

ONCE AGAIN ON THE PYRAMIDAL SPEARHEADS OF TRIANGULAR CROSS-SECTION IN ROMAN DACIA¹

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ÎNCĂ ODATĂ DESPRE VÂRFURILE DE SULIȚĂ PIRAMIDALE CU SECȚIUNE TRIUNGHILARĂ DIN DACIA ROMANĂ.

În provincia Dacia au fost descoperite 34 de vârfuri de suliță piramidale cu secțiune triunghiulară plus încă unul la Mătășaru, în *Barbaricum*, în apropierea *limes*-ului Daciei Inferior. În sfârșit o altă piesă asemănătoare a fost găsită în nivelul de secolul al IV-lea p.Chr. al fortificației romane târzii de la Sucidava. Folosite de călăreți, sulițele prevăzute cu aceste vârfuri au fost probabil preluate apoi și de pedestrași. Ele nu au fost incluse în echipamentul standard al soldaților romani ci au reprezentat arme specializate utilizate probabil pentru perforarea armurilor.

Apărute în contextele arheologice cu exemplarul de la Sarmizegetusa Regia încă din primii ani ai secolului al II-lea p.Chr., ele vor fi utilizate frecvent de la mijlocul secolului II p.Chr. și până la sfârșitul provinciei Dacia în anii 250/71.

Cuvinte cheie: Imperiul Roman, Dacia Romană, vârf de suliță.

Keywords: Roman Empire, Roman Dacia, spearhead.

After the arrowheads, the spearheads represent the second largest category of Roman weapons. However due to their extreme variability in shape, size and standard of work, the spearheads are certainly the most difficult class of weapons to classify (Marchant 1990). Yet there are a few spearhead types of characteristic shape, as for example the well known *pila*, which have been thoroughly analysed.

Among the iron spearheads originating in Roman Dacia only those of triangular cross-section with vestigial barbs have been studied in some depth so far. This type of weapon was spread at least all along the northern frontier of the Roman Empire. Four examples are included in the famous iron hoard of military equipment from the auxiliary fort at Künzing (Raetia) (Herrmann 1969, 134, fig.4/11–14), dated about AD 250.

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In a subsequent publication Herrmann identified them with a kind of missile termed by Vegetius *vericulum* or *verutum* (Herrmann 1972, 12, fig. 21). After a few years Scott offer a compendious analysis of the triangular cross-sectioned spearheads in a congress lecture. He concluded that these spearheads probably appeared in the Antonine period and were cavalry weapons for they were “too long for catapult bolt-heads and they are unlikely to be infantry weapons” (Scott 1980, 337, fig. 24. 2/9–11).

For Roman Dacia until 1998 the work on this topic consist of the publication without further comment of some individual examples. Even the so-called typology of the weapons from Dacia Porolissensis by Gudea gives nothing new on the spearheads of triangular cross-section (Gudea 1991, 72, 74, fig. 2).

In my Ph. D. thesis on Roman weapons and armour in Dacia I investigated all types of spearheads including these ones (Petculescu 1998, 76–77, catalogue nos. 177–183). Taking the stand into a catalogue of 17 pieces accompanied by drawings, most of them original and references on other 7 examples known to me I dealt with the triangular cross-sectioned spearheads in Roman Dacia.

A couple years later Țentea and Ludușan published the first paper dedicated entirely to these spearheads (Țentea, Ludușan 2000). The title of the article referring only to the presence of this weapon in Dacia is something misleading as in fact the authors discuss in length also its origin and chronology all over the Roman world. Coming from Herrmann’s proposed identification of this type of spears with *vericulum* but not also with *spiculum* as they carelessly assert, Țentea and Ludușan thought to find its origin in the *verutum* of the 3rd century BC. They reach this unexpected conclusion by mixing quotations from antique and modern historians of the end of the 19th and the 20th century.

Yet there isn’t any single archaeological evidence for the early existence of this type of spears as Numantia spearheads are simply not triangular cross-sectioned despite Țentea and Ludușan’s belief (Groller 1927, 250, pl.

34/7–11). And, once again, the archaeological record attests other types of spears for the 4th and 5th centuries AD (Bishop, Coulston 2006, 200–202, fig. 127). Therefore, the coming into use of spearheads of triangular cross-section longtime before their apparition in the 2nd century AD contexts is hardly acceptable. Also their identification with spears named by the antique historians lacks of any sound evidence and at least for the time being is preferable to follow the best specialists on the Roman military equipment and avoid such pseudo-specifications (See Bishop, Coulston 2006, especially 77–78 and 151, fig. 93/11).

