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PLUMBATAE FROM *DACIA RIPENSIS*: THE LEAD-WEIGHTED DARTS FROM A NEWLY DISCOVERED FORTIFIED SETTLEMENT NEAR MODERN-DAY DIMOVO, BULGARIA, IN THEIR PROVINCIAL AND REGIONAL CONTEXT

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Dedicated to my sisters, Milena and Elitsa

Cuvinte cheie: *plumbatae*, săgeți de mână cu plumb, Dacia Ripensis, Dioceza Daciei, Dioceza Traciei
Key words: *plumbatae*, lead-weighted darts, Dacia Ripensis, Diocese of Dacia, Diocese of Thracia

Described by some Late Roman and Early Byzantine military writers using the terms *plumbatae* and *mattiobarbuli* (*martiobarbuli*), the lead-weighted darts are becoming more commonly found in the archaeological record. Initially recognised mostly within the finds assemblages from sites in the western part of the former Roman Empire, these hand-thrown projectiles are currently being given more attention by researchers who study the eastern Roman provinces. Through their proper identification we can correct and augment our existing knowledge regarding the scale of their use in the region, and particularly along the north-eastern frontier zone.

The aim of this contribution is to present the assemblage of *plumbatae* heads from a newly discovered fortified hilltop settlement near the modern-day town of Dimovo, Vidin region, along with other unpublished finds from sites, likewise located within the margins of the Late Roman province of *Dacia Ripensis*. Furthermore, the information for these artefacts is supplemented by the discoveries of lead-weighted darts known to date from sites both within the said province and the larger zone of the dioceses of *Thracia* and *Dacia*.

1. *Plumbatae* in the ancient sources

The lead-weighted darts known from the archaeological record are referred to by Flavius Vegetius Renatus in his *Epitoma Rei Militaris*, also by the anonymous author of *De Rebus Bellicis* and in Maurice's *Strategikon*[1].

According to Vegetius, *plumbatae*, also known as *mattiobarbuli* or *martiobarbuli*, were initially part of the equipment of two legions in *Illyricum*[2] which were so proficient in their use that became the favourite military units of Diocletian and Maximian. Each legionary carried five darts attached to the inner side of his shield[3]. In addition, when discussing battle tactics, the author mentions soldiers who carry *plumbatae* among the light-armoured ones along with javelinmen and archers, usually placed in the back lines, as opposed to the previous passage where the darts were described as part of the equipment of the heavy infantrymen[4].

The anonymous treaty *De Rebus Bellicis* gives further information about the construction of *plumbatae* used. Two varieties are mentioned – *plumbatae tribolatae* and *plumbatae mamillatae*. The first type supposedly had a barbed point and caltrop spikes attached to the lead weight, while the second lacked the spikes and the barbs, having a round-sectioned head. Both types had flights similar to the conventional arrows, however with the addition of lead weights at the junction point between the iron tip and the wooden shaft, and a space for handling the dart below the fletching[5]. The accompanying drawing in the manuscript, although coming from a 16th century copy, illustrates the features of the two dart types described[6]. As previously noted, the *tribolata* variety with spikes present has so far not been archaeologically attested[7].

Another possible reference to the lead-weighted darts is in Maurice's *Strategikon,* where they are called *μαρτζοβάρβούλοι*. Here they are mentioned within the text parts pertaining to the training and equipment of both heavy and light infantrymen. Furthermore, in the latter section it is noted that the darts are

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[1] Völling 1991, p. 291-294; Bishop, Coulston 2006, p. 200; Kozlenko 2008, p. 341-343; Kozlenko 2009, p. 290-291.

[2] The two legions were identified by some modern scholars as *Legio I Iovia* and *Legio II Herculia*, stationed during the Late Roman period primarily in the province of *Scythia* - Pflaum 2007, p. 296-297; Kozlenko 2009, p. 290, and the literature cited. Another opinion on the matter relates the two military units to *Legio V Iovia* and *Legio VI Herculia*, formed by Diocletian and stationed in *Pannonia Secunda* – Vujović 2008, p. 127.

[3] Veg. *Ep*. I.17; II.15, 16, 23.

[4] Veg. *Ep*. III.14.

[5] Anon. *Bell*. X-XI; Bishop, Coulston 2006, p. 200, Kozlenko 2008, p. 341.

[6] Kozlenko 2009, p. 293-294.

[7] For instance Keszi 2018, p. 23.

carried in leather cases (quivers)[8], as oppose to the earlier remark by Vegetius that they were attached to the inner side of the shields. This discrepancy is explained by some modern authors with the supposed change in the weight of *plumbatae* during the Early Byzantine period when they presumably became larger and heavier[9].

In addition to the ancient literary sources, there are supposed *plumbatae* images on Roman coinage issued between AD 277 and AD 310-311. Lead-weighted darts were most likely depicted on coins and/or medallions of Probus, Diocletian, Maximian, Galerius, Maximinus Daza and Constantine as Caesars, Severus II, as well as on a single coin of Maxentius[10]. However, these representations have been recently questioned[11], so for now they cannot be accepted with certainty.

2. The archaeological site near Dimovo

The archaeological site near the modern day town of Dimovo was discovered in 2021, in the course of surveying the new route of the E79 International road. It is located some 200 m to the east of the right bank of the Archar River and c. 500 m to the northeast of the town of Dimovo, falling within the administrative territory of the village of Shipot, Dimovo municipality, Vidin district. Positioned on a steep hill, it is surrounded by deep ravines to the north, west and partially to the south, with the eastern slope being its most accessible point[12].

The rescue excavations conducted during 2021 – 2023 allowed for the complete uncovering of the fortified area of the site (c. 0.4 ha), located on the hill's crest, along with the northern and western slopes of the latter. Two construction periods of the settlement were identified with a short *hiatus* in between. The first one lasted from the 370s or the 380s until the 440s at the latest, and had two phases with a separation point around the beginning of the rule of Theodosius II (408-451). The second habitation period was limited to the 6th c. AD, with a still uncertain starting date, most likely between the reigns of Anastasius I and Justinian I, and a *terminus post quem* for the end of occupation during the reign of Tiberius Constantine (578-582), consistent with the coins found[13].

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[8] Maur. *Strat*. XII.2; 4; 5.

[9] When describing the *plumbata* from *Olympia*, T. Völling suggests a later date for it due to its heavier weight and the said passage in *Strategikon*, related by the modern author exactly to the enlargement of *plumbatae* size during the Early Byzantine period – see Völling 1991, p. 295-296.

[10] Estiot 2008, p. 177-201; Drost, Estiot 2010, p. 435-445; Estiot 2017, p. 415-435.

[11] Keszi 2018, p. 27-29.

[12] Harizanov, Manev in print.

[13] Harizanov, Manev in print.

The site was positioned along the *Lissus – Naissus – Ratiaria* road, some twelve Roman miles to the south of *Ratiaria*, the capital of *Dacia Ripensis* (**Fig. 1**). During the first construction period it was occupied by a military garrison of limited size that was most likely entrusted the collection and safeguarding of foodstuffs and fodder, stored in more than 120 pits carved into the bedrock (**Fig. 2**). The first fortification was erected around the beginning of the second phase of the same period, and comprised a 1.00-1.35 m thick stone wall with a substructure of large stones bonded primarily with clay. Two gates of similar design were constructed during that phase, where mortar was used as a bonding agent. Around twenty stonewalled buildings, several sheds and dug in installations were also utilised during this period. Limited traces of fires that can be seen inside some of the buildings, as well as several dispersed coin hoards and a large number of arrowheads, the latter found primarily along the northern slope of the hill, indicate a possible devastation of the site by an enemy attack[14].

After a short *hiatus*, the site was inhabited again in the 6th c. AD when a second fortification wall was built (1.20-1.60 m thick, with mortar bonded stones and *spolia*), in most places following the layout of the first one. A new entrance complex was erected on top of the previous one from the northwest, while the second gate from the southeast was supposedly closed. At the same time a rectangular tower was incorporated in the newly traced eastern curtain wall and a small single-nave church was built adjacent to inner side of the northern fortification wall. In that period most of the earlier buildings and storage pits were out of use, thus leaving a large open space inside the fortification which was probably utilised as a wartime refuge by the inhabitants of the nearby non-fortified settlements[15].

3. The *plumbatae* finds from Dimovo

No less than fourteen finds from the site near Dimovo could be categorised as remains of *plumbatae* heads (**Figs. 3-8**). Five have both the iron and lead parts fully or partially preserved (cat. nos. 1-5), while the other nine have only the iron component of the darts present (cat. nos. 6-14). In addition, three lead objects could be identified as remains of the lead weights of *plumbatae* (cat. nos. 15-17). Finally, there are three conically shaped hollow iron points that could have also been used as *plumbatae* heads (cat. nos. 18-20).

The ones with preserved lead and iron parts are of similar overall design and size (cat. nos. 1-5). Four of the finds have their points present. Two have rhomboid heads with quadrangular cross-sections, while the other two have poorly preserved elongated triangular or swallowtail barbed heads with

[14] Harizanov, Manev in print.
[15] Harizanov, Manev in print.

quadrangular to ellipsoid cross-sections. All have close to square cross-sections of the iron shaft and circular ones of the hollow conical socket. The shape of the lead weight varies from slightly or more pronounced biconical (cat. nos. 1, 2, 4, 5) to parallelepiped (cat. no. 3). One of the finds has a nail hole preserved (cat. no. 1) (**Figs. 3-4**).

The nine iron heads are also similar in terms of design and size (cat. nos. 6-14). Only two have their hollow conical sockets preserved, while those of the rests have been broken along with parts of their shafts. Five (cat. nos. 8, 9, 10, 13, 14) have elongated, barbed, triangular shaped points with rhomboid to rectangular cross-sections, while the other four (cat. no. 6, 7, 11, 12) have swallowtail barbed points with rhomboid to nearly oval cross-sections. The two preserved sockets have originally shaped nail holes near their open ends (cat. nos. 6, 7) (**Figs. 5-6**).

