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Roman military equipment in the 4th century BC: *pilum*, *scutum* and the introduction of manipular tactics

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Weapons and tactics of the Roman army in the era of the great wars with Carthage, Macedonia and the Seleucid Empire, as well as in campaigns against the Celts and the tribes of Iberian Peninsula, waged in the years 264–133 BC, are the subject of many publications. Earlier periods in the development of Roman weapons and fighting techniques have been comparatively neglected. The main reason for this is the low reliability of literary sources (Small 2000, p. 230) and almost complete lack of archaeological finds, the context and dating of which can be linked with the army of Rome in the period of the Early Republic (Rawlings 2007, p. 54), as well as the scarcity of iconographic sources. However, this period was crucial for the emergence of a particular method of fighting of the army, which was to conquer the whole Mediterranean world. The aim of this text is to explain and interpret different types of sources and, as a result, to offer a reconstruction of major elements in the evolution of weapons and tactics of heavy infantry, which formed the backbone of the Roman army in the period when these changes occurred, with a special emphasis placed on the widespread use of oblong shield and heavy javelin in the 4th century BC.

Authors of principal publications concerning the subject of development of Roman arms and armour such as Michael C. Bishop and Jonathan Ch.N. Coulston (2006) as well as Michel Feugère (2002) begin their narrative from the First Punic War. There is no consensus among researchers as to the dating of the transformation of Roman weaponry and tactics in this period. Most of them do not agree with any date given by ancient authors, often emphasizing low reliability of written sources (e.g., Meiklejohn 1938a, pp. 172–173; Lendon 2005, p. 183; Rich 2007, p. 18), or evolutionary nature of the changes (Rawlings 2007, pp. 54–55). In some studies, including those aimed at popular readership, this problem has been avoided: their authors

move on from the "Servian" army directly to the one described by Polybios in the sixth book of his work (Santosuosso 1997, pp. 152–153; Goldsworthy 2003, pp. 25–27).

From the late 3rd and the first half of the 2nd centuries BC, we have the aforementioned account of Polybios, supported by few iconographical sources, but relatively rich archaeological material. This description constitutes the starting point for a discussion about armament of the army of the Early Roman Republic and explains the tendency to search not for the beginning of changes, but their end. The description of Roman weaponry in Polybios' work almost certainly relates to the period between the Second Punic War and the mid-second century BC and perhaps reaches back period around the beginning of the First Punic War (Dobson 2008, pp. 54–55). As for the two most important elements of armament, the oldest finds of Roman *pilum* come from Castellruf in what is now Spain, and are dated to the last quarter of the 3rd century BC. Chronologically, the first iconographical source representing without doubt Roman soldiers with Italic oblong shields are reliefs from the Emilius Paulus monument, dating to the mid-2nd century BC. The only example of a shield that matches the description of Polybios and those shown on Emilius Paulus monument came from the 1st century BC. Moreover, there is a possibility that in this case we are dealing with a Celtic shield (Bishop, Coulston 2006, pp. 48–50, 52, 61).

Based on literary sources, the year 223 BC and the battle fought by consul Gaius Flaminius Nepos with Insubres may be considered the reasonable *terminus ante quem* for those changes. This choice is dictated by the fact that we have a relatively detailed account of that battle provided by a reliable source, with a description of a fully developed manipular battle array and the presence of weapons associated with it (Polybios, 2.32–33). Approximate date of the reforms of king Servius Tullius (ca. 535 BC) will serve as a *terminus post quem*.

Most ancient authors are not very precise or consistent in applying the names of particular types of weapons. Even the historian who is generally regarded as competent and thorough in military matters – Polybios of Megalopolis – uses the terms *machaira* and *xiphos* interchangeably when he mentions the sword used by the Romans (Polybios, 2.33.4–5; 6.23.6). Authors of sources relating to the history of the Republic from its birth to the beginning of the First Punic War are less credible than Polybios and do not have the experience or practical military knowledge. Thus, each hypothesis associated with weapons used in this period carries a risk of error arising from problems with the terminology. It is difficult to determine how often we are dealing with anachronisms, often resulting simply from ignorance and transplantation of the re-

alities of the Roman army of the 1st century BC or 1st century AD to much earlier times. However, in our case, the terminology used by these authors seems relatively consistent, which probably is not so much due to their merit as to the consistency of sources they had used. This does not mean that it is always very precise. For example, the Latin term for spear, *hasta*, could refer to either a pole weapon used exclusively for close combat or a more universal spear, which could also be thrown at the enemy. Nevertheless, most of those authors were convinced of the existence of two "systems" of weapons and tactics. It can be assumed that this conviction resulted from a clear distinction between them and a relatively consistent terminology used by their sources. A spear (or even a throwing spear) and the Greek shield are clearly differentiated from the heavy javelin and Italic shield by those authors.

The first system can be called Greek or Etruscan, the second – Italic. The determinant of each of them was the type of pole arm (or missile weapons) and the type of shield used by warriors. In the first case, it was the spear (Greek *doru* or *longche*, Latin *hasta*) and convex shield, made of wood, covered with bronze and provided with a distinctive grip for the arm (*porpax*) and vertical handgrip (*antilabe*) – Greek-type hoplite shield ("Argive shield" – *aspis*, *clipeus*); in other words, the hoplite armament. In the second, a warrior was armed with a heavy javelin, of one of two types: "light", with a long, narrow haft of circular or square cross section and a small head; or "heavy", with a shorter haft and a square plate (*hussos*, *pilum*). As his primary protection, the warrior uses a shield that is oblong, made of several layers of wooden slats, covered with canvas and/or hide, sometimes also provided with metal binding and boss cover (*umbo*), while its handgrip is horizontal (*thureos*; *scutum*). *Thureos* and *hussos* were the arms of heavy infantry of *hastati*, *principes* and *triarii*, quite accurately described by Polybios (6.23).