As for the presence of these weapons in Dacia, Țentea and Ludușan have taken everything they found in my unpublished Ph. D. thesis: distribution, dating, discussion of the type of military units supplied with them and even unpublished pieces or only my original drawings of published examples. Yet some of their assertions are certainly wrong. So the barbs met on Gherla items are not exceptional but on the contrary they are a standard feature of this type of spearheads (Scott 1980, 337, fig. 24. 2/9, 11), visible on a lot of Dacian examples and only the corrosion is responsible for their absence on some pieces. Also the examples from Sarmizegetusa Regia and Crâmpoia originate in military and not civilian contexts as the authors think. Besides, the very compendious catalogue accompanied by drawings of a poor standard representing only awkward reproductions of mine or published illustrations, include in fact 26 and not 27 items as nos. 12 and 13 from Porolissum are obviously two different drawings of the same piece!

In his work on the Roman military equipment in southern Dacia, Amon published four new spearheads with short descriptions and decent illustrations (Amon 2004, 84, A, a; 202–203; 205; 213, pl. 8/2, 4–6). Finally, Măndescu dealt summarily with Crâmpoia example ignoring that it was investigate in my thesis and published by Țentea and Ludușan (Măndescu 2006, 271, fig. 1/5; 2/5).

From all written above it result that even though the Dacian iron spearheads of triangular section were not neglected, the work undertaken on them was far from being satisfactory. Therefore a systematic study of the subject considering all the available evidence is still needed.

I know in Roman Dacia 34 iron spearheads of triangular cross-section found at Sarmizegetusa Regia (no. 1), Ulpia Traiana Sarmizegetusa (no. 2), Micia (no. 3), Inlăceni (no. 4), Potaissa (no. 5), Gilău (nos. 6–8), Buciumi (no. 9), Bologa (nos. 10–13), Porolissum (nos. 14–16), Cășeu (no. 17), Gherla (nos. 18–19), Ilișua (nos. 20–25), Romula (nos. 26–28), Oltenia region without recorded findspot (no. 29), Bumbești (no. 30), Slăveni (no. 31), Racovița (no. 32), Crâmpoia (no. 33), Jidava (no. 34). Besides one exemple was discovered in *Barbaricum* at Mătășaru (no. 35) cca. 50 km beyond the *limes* of Dacia Inferior and another one in the late Roman fortress from Sucidava (no. 36).

Furthermore, some smaller and lighter pyramidal bronze spearheads among which very few of triangular section, were found all along the Danubian frontier, including especially Dacia (Petculescu 1991, 36, 41, nos. 1–5). The study of these rare items proved that in spite of having their prototypes in common iron-made spearheads they represent a different weapon, used in special circumstances. Consequently I shall not deal with them in this context.

The long piece no.1 has an outstandingly slim elongated head and a relatively short socket. It was discovered on one of the terraces surrounding Sarmizegetusa Regia, the capital of the Dacian kings. This weapon was certainly part of the equipment of a Roman soldier and its deposition could be placed between AD 101–106, when the Roman army besieged, then garrisoned and once again besieged the Dacian capital.

No. 2 from the town of Ulpia Traiana Sarmizegetusa represents the variant of small-sized triangular-sectioned spearheads. With a sturdy short head and a socket of nearly the same size, it had a total length of only about 150 mm when complete. The lack of recorded information on the circumstances

of its discovery prevents any specification on its owner or dating inside the period 106–271, the whole duration of Dacia province.

No. 3 from Micia has a short head of 77 mm, similar to no. 2 and a round-sectioned shank preserved on a length of 61 mm, which probably ended originally in a socket. The shank of Micia item, the longest one among the triangular-sectioned spearheads known so far, is a feature making him close to the *pilum* heads. No. 3 was unearthed in one of the military baths built near the large auxiliary fort where quartered permanently *cohors II Flavia Commagenorum equitata sagittariorum, ala I Hispanorum Campagonum, numerus Maurorum Miciensium* (Petolescu 1977, 369 the garrison of the fort).

No. 4 from Inlăceni is 181 mm long, which means that it has almost the same size as Sarmizegetusa Regia example. However, it looks different from no. 1 with its shorter and somewhat broader head and the longer splayed socket. Found at the *porta praetoria* of the stone fort garrisoned by *cohors IIII Hispanorum* perhaps together with detachments of *cohors I Alpinorum equitata* it has to be dated from the second quarter of the 2nd century AD until 250/70 (Gudea 1997, 60 the garrison of the fort).

No. 5 is large and heavy but the proportions of its parts are quite different from those of nos. 1 and 4, the other big pieces. It was discovered inside the fortress of *legio V Macedonica* at Potaissa, dated about AD 170–260/71.