The three lead objects that could have been used as weights for *plumbatae* heads are of two different shapes (cat. nos. 15-17). The first two have the most common slightly biconical original shape, with both of them being secondarily split along their long axis. The first one has remains of wood (from the wooden shaft?) inside (cat. no. 15), while the second one has a rectangular hole, supposedly for an iron nail (cat. no. 16). The third find is of conical shape and also has an opening preserved, that could have been designed for an iron nail (cat. no. 17) (**Figs. 7.1-3; 8.1-3**).

The three hollow conical iron points (cat. nos. 18-20) have similar preserved length (4.9 to 6.4 cm) and diameter of the socket (close to 1 cm), and rhomboid or close to rhomboid cross-sections of the tip (**Figs. 7.4-6; 8.4-6**). While they seem too small for spear butts, the possibility for such finds to have been used as *plumbatae* heads rather than conventional arrowheads is provided by the discovery of a similar item encapsulated in a lead weight and identified precisely as a *plumbata*, at the site of the Roman and Late Antique *Halmyris* in *Scythia* (see below).

Most of the finds come from surface layers or disturbed contexts and for now could be only generally dated within the time frame of the site's two habitation periods, between the last quarter of the 4th and the late 6th c. AD. However, the ones that come from datable contexts (cat. nos. 2, 4-7, 16-18) were all found in layers related to the first construction period, between the 370s/380s and the 440s (covering both construction phases). This fact, along with the overall major predominance of archaeological material discovered during the excavations from the same first stage of habitation, could help place the use and discard of all the *plumbatae* finds in the course of the same time period.

4. Other unpublished finds from *Dacia Ripensis*

4.1. Stray finds from the depository of the Vidin Regional History Museum[16]

A single *plumbata* head, now in the depository of the Vidin Regional History Museum, was supposedly found in the vicinity of the modern village of Archar, near the site of the Roman and Late Antique town of *Ratiaria*, located on the right bank of the Danube (**Figs. 9.4; 10.3**). There is no further information about this discovery. This is by far the largest and heaviest (more than three times the weight of the rest) of the darts described here. It has a nearly triangular point with biconical cross-section and swallowtail barbs, an oval to octagonal cross-section of the iron shaft, and a heavy biconical lead weight with close to hexagonal cross-section (cat. no. 21). Given its larger size and weight, a difference in dating in respect to the Dimovo finds could be proposed.

Two more finds also held in the said museum are almost entirely preserved *plumbatae* heads. The first one (cat. no. 22) has a corroded leaf-shaped point with almost biconical cross-section, a solid shaft with a square cross-section and an oblong close to biconical lead weight with a hexagonal cross-section (**Figs. 9.2; 10.1**).

The second one (cat. no. 23) has a triangular point with a close to biconical, flattened cross-section, again an iron shaft with a square cross-section and an oblong close to biconical lead weight, this one with a cross-section closer to an oval rather than a hexagon (**Figs. 9.3; 10.2**).

Both darts lack data about their place of origin (apart from being found in the district of Vidin) and context of discovery. Nevertheless, their characteristics are very close to the rest of the *plumbatae* described here and it seems safe to assume their Late Roman to Early Byzantine dating.

4.2. A *plumbata* head from the Late Roman and Early Byzantine site near the village of Stanevo (*Pomodiana / Putedis*)

Another almost completely preserved *plumbata* head was found during the recent excavations of a small fortification near the modern day village of Stanevo, identified as the Late Roman *Pomodiana* or the Early Byzantine *Putedis* known from the historical sources[17].

Initially only a Late Roman *burgus*, built between the reigns of Diocletian and Constantine the Great, the fortification was enlarged most likely in the time of Valens and Valentinian I with the erection of an outer wall

[16] The possibility to study and publish these finds was provided by my colleague Nikolay Kazashki (archaeologist, Vidin Regional History Museum), and courtesy of Dr. Hristina Kirilova (Director of the Vidin Regional History Museum).

[17] Zhivkov, Stoichkov 2020, p. 603-605; Zhivkov in print.

surrounding the earlier tower. The last habitation period of the site is related to the 6th c. AD, when a new inner tower and an additional (or a new) fortification wall were built[18].

The *plumbata* head was found among the debris from a robbers trench, located on top of the inner curtain wall. The dart has a triangular point with barbs missing, a solid iron shaft ending in a hollow conical socket, the latter enveloped in a slightly biconical lead weight with a nail hole near the middle (cat. no. 24). The shape and components preserved are almost identical to those of the majority of the Dimovo finds (**Fig. 9.1**). Given its place of discovery and the site's chronology, the dart could be most likely dated within the time frame of the first construction period of the tower and the inner wall, during the 4th and probably part of the 5th c. AD[19].

5. Published *plumbatae* finds from *Dacia Ripensis*

The information published about *plumbatae* finds from within the boundaries of *Dacia Ripensis* comprises data for eight additional sites and two uncertain zones of discovery (**Fig. 1**).

The last site located in modern-day Bulgarian territory is the one at Kula, the presumed location of *Castra Martis* known from the sources[20]. Among the finds of weaponry from the inner zone of the *quadriburgium* there is a single, previously unrecognised *plumbata* head. The latter is presented with a short description and a basic drawing[21]. It cannot be stated for sure, but the iron point seems to have been rhomboid shaped. The iron shaft is secondarily bended, while the hollow socket is enveloped in an oblong close to biconical lead weight with a circular cross-section.

No dating is proposed for the find, so for now it could be placed within the general chronological frame of the fortification's main habitation period, during the 4th c. AD and until AD 408[22].

The rest of the finds come from sites located in modern-day Serbia and Romania.

Remains of no less than seven dart heads have been found during the excavations of the site at Gamzigrad, Serbia, identified as *Felix Romuliana*. Two of the finds have their iron and lead parts almost entirely conserved (triangular barbed points and oblong to biconical lead weights), two more have remains of

[18] Zhivkov, Stoichkov 2020, p. 603-605; Zhivkov in print.
[19] The opportunity to publish this find along with the additional information for its place of discovery and possible dating was provided by the excavation director of the site, Dr. Vladislav Zhivkov (Asst. Prof., National Archaeological Institute with Museum, BAS).
[20] Atanasova 2005, p. 12-15.
[21] Atanasova 2005, p. 202, no. 15; T. V.15.
[22] Atanasova 2005, p. 240-242.

both metal parts partially preserved (with biconical lead weights), there is also one slightly conical iron point with swallowtail barbs, with the better part of the hollow, conical socket conserved, and two lead objects, again most likely remains of *plumbatae* weights. One of the dart finds was discovered in a layer dated to the second half of the 4th c. AD, while the rest were found in contexts of the 380s – the early decades of the 5th c. AD[23].

One stray find of a well-preserved *plumbata* head is attested for the area of modern Negotin, Serbia. It has the usual triangular barbed point, solid shaft with circular cross-section and an oblong lead weight, adjoined with a rivet to the hollow socket[24].

The rest of the sites with published *plumbatae* finds from the province are located along the banks of the Danube River. The well-known Roman and Late Antique fortified site of *Diana* near modern-day Karataš, Serbia[25], provides for now a single dart head with biconical lead-weight and a poorly preserved iron shaft, with the point missing[26]. No dating of the context of its discovery has been proposed, so it could be dated within the broad chronological frame of the Late Roman and Early Byzantine levels of the fort.

A single find from private collection is supposedly found in the Iron Gates region. The dart has a triangular barbed point, slightly conical shaft and a shorter, oblong-to-conical lead weight[27].

Moving eastwards, the site at Rtkovo (Rtkovo - *Glamija*), Serbia, is the next one with published *plumbatae* finds. The initial fortification was a *burgus* built near the curve of the Danube River during the second half of the 4th c. AD and that existed until the beginning of the 5th c. AD. In the 6th c. AD a *quadriburgium* type of fortification was erected but supposedly never completely finished[28]. A triangular barbed point with part of the iron shaft is preserved from one supposed *plumbata*. There is also another type of iron point found there, this one conical and hollow, narrowing to a sharp tip[29]. The latter is almost identical to the finds from Dimovo of similar design (cat. nos. 18-20).

On the opposite bank of the river, in modern-day Romanian territory, is the site at Hinova where a *quadriburgium* was built either in the beginning of the 4th c. or the 330s. After devastation by fire in the 370s, there is a second period of habitation that lasted until the first quarter of the 5th c. AD[30]. One *plumbata*

[23] Vujović 2011, p. 206, fig. 1; p. 210-211.
[24] Vujović 2011, p. 209, fig. 3.7; p. 212.
[25] See Spehar 2010, p. 28-29.
[26] Vujović 2011, p. 212.
[27] Vujović 2011, p. 207; 208, fig. 2.6; p. 213.
[28] Băjenaru 2010, p. 115-116.
[29] Gudea, Zahariade 2016, p. 202, Abb. 80, top centre and left.
[30] Bajenaru 2010, p. 114-115.

head with both the iron and lead parts preserved has been published[31]. It has a barbed triangular point and an oblong lead weight.

There are six more iron finds of interest from this site. Three of them have the barbed triangular points of conventional *plumbatae*, however their shafts end with a tang, with two of them having nail holes preserved (one and two). The length of two of them is mentioned (21.4 and 17.5 cm)[32]. Lead-weighted darts with an iron shaft ending with a tang inserted into the wood are known from Britain, while nail holes are also shaped in the socketed type of dart heads[33]. Finally, the other three finds are hollow conical iron tips[34] that could have also been parts of lead-weighted darts rather than arrowheads or spear butts, and, as the one from Rtkovo, are very similar to the Dimovo finds mentioned.

Moving south, the next site with a lead-weighted darts discovered is the one at Mihajlovac-Blato, Serbia. A *burgus* with *tetrapylon* was built there in the 360s. After destruction by fire in the 370s there was a restoration of the tower and addition of an outer wall. This second phase lasted until the first half of the 5th c. AD. There is no secure proof for the supposed exploitation of the fortification in the 6th c. AD[35]. Two fragmented *plumbatae* heads come from this site. They have biconical lead weights and are both missing their iron points. The finds are dated within the general time frame of the site's functioning until the first half of the 5th c. AD[36].