Naturally, the assumption that hoplite equipment *per se* determinates the use of a compact formation (*phalanx* in narrow meaning) is overly simplistic, especially since the phalanx had been evolving (Snodgrass 1965, pp. 110, 115–116). There is an ongoing dispute amongst scholars – supporters of the "orthodox" and "heretical" view of the Greek warfare –arguing about the nature of hoplite combat, the character of archaic and classical phalanx and the dating of the period when phalanx reached its "mature" form (close-order formation of heavily armoured infantry with a thrusting spear as a principal weapon), after abandonment of the use of the throwing spear and the javelin. The scope of this article does not allow a broader discussion of this issue, it is, however, necessary to determine the author's position in this dispute. Inclining toward the interpretation of the "heretics", presented in with very convincing arguments of Peter Krentz, let us assume that the develop-

ment of the "classical" hoplite phalanx in continental Greece took place after first quarter of the 5th century BC and the period of the Persian wars (Krentz 2002, pp. 35–37; see also: Krentz 1985). Similar hoplite weaponry saw widespread use in Italy – and more specifically in the Greek *poleis* of Magna Graecia and in Etruria – as early as the 6th century BC, what is reflected in archeological finds, iconography (e.g., Strong, Taylor 1914, figs. 19, 21) (fig. 1) and an account of Servius Tullius' reforms.

Fig. 1. Etruscan alabastron from Vulci, ca. 600–580 BC. A warrior with anaspis and two, probably throwing, spears (© Trustees of the British Museum)

Defining the manipular tactics is as difficult as in the case of the phalanx. Agreeing with scholars who emphasize the role played by the javelin, not the sword (Zhmodikov 2000; Koon 2007), it can be stated that those tactics were based on loose formation with more space per each of the heavily armoured infantrymen than in the "classical" hoplite phalanx, a formation of subunits in several echelons and a possibility of regrouping. It is characterized by fighting from a distance with javelins, which occupied most of the time during battles. Infantry closed in with the enemy with drawn swords only to quickly decide the outcome. Therefore, the use of sword can be compared to the use the bayonet in the 18th and 19th centuries, a weapon of assault and a hand-to-hand combat. Like in the case of bayonet charges, the hand-to-hand combat did not always take place. Moreover, the fight was conducted primarily from a distance, and the soldiers used their heavy javelins. As previously stated, weapons identified by the ancient authors with the new tactics include primarily the long Italic shield and the heavy javelin.

Over the two centuries that separate those abovementioned dates, the Roman army had experienced far-reaching transformations, undoubtedly of an evolutionary character. Is there a possibility of indicating, even approximately, the date of spread of italic weapons and changes in the Roman infantry tactics? Ancient sources are extremely diverse on this matter, not only in terms of chronology of events, but also the nature of those changes. Some ancient authors point at the Samnites as the people from whom the Romans took their weaponry (or some of part of it) or the unspecified "other people"; others suggest that the stimulus for changes was provided by wars waged against Celts, which took place after the defeat in the battle of river Alia in 390/387 BC. Finally, some are convinced that the Italic armament was inextricably linked with the Roman army from its very beginnings and the changes had little connection with the opponents encountered in the 4th century BC. The above-mentioned low reliability of sources is mainly due to the fact that the authors created them hundreds of years later, and the fact that Roman historiography had not been born until the 3rd century BC. Thereby, creating a coherent picture of changes in tactics and weaponry in the 6th–4th centuries BC is possible only by confronting written, iconographic and archaeological sources.

Traditionally, these changes were often linked with Samnite Wars (343–290 BC) (see for example McCartney 1912, p. 77). This version is important because it occurs in our oldest (1st century BC) source (Sallustius, 51.38). Sallustius unfortunately does not use specific names of weapons, but mentions only acquisition of Samnite defensive armour (*arma*) and throwing weapons (missiles – *tela*). He also does not specify when this occurred, con-

tenting with inexact *maiores nostri*. Specific names of weapons are, however, listed by an anonymous author of *Ineditum Vaticanum*, according to whom both *thureos* and *hussos* were taken over by the Romans during the conflict with that tribe (Anonym, 3). In line with this tradition is also a late source from the 2nd/3rd century AD – *Philosopher's Banquet* of Athenaios of Naucratis, where is a mention of the takeover of the shield (*thureos*) by the Romans from the Samnites, although the javelin – it should be stressed that it is not termed as *hussos*, but *gaison* (*gaesum*) – had been borrowed from the Iberians (Athenaios, 6.273.F). The adoption of this version would shift the date of transition to the close of the 4th century BC. If the Romans indeed had changed their weapons and tactics under the influence of a confrontation with the Samnites, the most likely stimulus for such a step would have been a major military defeat, such as those incurred in the Caudine Forks in 321 BC. The question is, to what extent Samnite weapons could have been a model for the Roman ones in such form as were described by Polybios?

The main problem concerning the reconstruction of armament of warriors from the southern part of the Apennine Peninsula is their hellenization, resulting from both peaceful cultural exchange and the conquest of Greek colonies, which took place before the wars with Rome (Eckstein 2006, pp. 139–142) (fig. 2). The knowledge about the appearance of warriors of those tribes derives largely from iconographic sources, such as vase and grave paintings, which are the products of the representatives of coastal communities that were in contact with the Greeks, and took from them at least some elements of their weaponry. The problem is, in particular, the scale of prevalence of different types of shields. Both groups of iconographical sources show warriors with hoplite shields. Moreover, this type of shield is the only one, which has survived in the archaeological material, with 11 finds (bronze bowls or other items) in the context of the Southern Italy (Burns 2005, pp. 149–150). Additionally, the paintings of Paestum reveal a different type of shield which almost certainly is not the same shield as the one described by Polybios. It is more likely to be a shield called *popanum*, with which Roman cavalrymen are sometimes shown.

Oblong shields also occur in the iconography in the context of the Southern Italy, mainly from the area of Campania and Lucania. First of all, there are tomb paintings, often depicting warriors; a large number of them was found in Paestum (Trendall 1970, pp. 33–35). In addition, it is worth mentioning that the painting from the tomb of the Esquiline probably represents the triumph of the Dictator Quintus Fabius Maximus Rullianus from 315 BC. Samnite chief Marcus Fannius, who is surrendering the city to Romans, is holding in his left hand a presumably oblong shield. However, the poor state