Nos. 6–8 from Gilău belonged to the variant of small-sized spearheads. The well-made no. 6 is similar to no. 2, and the badly damaged nos. 7 and 8 having short head and comparatively long splayed socket to crudely-made no. 25 from the *ala* fort at Ilișua. It is most likely that nos. 6–8 originate in the fort of *ala I Siliana* which was built during Hadrian on the place of an abandoned smaller infantry fort (Isac 1997).

No. 9 from the auxiliary fort at Buciumi is a long and slim piece but differing in proportions from nos. 1 and 4 and especially from the heavier no. 5, the other representatives of the variant of big-sized examples. The weapon must have been

owned by a soldier of *cohors II Nervia Brittonum* stationed in the fort between AD 114 and 260/71 (Gudea 1997, 42–43 the garrison of the fort).

Nos. 10–13 were found in the auxiliary fort at Bologa. No. 10 with a total length of 232 mm is the longest spearheads of this type known in Dacia. It has a slim elongated head of 125 mm and an almost cylindrical long socket. The other three examples are remarkably similar: short of about 155–160 mm, slim and with heads and sockets nearly of the same size. Thus nos. 11–13 seem to be the products of the same workshop, probably located at Bologa itself. No. 10 was unearthed in a barrack in *praetentura* and no. 12 in other barrack in *retentura*, at a depth of 0.50 and 0.70 m respectively which is evidence for being used, together with the other two examples without contextual data, by the soldiers of the military units based in the fort since AD 133: *cohors II Hispanorum Cyrenaica equitata* and *cohors I Aelia Gaesatorum milliaria* (Gudea 1997, 41–42 the garrison of the fort).

Among the three spearheads originating in Porolissum, no. 14 was recovered complete except for a breach on the tip. This is a long piece of 205 mm with a short head of only 90 mm and a long socket. The heads of the fragmentary nos. 15 and 16, their only parts still preserved, are alike with that of no. 14. So it is a reasonable assumption that all three pieces are big-sized and similar in shape and were manufactured in the same workshop. The precise findspot is recorded only for no. 14 which was unearthed in the town. However, as it is obvious that this is a military weapon it must be linked in some way, as nos. 15 and 16, to Porolissum garrison, made up by at least three auxiliary units: *cohors I Brittonum milliaria*, *cohors V Lingonum* and *numerus Palmyrenorum Porolissensium* (Russu 1974, 219–220).

No. 17 was discovered in the fort of *cohors I Britannica milliaria equitata* at Căşieu (Isac 2003, 38–47). The head of this fragmentary example has parallels at Porolissum which means that it might also have been big-sized.

Nos. 18–19 are stray finds from the fort of *ala II Pannoniorum* at Gherla or less probably from its large military *vicus* (Gudea 1997, 102–103 the garrison of the fort). Both are well made, long and with heads of about 100 mm. They are different only by their proportions: no. 19 had both the head and socket of nearly the same size and no. 18 a socket shorter by nearly 20 mm.

No less than six pieces, nos. 20–25, were unearthed at Ilişua. Even if the precise findspot is recorded only for no. 22, discovered near the southern gate of the fort, it is almost certain that the other five spearheads were found also in the fort of *ala I Tungrorum Frontoniana*, as there was done by far most of the archaeological work, whereas in the *vicus* were carried out solely small-scaled excavations. The big-sized nos. 20–21 are bulky pieces with long heads and almost identical cylindrical sockets. No. 22 had at the time of its discovery virtually the same length as no. 21 but is considerably slender. The heads of fragmentary nos. 23–24 are similar enough to the head of no. 22 to allow their inclusion among the long and slim examples. On the contrary, no. 25 is a crudely-made small and slim item with an unparalleled short head of only 60 mm. Therefore, in the fort of a single *ala* one meets three different kinds of triangular-sectioned spearheads: long and massive, long and slim and very short.

Nos. 26–28 are stray finds from Romula. The long and slim no. 26 has both head and socket of nearly the same size. It is similar to no. 10 from Bologa, which has only a little longer head. The slim small-sized nos. 27 and 28 are close to the other pieces from Bologa (nos. 11–13). So, in both these places big and small-sized examples of this type of spearheads are associated. Romula is a Roman town, the only one in Dacia Inferior, but the site also produced evidence for the presence, at least temporary, of legionary vexillations and of auxiliary units (Gudea 1997, 85–86). Consequently one cannot specify if nos. 26–28 originate in civilian or military contexts.

The medium-sized no. 29 belonged to the Istrati-Capşa Collection, built up with

artefacts coming from Oltenia region. Its findspot is not known, but it could be Romula, from where are most of the object of the collection, or perhaps Drobeta. It has parallels at Gilău (no. 6) and Bologa (no. 11).