The site at Borđej (Bordjej), Serbia, also provides data for published *plumbatae* finds. As the previous one, this fortification was a *burgus* with *tetrapylon*, built under the early Tetrarchy[37] or most likely during the reigns of Valens and Valentinian I, with a supposed restoration in the time of Justinian[38]. A fragmented *plumbata* head and a lead weight, also a supposed *plumbata* component, were found there[39].

The last site with a recorded discovery of *plumbatae* is the one at *Sucidava* (near modern-day Corabia, Romania), where two more lead-weighted

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[31] Stîngă 1998, p. 101; Pl. LIX/5 (here described as a harpoon head); Gudea, Zahariade 2016, p. 199, Abb. 77.
[32] Stîngă 1998, p. 101; Pl. LIX.3/10, 4/11, 12 (the first two described as a harpoon heads); Gudea, Zahariade 2016, p. 195, Abb. 73 (here described as arrowheads); mentioned as spear points and possible *plumbatae* heads by L. Amon (Amon 2004, p. 192).
[33] Sherlock 1979, p. 101-102. See here **fig. 12B**.
[34] Gudea, Zahariade 2016, p. 197, Abb. 75, top row.
[35] Bajenaru 2010, p. 121-122.
[36] Vujović 2011, p. 207-209, fig. 2.10-11; 212.
[37] Vujović 2011, p. 209.
[38] Băjenaru 2010, p. 123-124.
[39] Vujović 2011, p. 209; 212-213.

darts have been found[40]. It is located on the left bank of the Danube, across the Roman *castra* and later colony *Oescus* (nowadays Gigen, Bulgaria), where a bridge was inaugurated in AD 328 by Constantine the Great. The earlier civilian settlement there was surrounded by a stone wall around the middle of the 3rd c. AD, while a new Late Roman fortification was built in its south-eastern corner most likely under Galienus and restored several times in the following century. The site was destroyed by the Huns at some point in the first half of the 5th c. AD[41].

The first dart has what appear to be a rhomboid point and a biconical lead weight with circular cross-section. The second one has its point missing. What is left of the shaft is with a circular cross-section. The lead weight is of ovoid shape and again with a circular cross-section. The darts were found in layers of the 4th c. AD[42].

6. *Plumbatae* finds from the neighbouring provinces (*Scythia Minor*, *Moesia Secunda*, *Dacia Mediterranea*, *Dardania*, *Moesia Prima*)[43]

Currently, no *plumbatae* finds have come to the attention of the author from the territories of the provinces of *Thracia*, *Haemimontus*, *Rhodope* and *Europa* in the diocese of *Thracia*, and the province of *Praevalitana* in the diocese of *Dacia*.

6.1. *Scythia* (*Scythia Minor*)

Only one *plumbata* head could be found in the published information available about sites from the territory of *Scythia*. The said find was discovered at the Roman and Early Byzantine site of *Halmyris* near modern Murighiol, Romania, and dated to the late 3rd – the 4th c. AD[44]. However, there are two previously unpublished *plumbatae* heads, held in the depository of the Regional History museum in Dobrich[45], which for now bring the total number of such finds from *Scythia* to three.

The Halmyris find is of particular interest. Despite being described as belonging to Type I of Völling's classification for the *plumbatae* (see below),

[40] Buora 1997, p. 245.
[41] Bondoc 2006, p. 731-740.
[42] Tudor 1948, p. 184, Fig. 32.5, p. 185; Amon 2004, p. 87; 178; Pl. X.3-4.
[43] The information for the *plumbatae* finds from the dioceses of *Thracia* and *Dacia* is summarised in **Table 1**. Most of the sites mentioned could be seen on the map, **fig. 1**.
[44] Glad, Nuțu 2010, p. 136; 145, fig. 2.3.
[45] I owe the opportunity to study and publish the finds to the colleagues from the Regional History Museum in Dobrich Nikoleta Nikolova and Boyan Totev, and the director of the museum Mr. Dobri Dobrev. The two *plumbatae* heads will be further studied and published in a separate article.

the drawing and photo included[46] portray a different variety of the iron point (**Fig. 11**). If the latter has not had its tip and barbs broken (there is no indication on the drawing or the photo), its shape could be described as at least partially hollow cone narrowing to a sharp tip, with an estimated length of about 5 cm. The socket is enveloped in a biconical lead weight. Half of the latter's core is empty leaving more space for the wooden shaft, most likely for a firmer grip of the assembly point between the iron and the wood.

Of similar or nearly identical design are the hollow conical iron points already mentioned from the sites at Dimovo, Rtkovo and Hinova, and that could be now more plausibly identified as possible *plumbatae* heads.

The two stray finds from the depository of the Regional History Museum in Dobrich are of two different shapes. The first one has a barbed triangular point, solid shaft and hollow conical socket, with a biconical lead weight. The second one resembles the finds from the Vidin museum, with close to a leaf shape wide point, solid shaft, hollow socket and an oblong lead weight. There is no information available about the dating and context of discovery of these finds, apart from being found in the vicinity of the modern-day town of Dobrich.

6.2. *Moesia Secunda*

There are four stray finds of five *plumbatae* heads published from within the eastern part of the territory of *Moesia Secunda*, discovered near the modern villages of Dragoevo, Markovo, Kalnovo / Yankovo and Pet mogili. All of the finds are of similar design, with triangular barbed iron points, solid shafts and hollow sockets enveloped in biconical lead weights, and varying in overall weight from 60 to 120 g. Due to the lack of archaeological context they are all dated within the broad chronological frame between the 2nd and the 5th c. AD[47].

Another stray find, this one previously unpublished and currently held in the depository of the History Museum in Provadia[48], was supposedly found in the vicinity of the modern-day village of Tutrakantsi. It has a rhomboid point, solid shaft, hollow conical socket and a partially preserved oblong lead weight.

The only find published and discovered during excavations proper is the one from the Late Antique fortified settlement near modern-day Dichin. It has both the iron and lead parts preserved. The shaft has a circular cross-section and finishes in a barbed point. The lead weight is described as ovoid-shaped but

[46] Glad, Nuțu 2010, p. 145, fig. 2.3.
[47] Stoychev 2004, p. 67-72.
[48] I would like to thank the Director of the History Museum in Provadia Mr. Nikolay Hristov and my colleague Asst. Prof. Petar Leshtakov (National Archaeological Institute with Museum, BAS) for the opportunity to study and publish the find. A more thorough study of the artefact is to follow in a separate article.

seems closer to biconical. The context of the find is dated to c. AD 500[49]. With identical dating are two supposed bolt heads or projectile heads[50] which however could also be considered as possible *plumbatae* heads of the type with a hollow, conical point. Their context dating means that the dart (or darts) was most likely used in the second half or the last decades of the 5th c. AD.

6.3. *Dacia Mediterranea*

A single *plumbata* head is published from the territory of *Dacia Mediterranea*, which now lies within the territory of modern-day Bulgaria. The dart was discovered during the excavations of a fortified settlement nowadays called Tsari Mali Grad, located near the village of Belchin, Samokov municipality. The artefact has a slightly rhomboid iron point with swallowtail barbs and an ovoid lead weight. Its archaeological context is related to the first habitation period of the site, namely in the last quarter of the 4th and the first half of the 5th c. AD[51].

One *plumbata* head was discovered on the site called Pirotski Grad near Pirot, Serbia. It has a slightly rhomboid point with swallowtail barbs and a partially preserved ovoid lead weight[52]. No secure dating for the find has been proposed.

Another lead-weighted dart was found within the identified as a crafts centre part of the Late Roman villa at *Mediana*, in what is now Niš, Serbia. This one has a conical point with swallowtail barbs, a solid shaft and an ovoid lead weight. The find is dated to second half of the 4th – the mid- 5th c. AD[53].

An additional *plumbata* head was discovered within the zone of the Late Antique necropolis of *Naissus* at Jagodin Mala neighbourhood in modern Niš, Serbia. This stray find has a rhomboid point with swallowtail barbs, with the lead weight missing. It is generally dated to the 4th – 5th c. AD[54].

The last two *plumbatae* heads from this province known to date were uncovered on the site of Svrljiški Grad, near Svrlig, Serbia, a fortification located on the *Naissus – Ratiaria* road. The two darts have triangular barbed points and ovoid lead weights, with one of them also having a twisted shaft. They are roughly dated to the 4th – 6th c. AD[55].

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[49] Manning 2019, p. 322; 325, fig. 12.1.1.
[50] Manning 2019, p. 324; 325, fig. 12.1.7-8.
[51] Hristov 2012, p. 121-129.
[52] Vujović 2011, p. 207; 209, fig. 3.4; 212.
[53] Vujović 2011, p. 209, fig. 3.3; p. 210-211.
[54] Drca *et alii* 2012, p. 116, no. 103.
[55] Vujović 2011, p. 206-207; 209, fig. 3.1-2; p. 212.

6.4. *Dardania*

For now there are only two sites with *plumbatae* finds from the territory of *Dardania*. The first one is the Roman and Late Antique town of *Scupi* (Scopje, North Macedonia). There are as it seems two *plumbatae* heads with both metal parts fully or partially preserved (iron and lead components), as well as at least one iron triangular barbed point that could have also been a component from a *plumbata* head. The first one has a barbed triangular point and an oblong lead weight, while the second one has the point missing, with only part of the shaft preserved and enveloped in a biconical lead weight. The finds are only generally related to the Late Antique period of *Scupi*, with one of the darts found inside a building from the first construction phase of the Early Byzantine settlement above the ruins of the Roman theatre where coins from the late 4th c. AD were also discovered[56].

The second place with such find is the Late Roman hilltop site at the Šarski Krš, near Duga Poljana, Serbia. The fortification was supposedly built around the middle of the 3rd c. AD and existed until the second half of the 4th c. AD[57]. There is one *plumbata* head discovered there with only the iron component preserved. It has a slightly conical point with swallowtail barbs, and shaft and hollow conical socket with circular cross-sections.