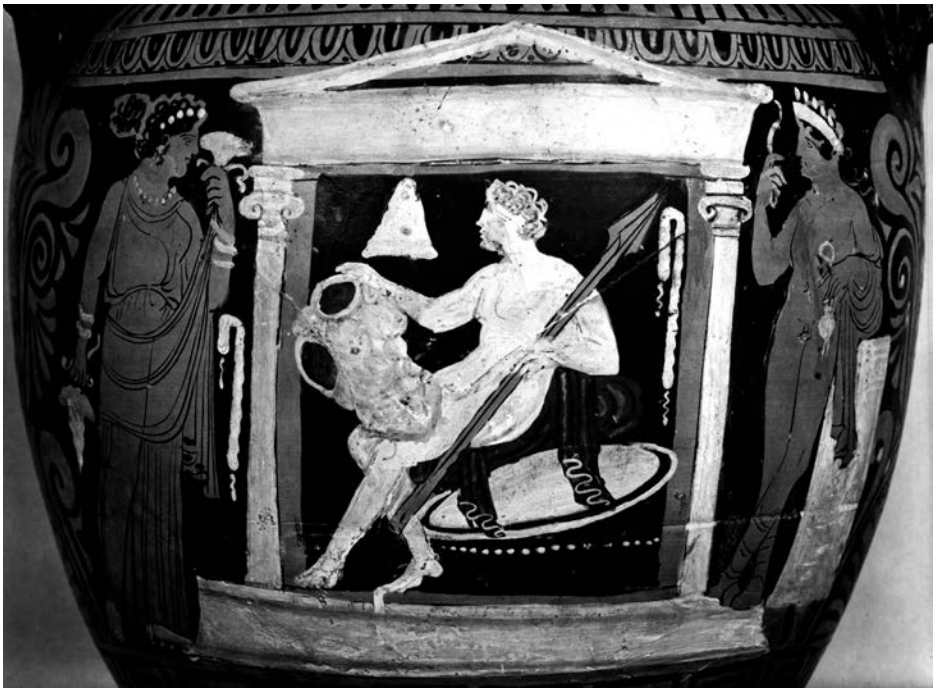

Fig. 2. Apulian volute krater from Basilicata, made in Puglia ca. 340–320 BC. Warrior is shown with an *aspis*, *apilos* helmet, a muscle cuirass and two (probably throwing) spears (© Trustees of the British Museum)

of preservation of this painting makes it impossible to identify the shield with certainty; also its dating is not certain (Koortbojian 2002, p. 39, Pl. VI; Sekunda, Northwood 1995, p. 35). Southern Italic long shields are generally oval in shape, which is at odds with the description of Roman historian, according to whom they are wider at the top and narrower at the bottom (Livius, 9.40.2) However, this type of shield can be found on terracotta statuette of the goddess Minerva (Sekunda, Northwood 1995, pp. 28–29) as well as in later iconography in the context of gladiatorial games. Importantly, according to Burns, hoplite shield dominates on the tomb paintings in the period from the late 5th century BC to the early 3rd century BC, while the long shield appears on them only between the last three decades of the 4th century BC (Capua, Nola) and the beginning of the 3rd century BC (Paestum) (Burns 2005, p. 161). It should be noted that Capua was conquered by the Samnites, and Paestum by the Lucanians in the late 5th century BC, while Nola fell prey to Oscan tribes before Second Samnite War. Therefore, the increase in popularity of oblong shield in that region may have fallen more or less in the same period, in which it allegedly was adopted from them by the Romans, making

this an unlikely possibility. Also, other elements of the defensive armament of the Samnites differed from those used later by the Romans to such an extent, that it was reflected in the gladiatorial games. Gladiators called "samnites" tend to be represented with shields, such as described by Livius, and triple-disc cuirasses, but researchers are skeptical, because he may have described weapons of gladiators, which he has seen with his own eyes, and not the warriors' of the 4th century BC (Livius, 9.40.2–3, 17).

The javelin was extremely popular among the warriors of the Southern Italy (Burns 2003, p. 75). Festus is convinced that the very name of the Samnites derives from the Greek term for a type of a heavy javelin – *saunion* (Festus, 17: *Saunitai* – *Samnites*). Diodoros Sikeliotes says that the defeat inflicted by Bruttians on Timoleon's former mercenaries, they were all killed with javelins (Diodoros Sikeliotes, 16.82.2). Even if the etymology of Festus is erroneous (Small 2000, p. 232), it surely reflects the awareness of ancient authors, who identified those people with weapons, for which they were famous. Javelin is the most common weapon in the tombs of the warriors of this region, and sometimes the only one with which they were buried (ibidem, p. 225). On the wall paintings in Paestum, there can be found numerous images of warriors who fought with javelins, but it is difficult to determine the details of construction of their weapons. If a thin, straight, dark lines reflect the actual appearance of the javelin, and are not just artistic simplification, it may be that those weapons were made entirely of iron (*saunion*, *soliferrum*), and thus were similar to specimens found in Spain (Quesada Sanz 2006). Oldest hafts with points matching the descriptions of the light infantry javelin (*grosphos*) and light *pilum* of Polybios, found in southern part of Apennine Peninsula, are dated to the 5th century BC. These were excavated at Crucinia near Metapontum: a haft 31 cm long with a poorly delineated head, dating from the middle of the 5th century, and a very similar one, 31.2 cm long, from Oppido Lucano. From the 4th century BC we have javelins from Arpi (35 cm), Gravina (50,4 cm), Paestum (51 cm) and Pontecagnano (49 cm) (Small 2000, pp. 225–226). Burns also lists three specimens from Paestum, dating back to the middle of the 4th century BC. Two of them have a length of 41 cm, a third specimen with barbed head and shank, which is part of the length of square cross-section, is 35 cm long. An example from Carife measured 42 cm (Burns 2005, pp. 183–184). None of these really matches the description of Polybios in terms of length, but their construction (an iron haft with a socket) is similar to Roman javelins of the 2nd century BC.

As for the Iberian origin of Roman heavy javelin, it seems that the account of Athenaios cannot withstand the confrontation with the other sources. Armament of the Iberian tribes in the 3rd century BC was indeed very similar

to Roman, because their warriors relied on heavy javelins for offence and long shields for defense (Quesada Sanz 2006, especially pp. 9, 18–21). Nevertheless, it is difficult to agree with statements that the Iberian javelins influenced similar Roman weapons (Rawlings 2007, p. 54), because such weapons had been in use in Italy (and probably by Roman army) well before soldiers of the Republic came into contact with the Iberian warriors during the Punic Wars.

Diodoros Sikeliotes also describes the evolution of Roman weaponry as a series of borrowings from consecutive opponents. However, he refers only to the type of shield, which apparently he considers as the sole determinant of tactics. And so he relates that the Romans were initially armed with square shields (*aspidas tetragonous*), next, they acquired bronze hoplite shields (*chalkas aspides*) from the Etruscans, and then, from "other people", they took the oblong shields (*thureoi*). Diodoros also mentions that those not precisely defined "other people" fought in manipular order (Diodors Sikeliotes, 23.2). The *aspidas tetragonous* are probably one of the oldest Italic shields, perhaps similar to the one depicted on terracotta statuette from Veii (Sekunda, Northwood 1995, p. 12). There is no doubt about the fact of the acquisition of hoplite arms from the Etruscans (McCartney 1917), and the lack of specification of those "other people" may be intentional, and not the result of Diodoros' ignorance in this matter.