The big-sized no. 30, unearthed in Bumbești fort, has an elongated head and a cylindrical socket. It is similar in shape to the longer no. 20 from Ilișua. No. 30 was published without contextual data and thus one cannot know if it was included in the equipment of the soldiers of *cohors IV Cypria* or of *cohors I Aurelia Brittonum milliaria* stationed successively in the fort (Gudea 1997, 98–99).

The fragmentary no. 31 was discovered at Slăveni, most probably in the fort quartered permanently by *ala I Hispanorum*, which was extensively excavated (Gudea 1997, 83–85). The only part of no. 31 entirely preserved, its very slim head, has a good parallel in the head of no. 33 found in the auxiliary fort at Crâmpoia situated about 50 kms away from Slăveni, on the Transalutan Wall.

The big-sized no. 32 was discovered in the auxiliary fort of unknown garrison at Racovița. It had the head a little smaller than the big neck plus socket. An almost identical example is no. 34 from Jidava fort on the Transalutan Wall. More distant parallels are met at Inlăceni (no. 4), Potaissa (no. 5), Porolissum (no. 14) and Gherla (no. 19).

The long no. 33 is a stray find from Crâmpoia auxiliary fort of unknown garrison as it is usual on the Transalutan Wall. It is an exceptionally slim item with a very narrow socket. The internal diameter of the socket — about 10 mm — which represent the thickness of the end of the wooden shaft, imply the fastening of this piece to an unusual light spear. As written above another similar item was found in the nearby *ala* fort at Slăveni.

The big-sized no. 34 was found in the fort of *cohors I Flavia Commagenorum equitata* at Jidava (Petolescu 1997, 91–92 the history of the *cohors*). It belonged to a hoard of scrap metal including fragments of military equipment objects which was discovered inside the western tower of *porta praetoria* in a

burning layer dated around AD 250 (Petculescu 1999, 190–191). Consequently no. 34 was deposited shortly before that date and one can assert that its close parallel, no. 32 from Racovița, has approximately the same chronology.

The small-sized no. 35 was unearthed in *Barbaricum*, about 50 km beyond the *limes* of Dacia Inferior, in the autochthonous settlement at Mătășaru. The site of Mătășaru produced a lot of Roman objects dated in the first half of the 3rd century AD, including the only consistent assemblage of military items from the regions near the Dacian *limes* (Petculescu 1999a, 895–897). In the current state of research it is not possible to specify whether the military objects were imported in a tribal centre or if they are the evidence of a Roman military detachment temporary billeted in the neighborhood of this Barbarian settlement. No. 35 has parallels at Ulpia Traiana Sarmizegetusa (no. 2), Gilău (no. 6), Bologa (no. 11) and Istrati-Capșa Collection (no. 29).

The fragmentary no. 36 was discovered in the early layer, dated in the 4th century AD, of the late Roman fortress at Sucidava, located on the northern bank of the Danube, in the territory of the former province of Dacia. It has an outstanding massive short head unparalleled among the 2nd–3rd centuries examples and a round-sectioned shank preserved on a length of only a few mm. These features are characteristic of the bolt-heads or of the heads of throwing spears, which means that unlike the earlier triangular-sectioned spearheads, no. 36 was part of another type of weapon used as missile.

Besides, in the late Roman fort at Hinova lying not too far from Sucidava, also on the northern bank of the Danube, were found five crudely-made smaller and lighter iron triangular-sectioned heads of missiles (Stângă 1998, 104, nos. 3–5, pl. 68/3–5; Stângă pers. information, two other unpublished pieces). With short heads and proportionally long narrow sockets, they were different in shape and size from the 2nd–3rd centuries AD triangular-sectioned examples. Four of them were most probably light bolt-heads and one arrow head

(unpublished, inv. no. II 9981). Therefore, as they were certainly not spearheads, they are out the scope of this investigation.

After the presentation of the available evidence on triangular-sectioned spearheads one has to deal with some general matters such as their classification, diffusion and chronology.

This type of spearheads was largely distributed in Roman Dacia. The complete items varied greatly, not only in length, from about 130 to 232 mm, but also in shape and proportions of their parts which is the norm for the Roman spearheads of any type. However, one can divide them in two variants: small-sized having a total length of about 155–160 mm and a head of about 75–80 mm; big-sized with the total length between 175 and 232 mm and the heads of about 85–125 mm. The latter are subdivided into two groups: slim and massive. Besides, there are some spearheads which could not be included in this classification: the very small no. 25 from Ilișua; the medium-sized no. 29 from Istrati-Capșa Collection; no. 3 from Micia with a short head and an unparalleled long round-sectioned shank; nos. 31 and 33 from Slăveni and Crâmpoia respectively, provided with particularly narrow sockets which imply their belonging to very light spears.