6.5. *Moesia Prima*

The last province from the dioceses of *Thracia* and *Dacia* with published finds of *plumbatae* heads from its territory is *Moesia Prima*. Stray finds come from the area of Svilajnac, the zones of the Roman and Late Antique towns of *Viminacium* (Kostolac) and *Margum* (Dubravica), and the fort of *Pincum* (Veliko Gradište), all within modern-day Serbia. The first one has a slightly rhomboid point with swallowtail barbs and an oblong, partially preserved lead weight. The ones from the *Viminacium* and *Pincum* have the triangular barbed type of points and biconical lead weights, with the second one having a twisted shaft as well. The one from *Margum* has a rarely attested three-leaf point with a rhomboid cross-section, and again a biconical lead weight[58].

Two contextualised *plumbatae* heads were found in the Late Roman fort of *Novae* (Čezava, Serbia). The first one was discovered in a tower along with a coin of Valentinian I, while the second came from the central zone of the military camp, from a layer dated to the second half of the 4th c. AD. Both have

[56] Ončevska Todorovska 2018, p. 148, fig. 4; p. 151-152; Ončevska Todorovska 2017, p. 253-255; 305-307, T. VII, 51; 55.
[57] Milinković 2008, p. 540-541, fig. 5.
[58] Vujović 2011, p. 208, fig. 2.7-9; p. 209, fig. 3.5; p. 211; 213.

triangular barbed points, with the second one lacking its lead weight, while that of the first one is close to biconical in shape[59].

7. Discussion

The data presented about the Dimovo *plumbatae* and the rest of the identical finds from the zone of *Dacia Ripensis* and the territories of the dioceses of *Thracia* and *Dacia* known to date supplements to a large extent our knowledge of the spread and use of lead-weighted darts in this part of the Empire. The sites from within *Dacia Ripensis* are eleven with three more zones of discovery located near Late Antique settlements. The artefacts identified from the province are no less than forty (counting seventeen from Dimovo), not including the three tanged heads from Hinova and the nine hollow conical points (from Dimovo, Rtkovo, Hinova and Dichin) which, in accordance with the *Halmyris* find, could also be considered as possible *plumbatae* heads. Of the forty darts counted, twenty three have both metal components (iron and lead) fully or partially preserved. In comparison, the two northern provinces of the diocese of *Thracia – Scythia* and the neighbouring *Moesia Secunda* – provide for now data for two sites with three finds (Sc) and six sites (however only one an archaeological site proper) with seven finds (MS). Similar is the situation present for the territories of *Dardania* and *Dacia Mediterranea*, from the diocese of *Dacia*, where there are four finds from two sites (Dd) and six finds from five sites (DM). The province of *Moesia Prima* also stands closer to the last mentioned, with six finds from five possible sites (**Table 1**).

Plumbatae types and dimensions in the dioceses of *Dacia* and *Thracia*

Both types of Völling's classification are attested in the region in question[60] **(Fig. 12.A)**. Type 1, featuring a barbed point, is the most common, with some variations in the shape and cross-section of the point, along with the shape and the curve of the barbs. To this type (Type 1a with a smooth shaft and Type 1b with a twisted shaft) belong at least eleven of the Dimovo finds (cat. nos. 1, 3, 6-14), as well as the Archar and Stanevo finds (cat. nos. 21 and 24). While the other two finds from the Vidin region (cat. nos. 22 and 23) and the second one from Dobrich could have had leaf shaped or triangular shaped points, the corrosion of the iron could have diminished the traces of barbs or could have made them unrecognisable from the rest of the point, so their attribution remains unclear. Furthermore, to the same type belong almost all of darts with points preserved from the region in question (**Table 1**).

[59] Vujović 2011, p. 207-208, fig. 2.2-3; 212.
[60] See Völling 1991, p. 288-290.

Type 2 with a rhomboid point without barbs is rarely attested. Two of the Dimovo finds belong to it (cat. nos. 4-5), along with the one from Kula (?) and the one from Tutrakantsi. The other find without barbs on the point is the one from Dubravica, where however the point is three-leaf shaped rather than rhomboid[61].

The last variety of a *plumbata* point is represented by the one from *Halmyris*, with a hollow (?) conical tip. Here the elongated solid part of the shaft is omitted, leaving only the conical socket and the tip. If the published information available is correctly presented and interpreted, it would allow for another separate type of lead-weighted dart to be distinguished.

The rest of the iron components of the darts described, the solid shaft and the hollow socket, seem rather conventional[62]. The only variations are the overall length, the twisted version of the shaft (for instance the finds described from Svrljig, Kostolac, Veliko Gradište) and the presence or absence of originally shaped nail holes in the socket (for example the find from Stanevo – cat. no. 24, also some of the Dimovo finds, cat. nos. 1, 6, 7). In addition, the find from the Iron Gates region has a more pronounced conical shaft in relation to the usual cylindrical or parallelepiped shape.

The length of the fully preserved iron parts of the Dimovo finds is between 10.8 and 13 cm (cat. nos. 1, 3-7), the ones from the Vidin region and Stanevo (cat. nos. 22-24) fall within the same range. Only the presumed Archar find (cat. no. 21) is longer, with 17.5 cm preserved length (**Table 1**).

The overall dimensions of the finds from the region with fully or almost fully preserved length of the iron component (or the iron component and the lead weight in the case when the latter is protruding past the socket's opening) varies between 10.1 and 17.5 cm with the exclusion of the *Halmyris* find which is only about 7.2 cm long (**Table 1**).

T. Völling divided the darts known to him into three groups in accordance with their length. The first one contained the shortest examples, between 9.8 and 11.8 cm. The second comprised medium-sized *plumbatae*, between 13.5 and 16.2 cm in length, with the third one encompassing the largest ones, with length between 18.6 and 22 cm. Furthermore, there were two finds that were described as oversized individual forms. They were found in *Olympia* and *Siscia* and had a length of 25.5 and 27.5 cm respectively[63].

In concordance with this differentiation the finds from *Thracia* and *Dacia* could be placed predominantly within the first two groups. However, there are darts with length between 11.9 and 13.4 cm, as well as *plumbatae*

[61] Similar to a recent find from Baracs in Hungary – see Keszi 2018, p. 23-24.
[62] For the two attested types of adjoining the iron and wood components of the darts in Britain, see Sherlock 1979, p. 101-102; here **fig. 12B**.
[63] Völling 1991, p. 289.

longer than 16.2 cm but shorter than 18.6 cm, so the margins between Völling's groups should be revised at some point with the addition of this and other newly published data. If we extend the dimensions of the first group to 13 cm, the number of finds from the region will be no less than twenty three (although the Tutrakantsi find could have been originally longer than 13 cm), with the possibility for at least two more. The other eighteen darts described here, where the length of the metal components is fully or almost fully preserved, fall within the range of 13.5 to 17.5 cm (so extending the upper limit of the second group of Völling). Apart from the Archar find, longest[64] are one of the *Scupi* finds (again 17.5 cm), the one from Dichin (17 cm), the second Dobrich find (16.8 cm), one of the *Romuliana* finds and the one from *Mediana* (both 16.5 cm long). The find that stands apart from these two groups is the one from *Halmyris*, with an estimated length of 7.2 cm, which once again allows us to consider the possibility for a new type of dart to be present (**Table 1**).

The lead weight is a bit more diverse in shape and size, which given the qualities of the material seems justified. The most common forms of the weight are biconical and ellipsoid with several variations, also conical, conical-cylindrical or nearly spheroid. The rarest type has a more angular profile, close to parallelepiped. It is attested in one of the finds from Dimovo (cat. no. 3) and it is also to be seen in the said find from *Olympia*, Greece, described by T. Völling[65].

The overall weight of the darts from the region with both of the metal components fully or partially preserved (where this information is available) varies between 35 g and 120 g with one heavier exception (**Table 1**).

The first group of finds weigh between 35 g and 72 g. The five *plumbatae* from Dimovo (cat. nos. 1-5) along with the two from the Vidin region (cat. nos. 22-23) weigh between 51 g and 72 g. The first Dobrich find (54.4 g), the one from Tutrakantsi (52 g), the finds from Svrljiški Grad (59 g and 35 g), Belchin (63.5 g), Pet mogili (60 g) and one of the finds from Dragoevo (60 g) also fall within the same category. Furthermore, the three lead weights from Dimovo (cat. nos. 15-17) that were supposedly also parts of *plumbatae* heads weigh between 22 g and 41 g. Given the overall weight of the iron component (which in the case of the almost fully preserved ones from Dimovo is between 9 g and 18 g) one could estimate that the darts they belonged to could have also been placed within the same group (**Table 1**).

The second group of finds are heavier with a weight between 90 and 120 g. To this category belong the other Dragoevo dart (120 g), the second Dobrich

[64] Not counting here the tanged heads from Hinova with length of 17.5 and 21.4 cm (see above).
[65] See Völling 1991, p. 287-289, Abb. 1.

one (113,4 g), the ones from Kalnovo/Yankovo (100 g) and Markovo (90 g), all of which are longer than 14 cm (**Table 1**).

The only exception from the information available is the dart from Archar (cat. no. 21) with a weight of 233 g. Unfortunately there is no data for the weight of the rest of the abovementioned longest *plumbatae* heads from the region, namely the ones from *Romuliana*, *Mediana*, Dichin and *Scupi*, which would have allowed for a more thorough analysis of the possible relations between length and weight of the darts.

The weight of the Archar dart is putting it closer to the said find from Olympia (350 g) which however is also not precisely dated. As already noted, Völling suggested a later date for this artefact (5th – 6th c. AD) due to its larger size and weight, a reflection of which was seen in the change of the carrying manner of *plumbatae* during the Early Byzantine period[66].