The second group of literary sources are those, which associate the changes with campaigns against the Celts, waged by Marcus Furius Camillus. According to Plutarchos of Cheronea, Camillus ordered manufacture of iron helmets for his soldiers and coating the helmets' oblong shields with bronze on the whole length of their rims (*thureois kuklo periermose khalken lepida*). In addition, he trained the infantrymen in the use of long (heavy?) javelins (*hussois makrois*) as spears, for hand-to-hand combat (Plutarchos, *Camillus*, 40.3–4). Javelins were actually used by them in this way in the battle with Celts (ibidem, 41.4–5). In turn, Dionysios of Halikarnassos attributes Camillus with a speech, in which this commander praises the weapons used by the Romans: in addition to cuirasses, helmets, and greaves (*thorakes kai krane kai knemides*), he speaks about their "sturdy" oblong shields (*krataioi thureoi*), which afford protection to the whole body, and about a replacement of spear with javelin – "a long javelin, missile against which there is no protection" (*logkhes hussos, aphukton belos*). (Dionysios, 14.9.2). That is why, in the first of these accounts, there is no mention of adapting foreign weapons, only about upgrading the ones already used by the Romans – according to Plutarchos they were using oblong shields and heavy ("long") javelins even earlier. Dionysios' account is less clear, because it is not known whether the ar-

mour had been also changed, or if the only modification was the adoption of a heavy javelin.

The emphasis on the size of Roman oblong shield is confirmed by the description of the battle of River Telamon, fought in 225 BC. According to Polybios, the oblong shields of the Celts, unlike the legionary shields (both are termed *thureoi*), did not protected the whole body, especially against missiles (Polybios, 2.30.3). Some doubts arise from questionable fragment of Plutarchos (40.3), where he says that helmets were made entirely of iron (*krane tois pleistois holosidera*). It is true that towards the end of the 5th century BC iron supplanted bronze as the material of which Celtic helmets were manufactured, but Italic helmets, including versions of Montefortino helmets based on a Celtic model, were all made of bronze. Bronze remained the basic material from which the helmets were made in Italy until the last quarter of the 1st century AD (Paddock 1993, vol. 1, pp. 37–38, 46; vol. 2, pp. 470–471, 482–483). Taking into account, the fact that Polybios speaks of iron rim covering only top and bottom edges of the shield (Polybios 6.23.4); the shield of Kasr-el-Harit (Bishop, Coulston 2006, pp. 61–62; D'Amato 2009, pp. 25–26) and as well as some iconographic sources (Burns 2005, p. 159), we can assume that at least some Italic shields had no metal reinforcements (either on rim or on umbo) at all. In any case, both authors (or authors of the sources, which they have used) were convinced that at the end of the first half of the 4th century BC Roman infantry used (or was beginning to use) weaponry very similar to those in use two centuries later. If we accept an unlikely concept of a single change, which occurred at the initiative of Camillus, then we can pinpoint the exact date – year 367 BC. Moreover, according to Appian of Alexandria, the Romans used *hussois* in 358 BC in a battle with Celts fought under the leadership of dictator Gaius Sulpicius Peticus. Appian provides a description of this weapons, haft of which had a square cross section (Appian, 1.1).

Both Dionysios of Halicarnassus and Livius left descriptions of military reform carried out by King Servius Tullius. Despite some differences in their accounts, the relevant parts of the work of both authors present a picture of an army in which different types of weapons coexisted. The most costly, and therefore considered to be the best, is the complete hoplite *panoplium*, to possession of which citizens of I class were eligible. This part of both accounts is very similar: Dionysios writes that armament of those warriors consisted of Argive (hoplite) shields (*aspides argolikas*), spears (*dorata*), bronze helmets, breastplates, and swords. The same elements – round hoplite shield (*clipeus*) and spear (*hasta*) – we can find in the Latin text of Livius. Warriors of II class had the same offensive weapons, but lacked the armour,

and their main defensive weapon was the oblong shield – *thureos* of Dionysios and *scutum* of Livius, also used by warriors of III class, and according to Dionysios, as well by those of IV. The warriors of class IV were armed with spears (*dorata*), or spears and light javelins (*hastaetverutum*) (Dionysios, 4.16; Livius, 1.43).

The main problem with those accounts is chronology. Because of the tendency to revise the chronology of Rome in the regal period, many scholars believe that both rule and reform of Servius took place later (see Last 1945; Forsythe 2005, pp. 97–108). Furthermore, since in the descriptions of battles fought by Romans in the 5th and 4th centuries BC, there is no mention of this "Servian" division of army, it is impossible to determine whether different classes of warriors formed separate echelons of battle formation or differently armed warriors formed successive ranks of one phalanx (Dionysios, 4.16.3, 5). It cannot be ruled out that the division was simpler and the infantry consisted only of two distinct classes (Forsythe 2005, pp. 111–113).

Accepting the traditional chronology, at the end of the 6th century BC Roman army could have been similar to the analogous citizen armed forces of the Greek *poleis*. In hoplite phalanxes of this period there probably coexisted warriors armed with different defensive and offensive armament, which, in relation to Italy, is confirmed by the iconographical sources from the northern part of Apennine Peninsula. On *situla* from Certosa (500 BC), we can see a marching army consisting of warriors armed with round hoplite shields and both oblong and "square" (with rounded corners) Italic shields (Cherici 2008, pp. 188–196, 231, fig. 1)(fig. 3).