Most probably all the spearheads had originally vestigial barbs and the corrosion must be held responsible for their absence on some examples. Significant in this respect is the situation of nos. 22 and 35 which still had barbs at the moment of their discovery but afterwards lost them during the restoration process including the cleaning of the corrosion products.

As I was able to weigh only three items almost entirely preserved, except for some loss of material due to the corrosion, there is not much room to speculate about the weight of this type of spearheads. Yet, one can mention that the calculated weight of the big-sized pieces when intact, varied between about 35–40 g. of the slim no. 1 from Sarmizegetusa Regia and about 73–75 and 86–87 g. of the heavier nos. 18–19 from Gherla.

The overwhelming majority of the triangular-sectioned spearheads originate in military contexts. Even for the pieces found in Ulpia Traiana Sarmizegetusa and Romula towns one can not dismiss a possible military connection, as in both sites one has to count with a presence, at least temporary, of some military units. The rest of the examples were discovered at Sarmizegetusa Regia, the Dacian capital besieged and garrisoned by the Romans, and in forts or in a smaller number, in the civilian settlements developed near them. Most of the pieces come from the *ala* forts and/or their related civilian settlements at Micia, Gilău (3 examples), Gherla (2 examples), Ilișua (6 examples), Slăveni. Others were recovered from forts garrisoned by more units, among which one was made up entirely or partially by cavalrymen, or by a single *cohors equitata*: Inlăceni, Bologa (4 examples), Porolissum (3 examples), Cășeu, Jidava. The infantry forts at Buciumi and Bumbești and the auxiliary forts of unknown garrisons at Racovița and Crâmpoia produced other examples. Finally one spearhead was unearthed in the fortress of *legio V Macedonica* at Potaissa. It results that these spearheads were parts of military and not hunting weapons.

They were certainly used by the cavalrymen from *alae* and *cohortes equitatae* but probably to a lesser extent also by the auxiliary and legionary infantry. However one has to count with the possibility that even the pieces found in the forts garrisoned permanently by *cohortes peditatae* could have belonged to some cavalrymen temporarily detached in these forts. As well, the item from Potaissa could have been part of the equipment of the small legionary cavalry or to an unattested auxiliary cavalry vexillation stationed for a while in this legionary fortress.

Considering the progressive unification of the military equipment of the cavalry - and infantrymen, both auxiliaries and legionaries, one can suppose that even if the spears provided with triangular-sectioned heads came into use as specialized cavalry weapons, they were later also introduced in the equipment of infantry units.

Some forts and the town of Romula produced more spearheads. In the cavalry forts at Gilău and Gherla were unearthed three small-sized and two big-sized examples respectively and at Porolissum, in the town and probably the fort, other three big-sized pieces. On the contrary, in the *ala* fort at Ilișua, the fort with mixed garrison at Bologa and Romula town, were found together big- and small-sized spearheads. So, if one lets aside the possible different dating of the recovered items it results that, at least in some cases, the military units based in one fort simultaneously used spears with triangular-sectioned heads of dissimilar sizes.

Anyway, one cannot notice a specific pattern of supply of the *alae* with this type of spears, as in some cavalry forts are attested small-sized pieces and in others big-sized or both. Besides, it is worth mention that only one example was discovered in each of two extensively excavated cavalry forts plus their *vici*, Micia and especially Slăveni, which means that some *alae* didn't commonly use them.

Since this type of spearheads was more rare than the common leaf-shaped pieces in all forts, including even those of *alae*, it is a reasonable assumption that the spears provided with them were not included in the standard equipment of any type of military units, but were specialized weapons, probably used for armour-piercing purpose (Bishop, Coulston 2006, 53). Alternatively, one can explain the relatively small number of spears of this type in the archaeological records by the fact that they were used as standard weapons only for a short period of time, but so far there is no evidence for such a chronology of the triangular-sectioned spearheads.

It is a widespread belief that the presence in only one site of more items of almost the same specific shape and size is due to their production in a local workshop. Groups of spearheads presenting a rough degree of standardisation which could be considered evidence for the existence of a local production of weapons were found at Gherla (nos. 18–19), Ilișua (nos. 20–21 and 22–24), Bologa (nos. 11–13), Porolissum (nos. 14–16), Romula (nos. 27–28).