Places of discovery and chronology

Considering the settlement types where *plumbatae* have been found, one might notice that lead-weighted darts come from both strictly military fortifications as well as from fortified settlements with combined military and civic functions. The former are predominantly of limited size, of the type *burgus* and *quadriburgium*, rarely larger forts. The fortified settlements more securely attested are predominantly non-urban sites, while the finds from the vicinities of larger towns with military garrisons are mostly of uncertain origin. The *plumbata* from the supposed crafts centre at *Mediana* could be an indication for local production.

The sites with attested finds are located mostly along the Danubian riverbanks (no less than fourteen sites and zones of discovery), while some have been situated along important roads, for instance the *Lissus – Naissus – Ratiaria* road with the ones at *Naissus*, Svrljiški Grad, Dimovo and Archar, and of course the major military road from *Singidunum*, through *Viminacium* to *Constantinopolis*, passing again by *Naissus*, also *Mediana* and Pirot (**Fig. 1**).

None of the *plumbatae* finds presented have been securely dated before the end of the 3rd c. – the beginning of the 4th c. AD. Most of the lead-weighted darts from contextualised archaeological layers from the region in question have been related to the period of the 4th and the first half of the 5th c. AD, with a prevalence of the ones from the second half or the last quarter of the 4th and the first decades of the 5th c. AD. For now the latest find is the one from Dichin

[66] See again Völling 1991, p. 295-296.

discovered in a demolition deposit dated to c. AD 500 and so supposedly used in the second half or the last decades of the 5th c. AD[67].

This chronological distribution corresponds with the dating of most of the other *plumbatae* finds from other territories of the Empire[68]. Furthermore, the lack of finds from zones lost by the Romans before or during the 270s led to the opinion that lead-weighted darts became part of the legionary equipment only after this period and under the Tetrarchy, in concordance with the testimony of Vegetius[69]. The supposed monetary depictions of *plumbatae* also seem to corroborate, to a large extent, such dating given that the first emperor to be portrayed with lead-weighted darts is Probus[70].

8. Conclusion

The data presented is of course preliminary, given the underdeveloped state of research regarding lead-weighted darts in this part of the Empire that could have left many such finds unrecognised with more discoveries probably still awaiting publication. Nevertheless, it provides enough grounds for a comparison with the rest of the Late Roman provinces in which *plumbatae* were used.

The number of finds published from the fortified hilltop settlement at Dimovo now sets it apart from most of the other places of discovery known to date (no matter if we count fourteen or seventeen finds as more securely

[67] The dating of this deposit is based on the research of the British archaeological team in Dichin, according to whose results the fort was initially built in c. AD 400 and its first construction period lasted until c. AD 500, while the second one was dated between the same latter date and c. AD 585 (Poulter 2019, p. 6-29). The Bulgarian team leader V. Dintchev proposes a slightly different chronology of the same site, including two construction phases of the first period and a short *hiatus* between the latter and the second construction period. In concordance with his dating, the second phase of the first period ended before AD 488 (Dintchev 2009, p. 15-26). If correct, his hypothesis could change the date of the demolition deposit where the *plumbata* was found to prior the latter year and its use – to some point in the 5th c. AD, most likely again in the second half of the century.

[68] For instance Völling 1991, p. 291-292; Bishop, Coulston 2006, p. 200; Pflaum 2007, p. 297.

[69] See Völling 1991, p. 291; Keszi 2018, p. 23. A recent find of a presumed *plumbata* head from the territory of Roman Dacia might challenge this hypothesis. The dart was discovered within the *vicus* of the Roman *castellum* at modern day Ilișua, Romania, located on the northern border of *Dacia Porolissensis*, in levels dated to the second half of the 2nd and the beginning of the 3rd c. AD. Preserved from the find is an iron shaft with a rectangular cross-section and the point missing, enveloped in a partially conserved ovoid lead weight. According to the author, the date of this artefact could lower the chronological margin of the use of *plumbatae* by the Roman army to the early 3rd c. AD (Gaiu 2017, p. 58; 60; 67, Pl. III.1). Although the identification of the find seems appropriate, the missing iron point, along with the lack of a published drawing and more detailed description, does not allow its certain confirmation.

[70] Estiot 2008, p. 177-201; Estiot 2017, p. 418.

identifiable remains of dart heads). For instance, important Late Roman towns with military garrisons like *Sirmium*[71], *Siscia*[72], *Lauricum*[73], *Carnuntum*[74], *Viroconium*[75] have produced until now much smaller number of such artefacts (two, seven, six, five and six respectively). The only comparative figure comes from *Aquileia* with fifteen darts discovered so far[76]. This fact is not to be exaggerated as it is most likely a reflection of the stage of exploration of the particular sites. For instance, the number of finds from Dimovo is owed predominantly to its almost complete archaeological excavation, along with the lack of Medieval or Ottoman period exploitation of the area, which helped to preserve most of the authentic archaeological material (apart from the consequences from treasure-hunting activities during the 20th c.).

However, if we consider the territory of *Dacia Ripensis* as a whole, it again supersedes most of the other Late Roman provinces with published *plumbatae* finds, given the no less than eleven (up to fourteen) sites where at least forty darts have been discovered. For instance, the finds from the Pannonian provinces are just over twenty, coming from no more than a dozen sites[77] while the ones from Britain are seventeen from seven sites[78]. Despite showing only the current level of research, this fact is noteworthy for the spread and use of the weapon in the region, especially during the second half of the 4th and the first half of the 5th c. AD. Throughout that period and in the following decades lead-weighted darts seem to have been used not only by strictly military detachments but by the inhabitants of settlements with combined civic and military functions as well.

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[71] Vujović 2008, p. 126.
[72] Radman-Livaja 2004, p. 30-32.
[73] Encyclopédie…
[74] Encyclopédie…
[75] Barker 1979, p. 97-99.
[76] Six are mentioned by M. Feugère (Feugère 2013, p. 321), while according to the online data base Encyclopédie des petits objets archéologiques, the finds from *Aquileia* are currently fifteen (Encyclopédie…).
[77] See lastly Keszi 2018, p. 23.
[78] Encyclopédie…

the Dobrich Regional Museum of History, Nikolay Hristov from the History Museum in Provadia and Asst. Prof. Petar Leshtakov from the National Archaeological Institute with Museum, at the Bulgarian Academy of Sciences, for the possibility to study and publish the finds from Dobrich and Provadia.

Catalogue of the *plumbatae* from Dimovo, Archar (?), Vidin region (?) and Stanevo:

(L (f) – full length; L (i) – length of the iron component; L (lw) – length of the lead weight; W max (lw) – maximum width of the lead weight; Wt – weight; '*' - preserved size/weight.

1. Iron *plumbata* head with a partially preserved barbed triangular (or rhomboid?) point, an ellipsoid lead weight on the socket with a nail hole close to the middle (**figs. 3.1; 4.1**). Dimensions: L (f): 12.55 cm; L (i): 12.55 cm; L (lw): 4.55 cm; W max (lw) 1.6 cm: Wt: 60 g. Context dating: last quarter of the 4th – the late 6th c. AD; Dimovo; previously unpublished;
2. Iron *plumbata* head, partially preserved, without the point, with an ellipsoid to biconical lead weight on the socket (**figs. 3.2; 4.2**). Dimensions: L (f*): 7.6 cm; L (i*): 7.5 cm; L (lw): 4.9 cm; W max (lw): 1.85 cm; Wt*: 76 g. Context dating: last quarter of the 4th – first half of the 5th c. AD; Dimovo; previously unpublished;
3. Iron *plumbata* head with a barbed slightly triangular point and one swallowtail barb preserved, a partially preserved parallelepiped lead weight, placed right above the socket (**figs. 3.3; 4.3**). Dimensions: L (f): 12.2 cm; L (i): 12.2 cm; L (lw): 2.8 cm; W max (lw): 1.9 cm; Wt*: 60 g. Context dating: last quarter of the 4th – the late 6th c. AD; Dimovo; previously unpublished;
4. Iron *plumbata* head with a rhomboid point and an ellipsoid to biconical lead weight placed on the socket (**figs. 3.4; 4.4**). Dimensions: L (f): 13 cm; L (i*): 12.6 cm; L (lw): 4.4 cm; W max (lw): 2.0 cm; Wt*: 71 g. Context dating: last quarter of the 4th – first half of the 5th c. AD; Dimovo; previously unpublished;
5. Iron *plumbata* head with a rhomboid point, and a conical-cylindrical lead weight placed on the socket (**figs. 3.5; 4.5**). Dimensions: L (i): 11.5 cm; L (lw): 5.5 cm; W max (lw): 1.4 cm; Wt: 51 g. Context dating: last quarter of the 4th – first half of the 5th c. AD; Dimovo; previously unpublished;
6. Iron *plumbata* head with a slightly conical point and one swallowtail barb preserved, and a socket with a nail hole (**figs. 5.1; 6.1**). Dimensions: L (i*): 10.8 cm; Wt*: 13 g. Context dating: last quarter of the 4th – first half of the 5th c. AD; Dimovo; previously unpublished;
7. Iron *plumbata* head with a slightly conical point and swallowtail barbs, broken into two parts (tip and socket), and a socket with a nail hole (**figs. 5.2; 6.2**). Dimensions: L (i*): 5.3 + 5.6 cm; Wt*: 18 g. Context dating: last quarter of the 4th – first half of the 5th c. AD; Dimovo; previously unpublished;
8. Iron *plumbata* head with a barbed triangular point, secondarily bent and broken below the barbs (**figs. 5.3; 6.3**). Dimensions: L (i*): 5.8 cm; Wt*: 9 g. Context

dating: last quarter of the 4th – the late 6th c. AD; Dimovo; previously unpublished;