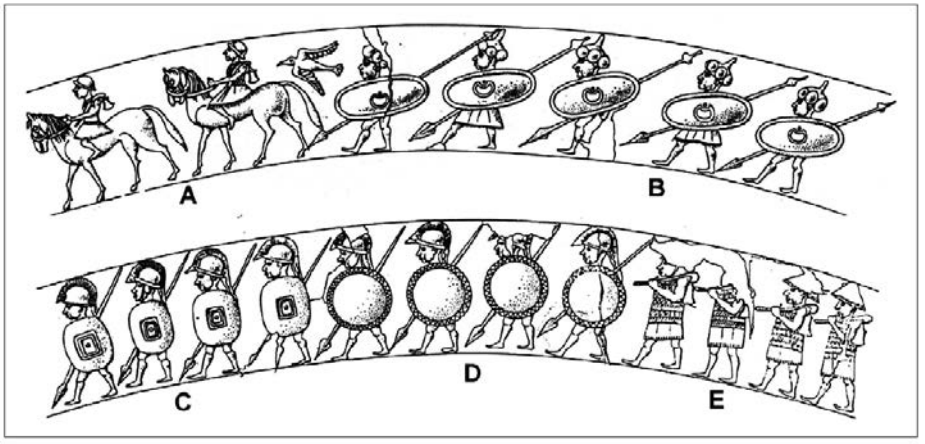

Fig. 3. *Certosa situla*, ca. 500 BC. Warriors with oblong, "square", and hoplite shields (after Cherici 2008)

Fragments of Book Eight of *Ab Urbe Condita* lead to the assumption that the Servian army, divided into classes based on property, was indeed a phalanx, whose first ranks were formed by the best-armed hoplites (*promachoi*). Before the description of the battle fought with Latins in 340 BC, Livius explains that in place of previously used circular shield (*clipeus*), the Romans began to use oblong shield (*scutum*), and phalanx were replaced by battle array that was formed from *manipuli* and *ordines*[1]. The introduction of military pay is associated by the same author with the initial phase of the siege of Etruscan city of Veii, that is to about 406–405 BC (Livius, 4.59–60). This date is acceptable, as opposed to the one suggested in account of Plutarchos, who ascribed replacement of *Argolikas* (...) *aspidas* by *thureoi* to the mythical founder of Rome, Romulus, who allegedly borrowed them from the Sabines (Plutarchos, 21.1). We are once again faced with a situation in which the type of shield is identified with a change of tactics. Although the same author states that oblong shields had already been used in the Roman army over a century earlier, but perhaps only as a cheaper alternative to the hoplite shield. Identifying all heavily armoured infantry from the time of Servius Tullius with the hoplite phalanx could be a result of the dominant role of the citizens of the I class. It seems that hoplite equipment remained popular in art of Latium long after it had ceased to dominate the battlefields (fig. 4).

In reference to events of year 340 BC, Livius describes an order of battle at the front of which are *leves*, then *hastati*, *principes*, *triarii*, *rorarii* and *accensi*. (Livius, 8.8.3–4). The basic criterion for the allocation of citizens to separate echelons was age, although the property continued to play a role. Names of three echelons of heavy infantry, known from Polybios, appeared for the first time together in the description of events of the year 350 BC (ibidem, 7.23.2), which led Zhmodikov to accept that date as the beginning of the period of use of manipular tactics (Zhmodikov 2000, p. 68). *Leves* were apparently equivalent of the later *grosphomachoi* (*velites*) and their javelins could have been similar to those used in the time of Polybios. Writing about the weapons, Livius uses words *hasta tantum gaesaque gererent*, indicating a javelin with a long haft with a socket (Livius, 8.8.5). *Rorarii* were probably also light-armed infantrymen, but concluding from another fragment of description of this battle, devoted to apparently unusual tactical tricks of the Romans (ibidem, 8.10.2–3), the *accensi* were heavy infantrymen – otherwise it is difficult to understand how they could be mistaken for *triarii* by Latins, who supposedly were thoroughly familiar with the Roman bat-

[1] Reconstruction of the organization of army described by Livius is difficult. He uses such terms as *manipulus*, *ordo* and *vexillum*. Probably all those terms meant roughly the same, and were equivalent of *tagma*, *semaia* and *speira* of Polybios (6.24.3–5).

Fig. 4. Bronze cista from Palestrina (Latium), ca. 325–275 BC. Both warriors are armed in a hoplite fashion. Their aspis shields are shown from the inside, with *porpax* and *antilabe* clearly visible. The warrior on the right has a throwing spear too, as is indicated by the presence of a thong (*amentum*) (© Trustees of the British Museum)

tle array. *Hastati*, *principes* and *triarii* had oblong shields (*scuta*), but Livius unfortunately says nothing about offensive armament of the first two echelons, mentioning only javelins of *leves* and spears (*hastae*) *triarii*. He does not say whether *hastati* or *principes* were armed with *pilum*, but it seems logical that *hastati* from the beginning of division of heavy infantry in several echelons were armed with some type of missile weapon. Perhaps, originally they used the universal *hastae*, which would explain their name. Not very helpful is the account of *principles*, who, according to Dionysios of Halikarnassos (*Rhomaike Archaiologia* 20.11.2), during the war with Pyrrhos were fighting with "cavalry spears" (*hippikois dorasin*), which they held with both hands. It is difficult to reconcile it with any other source, not to mention the practical impossibility of using such weapons while wielding the Italic shield.

The intervals between *manipuli* allowed for regrouping and replacing tired soldiers or those, who used up their missiles and were no longer able to conduct a fight from the distance. It seems that this particular feature was the greatest asset of the new formation. The Description of the battle of Suessa, fought by Romans against Latins and Samnites (Livius, 8.8–10) shows the infantry fighting in manipular formation, which differs somewhat from that described by Polybios, but works on basically the same principle. Livius emphasizes that Latin forces were organized and armed identically as Romans (ibidem, 8.8.2, 15). Earlier in his work he says that each *manipu-*

lus consisted of one Roman and one Latin *centuria* as a result of the signing of the treaty with Latins (ibidem, 1.52.6).

Although some recognize credibility of this passage (or part of it), it is often rejected by scholars. G.V. Sumner concludes that because of large discrepancies in Polybios' description of the army, "It would seem almost impossible to believe that Livy's legion ever existed in reality (...)". Sumner believes that we are dealing here with "antiquarian reconstruction, concocted out of scattered pieces of information and misinformation", concluding that "Livy's account should not be treated as a valid description of any form of the manipular legion", and represents only the value of details that are confirmed by other sources. It is also worth noting that Sumner believes that the introduction of manipular tactics probably took place later – in the last quarter of the 4th century BC, during the Samnite Wars. This is based on the above-mentioned account in *Ineditum Vaticanum* (Sumner 1970, pp. 68–69).

Should we also incline towards this late date and agree with Sallustius and author of *Ineditum Vaticanum*, rejecting accounts of Livius, Plutarchos and Dionysios? In other words, should the introduction of new weapons and manipular tactics be linked only with the consequences of the Second Samnite War, or can it be dated to an earlier period?

