two parts.

This conspicuous aspect of ritual fighting could have been a major contribution to the emerging communities of the Pottery Neolithic and Chalcolithic periods in the southern Levant.

The ethnography shows that ritual fighting occurred in some instances as annual festivals. We suspect that the archaeological manifestation of this will be the presence of sites or specific contexts characterized by a high representation of weapons relating

to this activity. The two Wadi Rabah related locations with the numerous slingstones (Kabri and Hazorea) might serve as examples although the limited archaeological record of these sites does not enable further exploration of this possibility.

Conclusions

While the possibility of extensive violent conflicts in the southern Levant's later prehistory is seemingly expected due to population growth and competition over resources, such as grazing lands and agricultural fields (as is echoed in some previous studies), we lack any clear evidence for such events. The appearance of maceheads, slingstones and transverse arrowheads during the later parts of the Neolithic period and the Chalcolithic suggests that other solutions were commonly used to solve social tensions and disputes. If indeed war was prevalent during these periods we would have expected that the more lethal weapons (e.g. pointed arrowheads, flint knives and axes) that are found in the early Pottery Neolithic would not have disappeared from the material culture since the intention to kill the enemy is embedded in most wars (Kelly 2000, 3–6).

The character of ritual fighting within various cultures advocates ritual fighting as a probable explanation for at least parts of the archaeological record of the southern Levant during the later prehistory. It is of note, however, that while organized aggression (e.g. war) cannot be ruled out, in most cases where war is identified lethal weapons are prevalent (Otterbein 1968). Such weapons were scarcely found in the southern Levant during the period under discussion. It is most likely that in the Late Pottery Neolithic southern Levant, aggression was channelled differently. As Fry (2001, 319) articulated 'while the human capacity to be engaged in violence is undeniable, humans also exhibit considerably ability to prevent, avoid, and limit the scope of the aggression'.

Ritual fighting could have thus played a role in solving disagreements between groups such as different lineage, households, herders and farmers, and between neighbouring village communities over issues such as water, pasture and grazing lands, fields or other resources, or even over women (Gopher & Orrelle 1996; Rosenberg 2009). This might also have been a venue for 'rites of passage' and reflection of manly abilities, bravery and fitness. The probability that ritual fighting is a reflection of a larger frame of violence relating to war (Chick *et al.* 1997) is probable. However, the paucity of evidence of skeletal trauma in Pottery Neolithic and Chalcolithic skeletons indicates that duelling or other types of controlled violence in

the framework of low-level engagements, was not as intensive as in some African cases, where it was commonly practised and well reflected in trauma (Jodd 2002).

In accordance with the current evidence, which relies on the limited cases of osteological specimens, the unique character of the weapons and the ethnographic background, we suggest that during the Levantine Pottery Neolithic and Chalcolithic periods, settling disputes was performed through ritual fighting within formulated social boundaries. In these societies a new social organization emerged, probably aimed at controlling and restraining the rising tension between social groups practising mixed agriculture.

Through this study we endeavoured not only to investigate the Pottery Neolithic and Chalcolithic periods of the southern Levant, but also to provide a glimpse at the potential of this virtually unexplored field within the archaeological discipline. In this regard, we think that this study can provide a fresh perspective and evoke a discussion regarding the delicate balance between aggression and peace that is pursued in many societies. If indeed social mechanisms that include 'laws and regulations', as well as a specific set of weapons, were developed during the later parts of the Neolithic periods in order to limit the damage and risk entangled within conflict solving, one must consider that Pottery Neolithic and Chalcolithic communities had developed some kind of inter-communal social constraints. These in turn may have had an important role in regulating power relations among social groups and enabled a controlled manner of dispute solving, hand in hand with preserving the traditional social roles of men.

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