9. Iron *plumbata* head with a barbed triangular point, broken above the socket (**figs. 5.4; 6.4**). Dimensions: L (i): 11.4 cm; Wt*: 15 g. Context dating: last quarter of the 4th – the late 6th c. AD; Dimovo; previously unpublished;
10. Iron *plumbata* head with a barbed triangular point (one whole and one partially preserved barb), broken above the socket (**figs. 5.5; 6.5**). Dimensions: L (i*): 9.0 cm; Wt*: 11 g. Context dating: last quarter of the 4th – the late 6th c. AD; Dimovo; previously unpublished;
11. Iron *plumbata* head with a slightly conical point (one whole and one partially preserved swallowtail barb), broken above the socket (**figs. 5.6; 6.6**). Dimensions: L (i*): 8.4 cm; Wt*: 8 g. Context dating: last quarter of the 4th – the late 6th c. AD; Dimovo; previously unpublished;
12. Iron *plumbata* head with a slightly conical point, with one whole and one partially preserved swallowtail barb, broken above the socket (**figs. 5.7; 6.7**). Dimensions: L (i*): 8 cm; Wt*: 5 g. Context dating: last quarter of the 4th – the late 6th c. AD; Dimovo; previously unpublished;
13. Iron *plumbata* head with a barbed triangular point (one whole and one partially preserved barb), broken above the socket (**figs. 5.8; 6.8**). Dimensions: L (i*): 9.1 cm; Wt*: 12 g. Context dating: last quarter of the 4th – the late 6th c. AD; Dimovo; previously unpublished;
14. Iron *plumbata* head with a barbed triangular point (one whole and one partially preserved barb), broken above the socket (**figs. 5.9; 6.9**). Dimensions: L (i*): 9.6; Wt*: 9 g. Context dating: last quarter of the 4th – the late 6th c. AD; Dimovo; previously unpublished;
15. Lead weight from a *plumbata* (?), biconical, with preserved wood inside from the shaft remains, with secondarily stuck mortar on one of the sides (**figs. 7.1; 8.1**). Dimensions: L (lw*): 5,8; Wt*: 22 g. Context dating: last quarter of the 4th – the late 6th c. AD; Dimovo; previously unpublished;
16. Lead weight from a *plumbata* (?), biconical, with a nail hole (**figs. 7.2; 8.2**). Dimensions: L (lw*): 4.9; Wt*: 41 g. Context dating: last quarter of the 4th – first half of the 5th c. AD; Dimovo; previously unpublished;
17. Lead weight from a *plumbata* (?), conical, with a nail hole (**figs. 7.3; 8.3**). Dimensions: L (lw): 2.8 cm; Wt*: 30 g. Context dating: last quarter of the 4th – first half of the 5th c. AD; Dimovo; previously unpublished;
18. Iron hollow point (possible *plumbata* head), conical with an oval cross-section of the socket and a rhomboid cross-section of the tip (**figs. 7.4; 8.4**). Dimensions: L (i*): 6.4; W max (i): 1.1; Wt*: 7 g. Context dating: last quarter of the 4th – first half of the 5th c. AD; Dimovo; previously unpublished;
19. Iron hollow point (possible *plumbata* head), conical with close to oval cross-section of the socket and an oval to rhomboid cross-section of the tip (**figs. 7.5; 8.5**). Dimensions: L (i*): 5.4; W max (i): 0.9; Wt*: 6 g. Context dating: last quarter of the 4th – the late 6th c. AD; Dimovo; previously unpublished;
20. Iron hollow point (possible *plumbata* head), conical with an oval cross-section of the socket and a rhomboid cross-section of the tip (**figs. 7.6; 8.6**).

Dimensions: L (i*): 4.9; W max (i): 0.95; Wt*: 6 g. Context dating: last quarter of the 4th – the late 6th c. AD; Dimovo; previously unpublished;

21. Iron *plumbata* head with a nearly triangular point with biconical cross-section and swallowtail barbs, and a biconical lead weight with close to hexagonal cross-section placed on the socket (**figs. 9.2; 10.1**). Dimensions: L (f*): 17.4 cm; L (i*): 17.4 cm; L (lw*): 6.7 cm; W max (lw): 3.1 cm; Wt: 233 g. Archar (Vidin Museum); previously unpublished;
22. Iron *plumbata* head with a leaf-shaped point with a nearly biconical cross-section and an ellipsoid lead weight with hexagonal cross-section placed on the socket (**figs. 9.3; 10.2**). Dimensions: L (f): 12.7 cm; L (i*): 12.7 cm; L (lw): 4.5 cm; W max (lw): 1.55 cm; Wt: 70 g. Vidin district (Vidin Museum); previously unpublished;
23. Iron *plumbata* head with a triangular point (barbs missing?) with flattened nearly biconical cross-section and an ellipsoid lead weight with close to hexagonal cross-section placed on the socket (**figs. 9.4; 10.3**). Dimensions: L (f): 11.5 cm; L (i*): 11.5 cm; L (lw): 4.8 cm; W max (lw): 1.65 cm; Wt: 72 g. Vidin district (Vidin Museum); previously unpublished;
24. Iron *plumbata* head with a barbed triangular point and an ellipsoid lead weight, placed on the socket, with a nail hole in the middle (**fig. 9.1**). Dimensions: L (f*): 11 cm; L (i*): 10.7 cm; L (lw): 5.0 cm; W max (lw): 1.6 cm; Wt: (?). Context dating: 4th – 6th c. AD; Stanevo; previously unpublished.

Site No.	Modern Location	Site	Province	Settlement type	Number of finds	Völling type	Preserved length (cm)	Preserved weight (g)	Dating	Reference
1	Dimovo	?	DR	Fortified settlement	17 + 3 (?)	1 + 2	CN 1: 12.55; CN 3: 12.2; CN 4: 13; CN 5: 11.5; CN 6: 10.8; CN 7: 10.9	CN 1: 60; CN 2: 76; CN 3: 60; CN 4: 71; CN 5: 51	370s / 380s – 440s (?)	Unpublished
2	Archar (?), Vidin region	*Ratiaria (?)*	DR	Roman and Late Antique town	1	1	CN 21: 17.5	CN 21: 233	?	Unpublished
3	Vidin region	*?*	DR	?	2	1 (?)	CN 22: 12.7; CN 23: 11.5	CN 22: 70; CN 23: 72	?	Unpublished
4	Stanevo	*Pomodiana / Putedina*	DR	*burgus*; fortified settlement	1	1	CN 24: 11	?	4th – 6th c. AD (4th – 5th c. AD?)	Unpublished
5	Kula	*Castra Martis* (?)	DR	*quadriburgium + castellum*	1	2 (?)	13	?	4th c. AD – AD 408	Atanasova 2005
6	Gamzigrad	*Romuliana*	DR	Fortified settlement	7	1	16.5; 12; 10.1	?	Second half of the 4th c. AD; 380s – early decades of the 5th c. AD	Vujović 2011
7	Negotin Area	?	DR	?	1	1	13.5	?	?	Vujović 2011
8	Karataš	*Diana*	DR	*castellum*	1	?	> 12 (point missing)	?	Late Roman – Early Byzantine	Vujović 2011
9	Iron Gates region	?	DR	?	1	1	15.3	?	?	Vujović 2011
10	Rtkovo	Rtkovo-"Glamija"	DR	*burgus, quadriburgium*	1 + 1 (?)	1	?	?	Second half of the 4th – the beginning of the 5th c. AD (?)	Gudea, Zahariade 2016
11	Hinova	*?*	DR	*quadriburgium*	1 + 3 (?) + 3 (?)	1 1	11.8 21.4; 17.5; ? ?	?	End of the 3rd / 330s – first quarter of the 5th c. AD (?)	Stîngă 1998; Amon 2004; Gudea, Zahariade 2016

12	Mihajlovac	Mihajlovac-Blato	DR	*burgus* with *tetrapylon*	2	?	> 13; 11.5 (points missing)	?	360s – first half of the 5th c. AD	Vujović 2011
13	Borđej (Bordjej)	?	DR	*burgus* with *tetrapylon*	2	?	?; > 9.7 (point missing)	?	Late 3rd / 360s – 6th c. AD	Vujović 2011
14	Corabia (Celei)	*Sucidava*	DR	*Castellum*; Fortified settlement	2	1 (?); ?	12.1; > 9 (point missing)	?	4th c. AD	Tudor 1948; Buora 1997 Amon 2004
15	Murighiol	*Halmyris*	Sc	Roman fort and Late Antique town	1	2 / New type?	7.2	?	Last third of the 3rd – 4th c.	Glad, Nuțu 2010
16	Dobrich	?	Sc	?	2	1; 1 (?)	16.8; 13.8	113; 54	?	Unpublished
17	Tutrakantsi	?	MS	?	1	2	> 12.2	52	?	Unpublished
18	Dragoevo	?	MS	?	2	1	14.1; 13.7	120; 60	2nd – 5th c. AD	Stoychev 2004
19	Kalnovo / Yankovo	?	MS	?	1	1	15.2	100	2nd – 5th c. AD	Stoychev 2004
20	Markovo	?	MS	?	1	1	15.7	90	2nd – 5th c. AD	Stoychev 2004
21	Pet mogili	?	MS	?	1	1	12	60	2nd – 5th c. AD	Stoychev 2004
22	Dichin	?	MS	Fortified settlement	1 + 2 (?)	1	17	?	Used before c. AD 500 (or AD 488 ?)	Manning 2019
23	Belchin	Tsari Mali Grad	DM	Fortified settlement	1	1	12.6	63.5	Last quarter of the 4th – first half of the 5th c. AD	Hristov 2012
24	Pirot	Pirotiski Grad	DM	Fortified settlement	1	1	15	?	?	Vujović 2011
25	Niš, Brzi Brod	*Mediana*	DM	Villa residence	1	1	16.5	?	Second half of the 4th – mid-5th c. AD	Vujović 2011
26	Niš, Jagodin Mala	*Naissus*	DM	Roman and Late Antique town, necropolis zone (?)	1	1	?	?	4th – 5th c. AD	Drca 2012
27	Svrljig	Svrljiški Grad	DM	Fortification	2	1	14.5; 12	59; 35	4th – 6th c. AD	Vujović 2011
28	Scopje	*Scupi*	Dd	Roman and Late Antique town	2 + 1	1	17.5; > 7 (point missing)	?	4th – 6th c. AD (the late 4th – 5th c. AD?)	Ončevska Todorovska 2017, 2018