Even more interesting is the situation on the *limes Daciae Inferioris*. Here, in two instances, one met quite similar pieces in two different forts, one on the river Olt and the other on the Transalutan Wall: nos. 32 and 34 at Racovița, respectively Jidava, and nos. 31 and 33 at Slăveni respectively Crâmpoia. In both cases it is very probable that the similar examples recovered in forts located close to each other were produced in the same workshop within a short period of time. Perhaps they were transported from one fort to another by transferred troops. At any rate as they are items without exact parallels in other parts of Roman Dacia, they represent the proof of the development in the 3rd century AD of regional production centres.

As many of the spearheads are stray finds or originate in old-fashioned excavations, they cannot be dated more precisely within the period AD 106–271, the whole duration of the Roman province of Dacia. Fortunately, some pieces have a shorter chronology. Thus, no. 1 from Sarmizegetusa Regia, discarded between AD 101–106, is the earliest example known so far not only in Dacia but also in the whole Roman Empire. The other five items for which there are chronological clues date considerably later: no. 5 from Potaissa between AD 170–271; nos. 10 and 12 from Bologa probably during the same period of time; nos. 33, 34 and 35 from Crâmpoia, Jidava and Mătășaru in *Barbaricum*, in the first half of the 3rd century AD. Considering that no. 34 from Jidava was deposited around AD 250 and nos. 35 and 36 from Crâmpoia and Mătășaru respectively, probably at the same time, on the occasion of the abandonment of the Transalutan Wall, it results that most of the dated pieces were used until the end of the Roman rule in Dacia. So even if the triangular-sectioned spearheads appeared in the archaeological records with the Sarmizegetusa Regia example at the very beginning of the 2nd century AD, it seems that they come into fashion only after the middle of the 2nd century AD and continued in use until AD 250/70.

Catalogue

As all the items dealt with in this paper are made of iron, I shall make no further mention of the material of which they are made.

The catalogue's numbers correspond to the numbers of the illustrations of the pieces.

At the bibliography I shall give besides the original publication of the objects including my unpublished Ph. D. thesis which was largely used by Țentea and Ludușan, only the papers offering new data on the respective items.

Abbreviations

L = total length; **Lh** = length of the head; **W** = width; **D** = external diameter of the socket; **Wt** = weight. All the measurements are made in mm and grammes respectively.

IAIA-Cluj = Institutul de Arheologie și Istoria Artei-Cluj Napoca (Institute of Archaeology and Art History from Cluj Napoca).

M. Sarmizegetusa = Muzeul Sarmizegetusa (Museum of Sarmizegetusa).

MAE-Corabia = Muzeul de Arheologie și Etnografie-Corabia (Archaeology and Ethnography Museum from Corabia).

MI-Gherla = Muzeul de Istorie-Gherla (History Museum from Gherla).

MI-Turda = Muzeul de Istorie-Turda (History Museum from Turda).

MIA-Zalău = Muzeul de Istorie și Artă-Zalău (History and Art Museum from Zalău).

MJBN-Bistrița Năsăud = Muzeul Județean Bistrița Năsăud-Bistrița Năsăud (County Museum from Bistrița Năsăud).

MJA-Pitești = Muzeul Județean Argeș-Pitești (Argeș County Museum from Pitești).

MJG-Tg. Jiu = Muzeul Județean Gorj-Tg. Jiu (Gorj County Museum from Tg. Jiu).

MMN-București = Muzeul Militar Național-București (National Military Museum from București).

MNA-București = Muzeul Național de Antichități de pe lângă Institutul de Arheologie-București (National Museum of Antiquities belonging to the Institute of Archaeology from București).

MNIR-București = Muzeul Național de Istorie a României-București (Museum of National History of Romania from București).

MNITr-Cluj = Muzeul Național de Istorie al Transilvaniei-Cluj Napoca (Museum of National History of Transilvania from Cluj Napoca).

MO-Craiova = Muzeul Olteniei-Craiova (Museum of Oltenia from Craiova).

MR-Caracal = Muzeul Romanațiului-Caracal (Museum of Romanați region from Caracal).

MRPF-Drobeta Tn. Severin = Muzeul Regiunii Porților de Fier-Drobeta Tn. Severin (Museum of Iron Gates Region from Drobeta Tn. Severin)

1. Sarmizegetusa Regia (Grădiștea Muncelului, Hunedoara county), terrace 2, sector A. Archaeological excavations of MNITr-Cluj. Breaches on the edges of the head; the barbs and part of the edge of the socket are missing. L: 183; Lh: 115; W: 9; D: 14; Wt: 32.6.

MNITr-Cluj, inv. no. V 18205.

Glodariu, Iaroslavschi 1979, 135, fig. 69/27, unscaled poor illustration made before the restauration of the piece.