Because the evolution of hoplite phalanx in Italy differed from that in Greece (Snodgrass 1965, pp. 116–120), the hypothesis of Martin P. Nilsson (1929, p. 4), based on the account of Diodoros (12.64) and Livius (29.5) would be acceptable, since a "classic" form phalanx indeed could spread in the Roman army only around the third quarter of the 5th century BC. This would explain, why those sources contain such sharp distinction between the two systems of weapons and tactics, although it may result from previously mentioned simplification of the image of phalanx occurring in the later ancient sources (written after the disappearance of hoplite style of combat), or from the fact that on the eve of change Roman hoplites fought in close order formation and in a manner distinctly different from the one applied later. It is possible that, as in Greece, the actual image of phalanx was distorted by perception of it by ancient writers through the lens of the wealthiest and best-armed citizens. The army created by Servius Tullius could long retain many characteristics of the archaic warfare, such as the aristocratic horsemen, who dismounted and fought on foot as hoplites; the use of throwing spears; and far-reaching individualism of the warriors. Perhaps it had never evolved into hoplite phalanx, as it existed in Greece in the period of the Peloponnesian War and the first half of the 4th century BC, never becoming the primary way of fighting. However, illustrated by colorful examples, *disciplina* could have played much smaller role in the Roman warfare of the 5th

and 4th centuries BC, than *virtus* (Oakley 1985, pp. 393–394, 404–405; Lendon 2005, pp. 182–186).

In his descriptions of battles fought by the Romans in the period of the Early Republic, Livius often mentions missile weapons (*tela*): missile (most likely a javelin or a throwing spear) hits oblong shield (*scutum*) of Horatius Cocles (Livius, 2.10.9–10); the Etruscans throw javelins at Claelia swimming the Tiber (2.13.6), and the Roman army during the battle (2.50.7). The term *pilum* itself appears very early: in one of the battles with Volscians, the Romans stick them into the ground (*defixis pilis*) before combat, misleading their opponents and then charging with drawn swords (2.30.12). They do the same (*fixis in terra pilis*) in another clash with the same tribe, in which in turn they themselves are showered with missiles (*missilibus telis*) by the enemy (2.65.3–4).

These fragments are of course of doubtful value, because of dubious sources used by the author, the method and ramification of his narrative. Livius does not mention *pilum* in his account of reforms of Servius Tullius, but it appears in his descriptions of the wars waged by the young Republic as apparently standard weapon of heavy infantry, which seems to be improbable. It is impossible to determine to what extent Livius introduces anachronistic weapons and tactics in his narrative, and to what extent he takes them from his sources, allowing him to present the character of combat in the ancient period of Roman history. Recently, some researchers have undertaken attempts to rehabilitate this historian and his descriptions of weapons, tactics and battles (Zhmodikov 2000; Koon 2007). Even if sources of Livius did not allow him exact reconstruction (which probably was not the aim) of the individual battles, the question remains whether the tradition of descriptions, on which they were based, could enable him to give the very nature of the struggle in this period. In other words, can it be assumed that, although anachronistic in detail, his accounts at least may reflect the character of Italic warfare? If so, since when was the necessary weaponry available?

We may agree with Burns (2005, pp. 157–158) that the Italic shield of the 4th century BC could differ considerably from the shield known to Polybios, but it also must have possessed its essential features (such as an elongated shape and a characteristic, spindle-shaped or oval umbo), distinguishing it from the hoplite shield and early Italic shields. One of the oldest images of oblong shields possibly used by Roman armies can be found on a series of cast copper-alloy currency bars, which were struck after 289 BC – *aes signatum* (Mattingly 1945, p. 65) (fig. 5). The shield is presented from the outside, with a clearly visible, spindle-form umbo, and from within, although it is difficult to discern if the handgrip is vertical or horizontal and whether shield has a clear-

Fig. 5. Roman copper-alloy currency bar (*aes signatum*), ca. 280–250 BC. Obverse: front side of *ascutum* with a spindle-shaped umbo; reverse: inner side of the same shield, perhaps with a horizontal handgrip (© Trustees of the British Museum)

ly-defined rim, but it is probably flat. Unfortunately, it cannot be ruled out that it is an image of a weapon captured from the enemy, especially since it is similar (because of the oval shape and flatness) to Celtics shield found in the lake of La Tène and dated to about 250 BC; captured shields of Galatians from the Pergamon frieze, of similar date (Connolly 1998, p. 118); and shield of Celtiberian warrior from Braganza fibula (Quesada Sanz 2011) (fig. 6). Similar, oval shields with spindle-shaped boss and pronounced rim are shown on Etruscan funerary steles from Bologna (Govi 2008, p. 37, fig. 1) (fig. 7). However, it is worth noting that of the nine foot warriors shown on the situla Arnoaldi (Cherici 2008, p. 231, fig. 2; Connolly 1998, pp. 103, 105) (fig. 8), eight have oblong shields of a shape very similar to the shield from Kasr-el-Harit, or those shown on Domitius Ahenobarbus relief. What is also important, each of warriors from this situla has also a pair of spears or javelins.

Other elements of the defensive armament of the legionary, similar to those in use in the late 3rdcentury BC, are also represented in the iconogra-

Fig. 6. Detail of the "Braganza Brooch" from Spain, ca. 250–200 BC, showing a Celtiberian warrior in Montefortino-type helmet and a flat *scutum* with a spindle-shaped umbo (© Trustees of the British Museum)

phy and archeological finds from Italy and from much earlier. The popularity of helmets of Montefortino type spread from the region of the Po Valley, where it appeared at the end of the 5th century BC, to the south. At the turn of the 5th and 4th centuries BC, helmets of this type were worn by warriors from central Italy, as specimens were found at Perugia, in the tomb of an Etruscan

Fig. 7. Two stelae from Bologna, 5th century BC. On both are depictions of (probably Etruscan) warriors with oblong shields with spindle-shaped umbos and pronounced rims (after Cherici 2008; Govi 2008)