29	Duga Poljana	Šarski Krš	Dd	Late Roman hilltop fortification	1	1	13	?	Mid- 3rd – second half of the 4th c. AD	Milinković 2008
30	Svilajnac area	?	MP	Fortified settlement?	1	1	14	?	?	Vujović 2011
31	Veliko Gradište	*Pincum*	MP	*quadriburgium*	1	1	12.7	?	?	Vujović 2011
32	Kostolac	*Viminacium*	MP	Roman and Late Antique town	1	1	11.9	?	?	Vujović 2011
33	Dubravica	*Margum*	MP	Roman and Late Antique town	1	2 (?)	14.3	?	?	Vujović 2011
34	Čezava	*Novae*	MP	*quadriburgium*	2	1	11; ?	?	Second half of the 4th c. AD	Vujović 2011

PLUMBATAE DIN *DACIA RIPENSIS*: SĂGEȚI DE MÂNĂ CU PLUMB DINTR-O AȘEZARE FORTIFICATĂ RECENT DESCOPERITĂ LÂNGĂ DIMOVO DE ASTĂZI, BULGARIA, ÎN CONTEXTUL LOR PROVINCIAL ȘI REGIONAL

REZUMAT

Săgețile de mână cu plumb, menționate ca *plumbatae* sau *mattiobarbuli* (*martiobarbuli*) în sursele antice, sunt din ce în ce mai des întâlnite în descoperirile arheologice. Aceste proiectile de aruncat cu mâna au un vârf de fier, cu sau fără ghimpi, care se extinde într-o cavitate goală sau un cârlig unde mânerul de lemn este fixat. Caracteristica lor distinctivă este greutatea de plumb care, de obicei, acoperă punctul de montare între fier și componentele de lemn. Mânerul de lemn se presupune că avea penaj, lăsând oricum spațiu pentru mânuirea săgeții de mână.

Această contribuție prezintă douăzeci de descoperiri dintr-o așezare fortificată nou identificată din Antichitatea târzie de lângă orașul actual Dimovo, regiunea Vidin. Dintre acestea majoritatea au putut fi identificate cu certitudine ca fiind vârfuri de *plumbatae*. În plus, sunt descrise patru descoperiri inedite din situri de asemenea situate în marginile provinciei romane târzii Dacia Ripensis. În plus, informațiile referitoare la aceste artefacte sunt completate de descoperirile de săgeți de mână cu plumb cunoscute până în prezent din siturile arheologice din provincia menționată, cât și din zona mai largă a diocezelor Traciei și Daciei.

ABSTRACT

The lead-weighted darts, mentioned as *plumbatae* or *mattiobarbuli* (*martiobarbuli*) by the ancient sources, are becoming more commonly found in the

archaeological record. These hand-thrown projectiles comprise an iron point with or without barbs that extend into a hollow socket or a tang, where the wooden shaft is attached. Their most distinctive feature is the lead weight that usually envelopes the assembly point between the iron and wood components. The wooden shaft supposedly had fletching, however with space left for handling the dart.

This contribution presents twenty finds from a newly discovered Late Antique fortified settlement near the modern-day town of Dimovo, Vidin region, most of which could be identified with certainty as remains of *plumbatae* heads. In addition, four unpublished finds from sites likewise located within the margins of the Late Roman province of *Dacia Ripensis* are described. Furthermore, the information for these artefacts is supplemented by the discoveries of lead-weighted darts known to date from sites both within the said province and the larger zone of the dioceses of *Thracia* and *Dacia*.

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Fig. 1. Map of the Late Roman provinces in the eastern half of the Balkan Peninsula with locations of *plumbatae* finds mentioned in the text (author A. Harizanov)

Fig. 2. Drone photo of the fortified hilltop site near modern-day Dimovo (author A. Harizanov)

Fig. 3. *Plumbatae* finds from the Dimovo assemblage (photos by A. Manev, A. Vetsova, K. Georgiev, A. Harizanov)

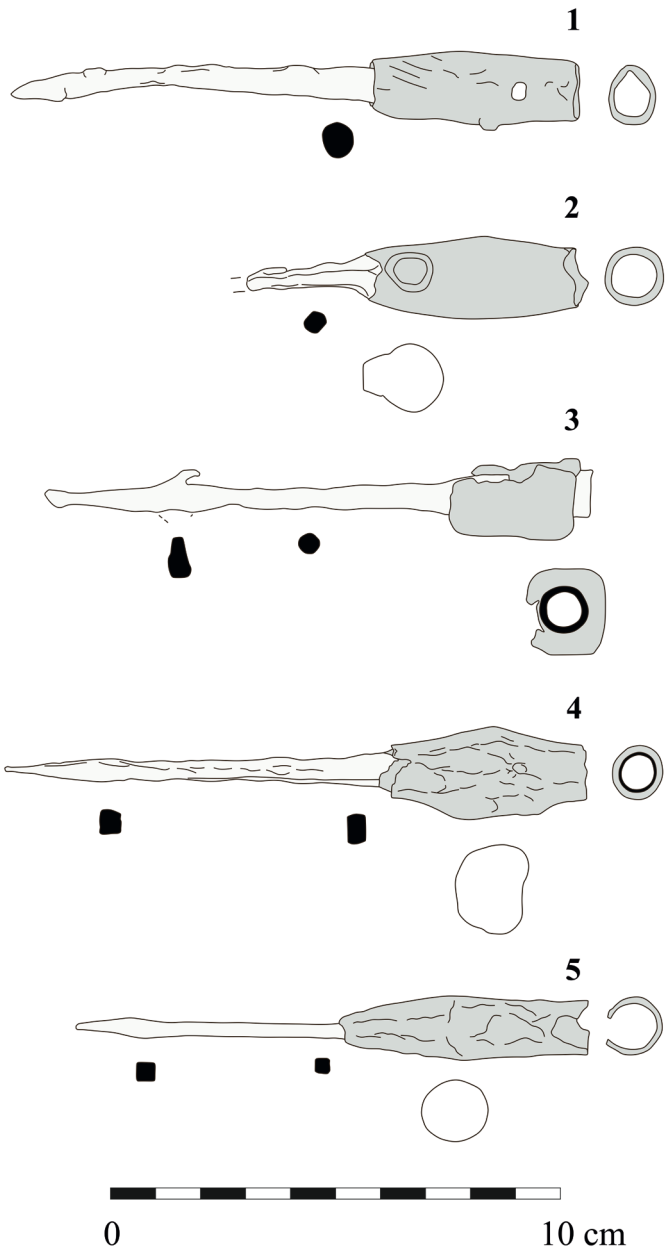

Fig. 4. *Plumbatae* finds from the Dimovo assemblage (light grey / black – iron; grey – lead; drawings by A. Harizanov, O. Mcilfatrick)

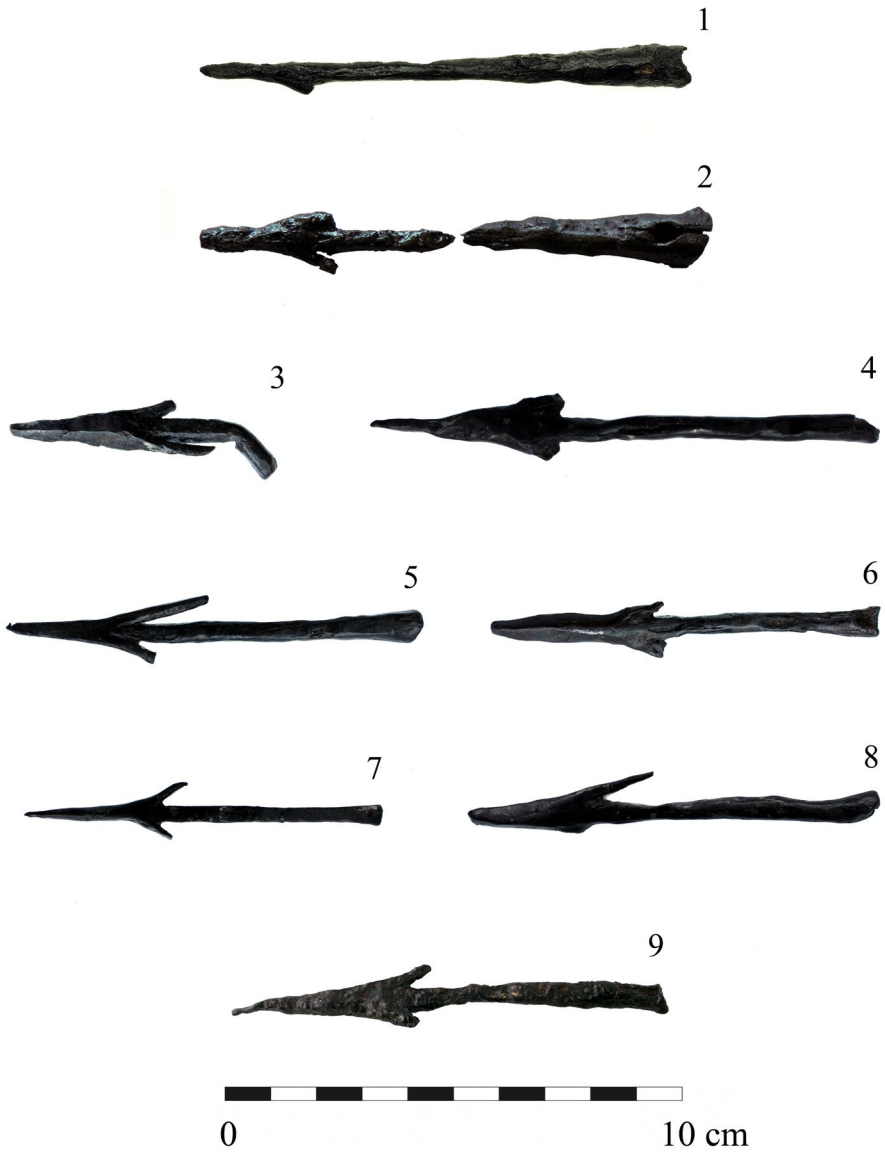

Fig. 5. Iron points of possible *plumbatae* heads from the Dimovo assemblage (photos by A. Manev, A. Vetsova, A. Harizanov)