2. Ulpia Traiana Sarmizegetusa (Sarmizegetusa, Hunedoara county). Archaeological excavations led by I. Piso. The tip is blunted; there are breaches on the edges and on the socket. L: 143; Lh: 72; W: 13; D: 15.

M. Sarmizegetusa.

Unpublished.

3. Micia (Vețel, Hunedoara county) thermae. Archaeological excavations by the author. Incomplete; the hollow part of the socket is missing. Breaches on the edges. L: 138; Lh: 77; W: 15; D: 10.

MNIR-București, inv. no. 175131.

Unpublished.

4. Inlăceni (Atid, Harghita county) auxiliary fort, porta praetoria. Archaeological excavations. The barbs are missing. L: 181; Lh: 97; W: 12; D: 18.

MNITr-Cluj, inv. no. IN 6791.

Gudea 1979, 193 no. 2, pl.17/8.

5. Potaissa (Turda, Cluj county) legionary fortress, barrack no. 5, room A. Archaeological excavations led by M. Bărbulescu. Breaches on the edges and on the heavily bent socket. L (calculated): 195; Lh: 103; W: 15; D 16.

MI-Turda, inv. no. 2988.

Unpublished.

6. Gilău (Cluj county) auxiliary fort. Archaeological excavations led by Isac. The tip is

blunted; holes on the socket. L: 152; Lh: 75; W: 14; D: 15.

MNITr-Cluj

Isac 1997, 107, pl. 26/5.

7. Gilău (Cluj county) auxiliary fort. Archaeological excavations led by Rusu. Incomplete, part of the socket is missing; heavily corroded and distorted. The exact dimensions unknown.

MNITr-Cluj.

Rusu 1956, 714, pl. 1/8 unscaled drawing.

8. Gilău (Cluj county) auxiliary fort. Archaeological excavations led by Rusu.

Incomplete; the tip is blunted and the lower part of the socket is badly damaged. The exact dimensions unknown.

MNITr-Cluj.

Rusu 1956, 714, pl. 1/9 unscaled drawing.

9. Buciumi (Sălaj county) auxiliary fort, principia. Archaeological excavations. Part of the rim of the socket is missing; breaches on the edges. L: 190; Lh: 106; W: 15; D: 17.

MIA-Zalău.

Chirilă et alii 1972, 62, no. 8, pl. 58/8.

10. Bologa (Poieni, Cluj county) auxiliary fort, praetentura sinistra, trench 16, m. 42, 0,50 m. of depth. Breaches on the edges and the rim of the socket. L: 232; Lh: 125; W: 11; D: 16.5.

IAIA-Cluj; on loan to MMN-București.

Gudea 1977, 187, no. 17, figs. 23/7; 25/10.

11. Bologa (Poieni, Cluj county) auxiliary fort. Archaeological excavations led by Gudea in 1961. The tip is blunted; breaches on the edges. L: 156; Lh: 83; W: 12; D: 15.

IAIA-Cluj; on loan to MMN-București.

Petculescu 1998, 188, no. 184.

12. Bologa (Poieni, Cluj county) auxiliary fort, praetentura dextra, trench 14 B, m. 47, 0,70 m. of depth. Breaches on the edges of the head and the socket. The head is slightly bent. L: 155; Lh: 80; W: 12; D: 12.

IAIA-Cluj; on loan to MMN-București.

Gudea 1977, 187, no. 13, figs. 23/3; 25/8.

13. Bologa (Poieni, Cluj county) auxiliary fort. Archaeological excavations led by Gudea in 1974. The tip is blunted and there are breaches on the edges; the socket is badly damaged. L: 158; Lh: 70; W: 10.5; D: 13.

IAIA-Cluj; on loan to MMN-București.

Petculescu 1998, 188, no. 186.

14. Porolissum (Moigrad, Sălaj county) town, sector J, trench 1, pit. Archaeological excavations in 1959. The tip is damaged; there are breaches on the edges and the socket is distorted. L: 205; Lh: 90; W: 15; D: 20.

MNITr-Cluj.

Gudea 1989, 544, no. 16, pl. 129/16 = Gudea 1989, 544, no. 17, pl. 129/17 which is obviously the same piece with a different drawing and not another spearhead as the author asserts.

15. Porolissum (Moigrad, Sălaj county). Incomplete; the greater part of the socket is missing. L: 125; Lh: 92; W: 14; D: 12.

MIA-Zalău, inv. no. CC 443/1977.

Gudea 1989, 544, no. 19, pl. 129/19.

16. Porolissum (Moigrad, Sălaj county). Incomplete; the socket is missing. Lh: 98; W: 13.

MIA-Zalău, inv. no. CC 705/1980.

Gudea 1989, 544, no. 18, pl. 129/18.