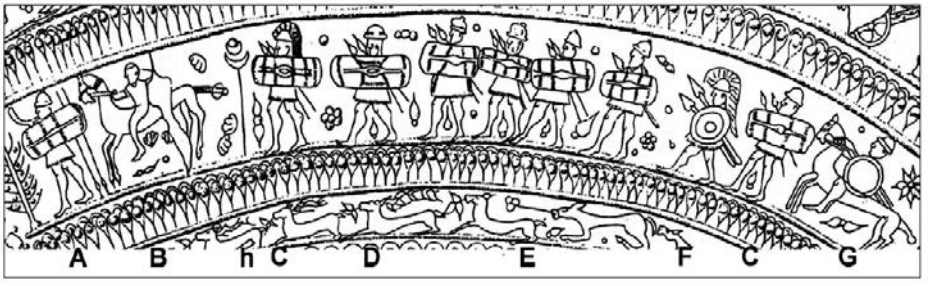

Fig. 8. Arnoaldi situla, 5th century BC. All foot warriors except one are armed with oblong scuta and two throwing spears or javelins (after Cherici 2008)

warrior from Orvieto (with hoplite shield, muscle cuirass and greaves) and, importantly, in Cerveterii in Latium. They also appear on the reliefs from the Etruscan tomb of Ceaere and statuette from vase of Canosa (warrior in muscle cuirass). By the end of the 3rd century BC, it had spread to the entire Apennine Peninsula and became the basic head protection of Roman legionaries (Paddock 1993, vol. 2, pp. 482–483; Feugère 2002, pp. 70–71; Connolly 1998, pp. 99–100). A simple, relatively small breastplate (*kardiophylax*, *pectorale*) was already known in the Central Italy in the 5th century BC (Holland

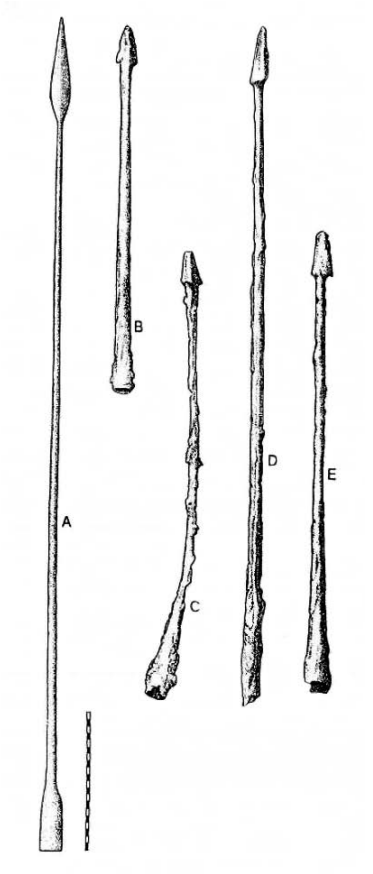

Fig. 9. Socketed (light) *pila* from Italy. A: from Vulci; B–E: from Montefortino (after Connolly 1997)

1956; Connolly 1998, p. 101), although it had a shape of a circle, not a square, as described by Polybios (6.23.14).

In Northern Italy weapons similar to light (socketed) *pilum* appeared at least as early as the 5th century BC. From the first half of this century comes the 45 cm long haft (including a 6 cm head) from Montericco in the Po Valley. It is possible that this weapon was of Etruscan provenance, like the light *pilum* haft 120 cm long held in Vatican Museum, and supposedly yielding from Etruscan tomb of the 5th century BC at Vulci. If in fact a weapon of this type appeared first in Etruria, it would confirm the account of Plinius the Elder, who attributed the invention of *pilum* (and *hasta velitaris*) to Tyrrhenians (Etruscans) (Plinius, 7.201). Weapons of this type were also used very early by the Celts. Many hafts dated to the end of the 4th century BC were found in the Celtic necropolis at Montefortino (Connolly 1997, p. 44; Small 2000, pp. 225–

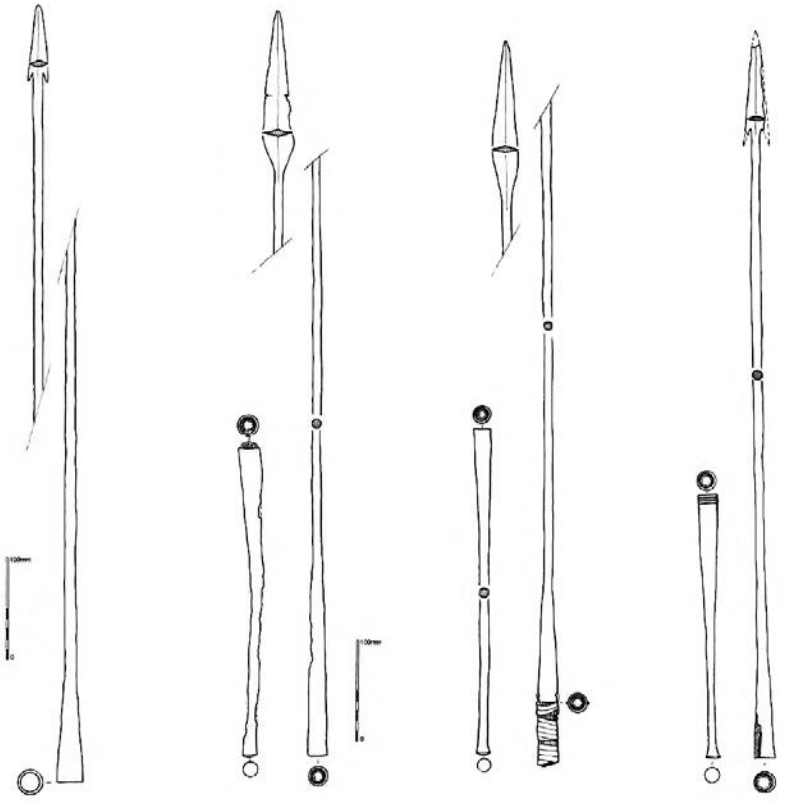

Fig. 10. Socketed *pila* from Monte Bibele. From left to right, specimens from graves 6 (La Tène B1 period); 72, 75 and 79 (La Tène B2 period) (after Lejars 2008)

226) (fig. 9). Celtic *pilum*-type weapons were also found in large numbers at Monte Bibele. Their round or square in cross-section iron hafts with sockets measured from 50 to 95 cm, with heads of different shapes (leaf-shape, triangular with barbs, square-section), 4 to 17 cm long. It seems that popularity of javelins with long iron hafts was low during the La Tène B1 period (ca. 410/380–350/325 BC), as only one so dated was found, but increased in La Tène B2 period (ca. 350/325–280/260 BC). In this period most warriors buried at Monte Bibele had a sword, a *pilum*-type javelin and sometimes also a spear with them (Lejars 2008, pp. 127–128, 140–142, 146–147, 155–156, figs. 5A, 6, 9) (fig. 10). This inspiration for the Roman *pilum* is plausible, as later the Celtic *gaesum* was quite similar to the light *pilum,* apart from the leaf-shaped or barbed head. Diodoros says that javelins were used by Celtic warriors at Alia (Diodoros Sikeliotes, 14.115.1), and, moreover, as we have seen, some ancient authors linked the introduction of heavy javelins in the

Roman army with campaign conducted against the Celts. Alternatively, the Celtic *gaesum* may have been inspired by the Roman *pilum*, used against them in the first half of the 4th century. This could explain later popularity of this weapon amongst warriors buried at Monte Bibele.