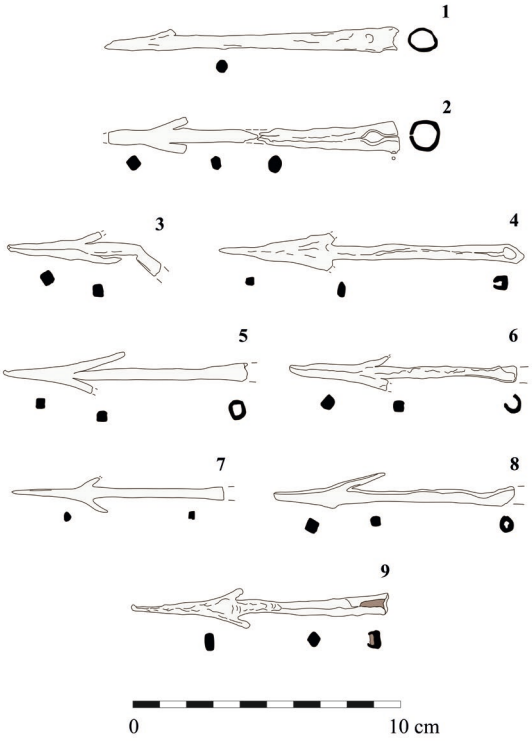

Fig. 6. Iron points of possible *plumbatae* heads from the Dimovo assemblage (light grey / black – iron; grey – lead; brown – wood; drawings by A. Harizanov, O. Mcilfatrick)

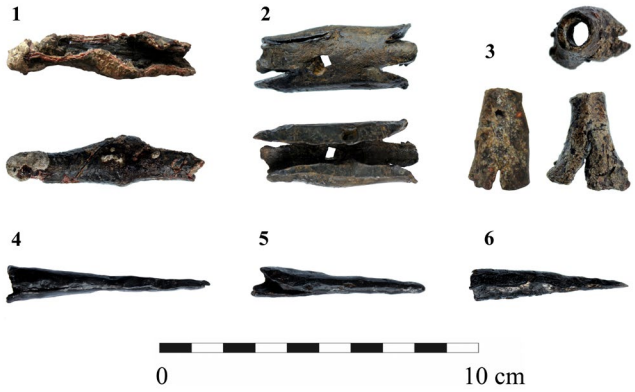

Fig. 7. Lead weights (1-3) and iron conical points (4-6) of possible *plumbatae* heads from the Dimovo assemblage (photos by A. Manev, A. Harizanov)

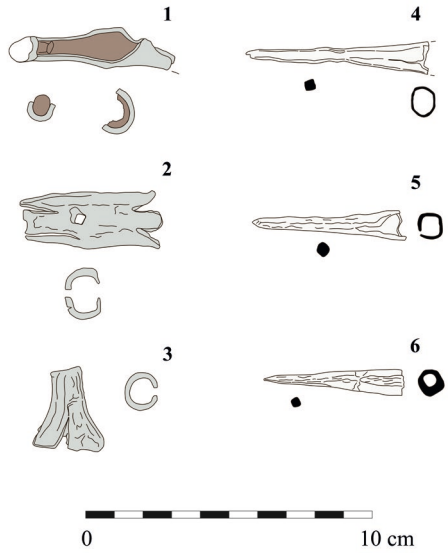

Fig. 8. Lead weights (1-3) and iron conical points (4-6) of possible *plumbatae* heads from the Dimovo assemblage (light grey / black – iron; grey – lead; brown – wood; drawings by A. Harizanov)

Fig. 9. The *plumbatae* heads from Stanevo (1), Vidin region (2-3) and Archar (4) (photos by A. Harizanov)

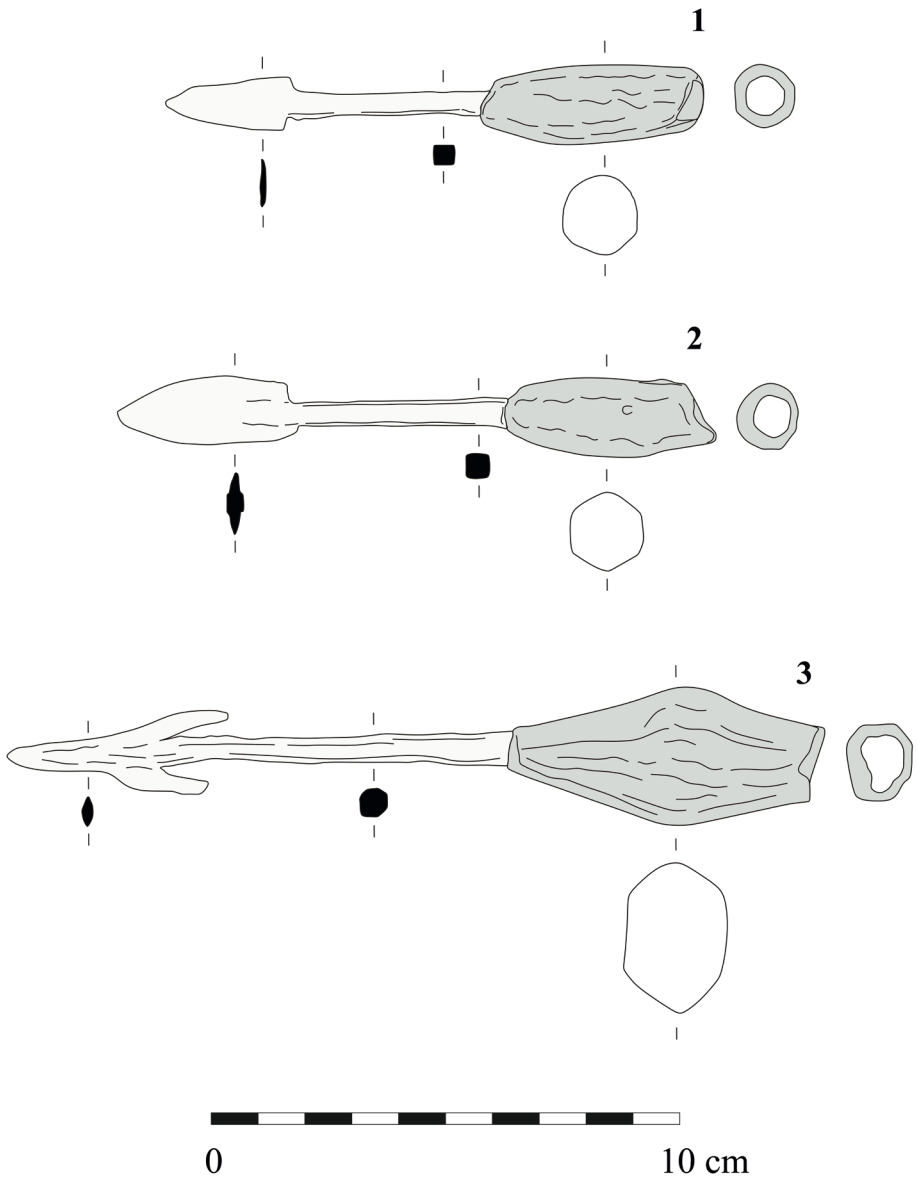

Fig. 10. The *plumbatae* heads from Vidin region (1-2) and Archar (4) (light grey / black – iron; grey – lead; drawings by A. Harizanov)

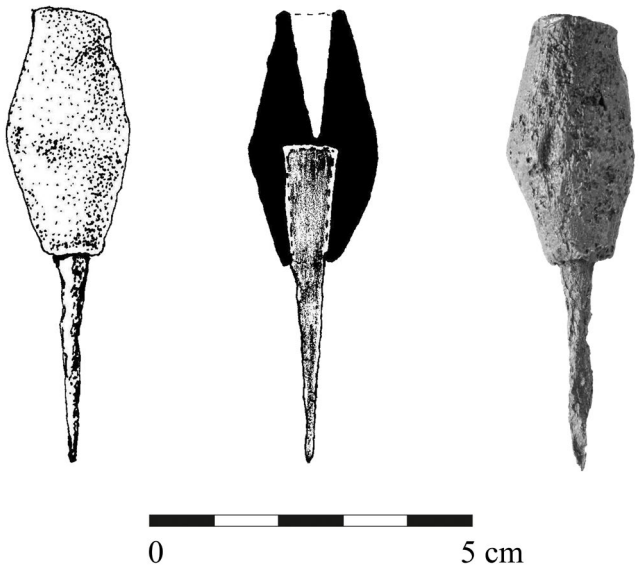

Fig. 11. The *plumbata* from *Halmyris* (after Glad, Nuțu 2010, p. 145, fig. 2.3; additions by A. Harizanov)

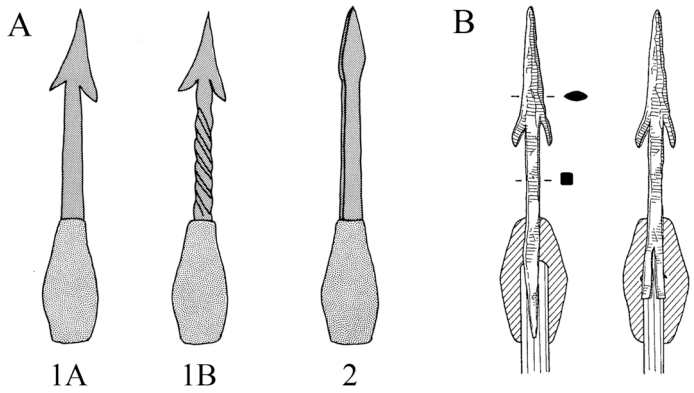

Fig. 12. Types of *plumbatae* heads (A) and ways of adjoining the iron and wood components of the darts (B) (A – after Völling 1991, p. 290, Abb. 2; B – after Keszi 2018, p. 23, Fig. 4; original source Sherlock 1979, p. 102, Fig. 14; additions and corrections by A. Harizanov)