From the pre-Roman period we also have "spits" from the graves of Loreto Aprutino in central Italy. These are long and thin iron bars of unclear purpose, perhaps also the hafts of light *pilum*, or all-metal *saunion*. The only complete specimen measures 91 cm (Connolly 1997, pp. 48–49, fig. 6). Similarly, very numerous rods were found at Šmihel (Horvat 2002, pp. 135–137; see also Horvat 1997). Light *pilum* was probably older of the two versions in use at the time of Polybios, since the earliest metal parts of heavy *pilum* (haft with a square plate) come from the 2nd century BC, also from Šmihel (ibidem, pp. 129–132, figs. 11–18). Two specimens from Telamonaccio should also be dated to this period (Connolly 1997, p. 44).

According to the description of Polybios, light *hussos* measured about six cubits long: half of which was a wooden shaft, and the other half was an iron haft with a head (Polybios, 6.23.9–10). It seems that this description of weaponry, provided by this historian, is exaggerated, because none of the specimens found measured those "four cubits", that is 132–138 cm (depending on the type of cubit); closest to this length is the *pilum* (allegedly) from Vulcii. As for the weapons of the 2nd century BC, the longest haft from Renieblas was 94 cm long (Connolly 1997, p. 44), and from Šmihel – 93 cm long (Horvat 2002, fig. 26). Specimens used during the Late Republic also did not reach the length stated by Polybios (D'Amato 2009, p. 7). Paradoxically, the almost certainly anachronistic account of Dionysios of Halikarnassos, which relates to the events of 505 BC, contains a description of this weapon, confirmed by archeological finds. Dionysios defines *hussos* as "a Roman missile" (*belē Rhōmaiōn*) and says that its iron haft measured three feet; again, depending on the foot used, from 90 to 96 cm (Dionysios, 5.46.2).

If we acknowledge the reliability of basic information contained in the accounts of Seravian reforms, which essentially created "archaic phalanx" of some kind, further development of Roman arms and tactics could have been as follows. In the 5th century BC warriors forming the backbone of Roman infantry were armed with spears and hoplite shields and fought at the forefront of battle formation – phalanx. In its rear ranks stood warriors armed with spears, javelins and oblong Italic shields. During the wars with mountain tribes of Central Italy, who often used javelins, the popularity of oblong shield was growing, and, by the turn of the 5th and 4th centuries BC, it completely replaced the hoplite shield. At the same time, the popularity of heavy javelin with a long haft increased and it gradually replaced the throwing

spear. In order to optimize the use of missile weapons and under the influence of the experience of fighting against the mountain tribes and – perhaps as the main stimulus – against the Celts, the Romans replaced the phalanx with the manipular formation. Instead of property, the main criterion became the age, possibly because younger men were better suited for the new way of fighting, which demanded greater mobility. An equivalent of former hoplites, the *triarii*, who were now the oldest and most experienced of the soldiers, stood in the rear of battle formation, where they were probably supported by *accensi*. In the forefront were the light armed and two echelons of heavy infantry (*hastati* and *principes*) armed with throwing spears and, increasingly, with heavy javelins. They could regroup and support each other, inflict casualties on the enemy and weaken his will to fight with a hail of javelins, and, in favorable circumstances, charged with drawn swords. If they failed or didn't attack, a decisive charge would have been performed by the better prepared to fight in close quarters: the spear-armed *triarii*. The new tactics allowed for optimal use of javelins, as well as regrouping and bringing in fresh troops to the fight. The nature of battles became more fluid and they lasted longer. Those changes probably took place around the years 390–360 BC. The manipular formation was further improved and simplified during the Samnite Wars, late in the 4th century BC. At that point tactics and weaponry did not differ substantially from those in use a century later. During the 3rd and early 2nd centuries BC, the two last elements of armament appeared, known from Polybios' account – the chainmail armour, which replaced the bronze muscle cuirass for wealthier soldiers, the heavy *pilum* with haft with a square plate, and a sword "called Spanish".

This is of course only a hypothesis – an attempt to reconcile the written sources with the iconographic and archaeological material. Disputes about dating and direct inspiration for the introduction of manipular tactics and associated weaponry are impossible to settle, but there are indications that we should not rashly dismiss the sources, which indicate that it took place in the first half of the 4th century BC. Archaeology and iconography confirm that the key elements of armament – heavy javelins with a long iron haft and oblong shields – could have been known and used by the Roman armies ca. half a century before they clashed with the Samnites.

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Streszczenie

Uzbrojenie armii rzymskiej w IV w. p.n.e.: *pilum*, *scutum* i początki taktyki manewrowej

W czasach wczesnej Republiki Rzymskiej uzbrojenie oraz taktyka przedstawiają się nieznacznie gorzej niż w okresie 264–133 BC. Jak na ironię to właśnie okres wczesnej Republiki Rzymskiej był czasem, kiedy miały miejsce najważniejsze innowacje w zakresie wojskowości. Moment ich wprowadzenia oraz inspiracje jakimi się przy tym kierowano pozostają w kwestii zainteresowania niniejszego artykułu. Okazuje się, że porównując źródła pisane, archeologiczne i ikonograficzne, możemy śledzić zarówno charakter tych zmian, jak i moment, w którym pojawiły się nowe rodzaje broni. Jak wynika z przeprowadzonej analizy, jest bardzo prawdopodobne, że kluczowe elementy uzbrojenia rzymskiego, jak ciężki oszczep (*pilum*) czy prostokątna tarcza (*scutum*), pojawiły się nieznacznie wcześ-

niej niż do tej pory sądzono. Z przytoczonymi elementami uzbrojenia była powiązana także unikalna taktyka manewrowa, którą najprawdopodobniej opracowano przed wojnami samnickimi.