17. Cășeu (Cluj county) auxiliary fort. Incomplete; the lower part of the socket is missing. Breaches on the edges. L: 137; Lh: 92; W: 13; D: 13.

MNITr-Cluj.

Isac 2003, pl. 21/7.

18. Gherla (Cluj county) auxiliary fort or the military *vicus*. Stray find. The tip is blunted and there are breaches on the edges and the socket. L: 180; Lh: 97; W: 13.5; D: 17; Wt: 69.83.

MI-Gherla, inv. no. 1827. Transferred to MNIR-București, inv. no. 37847.

Daicoviciu 1969, 119–120, C 44 unillustrated; Petculescu 1998, 188, no. 182.

19. Gherla (Cluj county) auxiliary fort or the military *vicus*. Stray find. The tip is blunted and there are breaches on the edges and the socket. L: 201; Lh: 100; W: 13; D: 15; Wt: 84.19.

MI-Gherla, inv. no. 1556. Transferred to MNIR-București, inv. no. 37849.

Daicoviciu 1969, 120, C 45 unillustrated; Petculescu 1998, 188, no. 181.

20. Ilișua (Bistrița-Năsăud county) auxiliary fort. Complete. L: 206; Lh: 120; W: 15; D: 19.

MJBN-Bistrița.

Protase et alii 1997, pl. 69/4.

21. Ilișua (Bistrița-Năsăud county) auxiliary fort. The socket is slightly bent and has a breach in the lower part. L: 191; Lh: 105; W: 19; D: 18.

MJBN-Bistrița.

Protase et alii 1997, pl. 69/5.

22. Ilișua (Bistrița-Năsăud county) auxiliary fort, near the southern gate, place B. Archaeological excavations led by Torma in 1857-63. Heavily corroded. The barbs originally preserved are now missing. L: 193; Lh: 108; W: 14; D: 15.

Former Torma Karoly Collection. MNITR-Cluj.

Torma 1866, 58, 4a, fig.11/4; Hica-Cîmpeanu 1982, 597, no. 2, fig. 4/5 after the restauration and the lost of the barbs.

23. Ilișua (Bistrița-Năsăud county) auxiliary fort or less probable the military *vicus*. Incomplete; the tip is blunted, the edges are breached and the barbs and the lower part of the socket are missing. L: 148; Lh: 100; W: 14; D: 11.

Former Torma Karoly Collection. MNITr-Cluj.

Hica-Cîmpeanu 1982, 597, no. 3, fig. 4/7.

24. Ilișua (Bistrița-Năsăud county) auxiliary fort or less probable the military *vicus*. Incomplete; the barbs and the edge of the socket are missing. Breaches on the edges of the head and on the socket. L: 172; Lh: 90; W: 12; D: 14.

Former Torma Karoly Collection. MNITr-Cluj.

Hica-Cîmpeanu 1982, 597, no. 1, fig.4/6.

25. Ilișua (Bistrița-Năsăud county) auxiliary fort or less probable the military *vicus*. Incomplete; the barbs and the edge of the socket are missing. Breaches on the edges of the head. L: 127; Lh: 60; W: 10; D: 14.

Former Torma Karoly Collection. MNITr-Cluj.

Hica-Cîmpeanu 1982, 597, no. 4, fig. 4/8.

26. Romula (Reșca, Olt county). Stray find. Breaches on the edges of the head. L: 209; Lh: 106; W: 12.5; D: 15.5.

MR-Caracal.

Amon 2004, 202-3, no. 7 unillustrated.

27. Romula (Olt county). Stray find. Incomplete; the tip is blunted and the lower part of the socket is missing. L: 122.5; Lh: 75; W: 12; D: 12.5.

MR-Caracal.

Amon 2004, 202-3, no. 6, pl. 8/4.

28. Romula (Olt county). Stray find. Incomplete; the tip is blunted and the barbs and the lower part of the socket are missing. L: 128; Lh: 66; W: 14; D: 12.

MNIR-București.

Petculescu 1998, 187, no. 177.

29. Unknown findspot in Oltenia.

Incomplete; the tip is blunted and the barbs and the end of the socket are missing. L: 147; Lh: 85; W: 10; D: 14.

Former Istrati-Capșa Collection. MRPF-Drobeta Tn. Severin, inv. no. II 747.

Amon 2004, 213, no. 1, pl. 8/2.

30. Bumbesti (Gorj county) auxiliary fort. The barbs are missing. L: 178; Lh: 104; W: 13; D: 15.

MJG-Tg. Jiu, inv. no. 6358.

Marinoiu 2004, 127, no. 7, pl. 75/10.

31. Slăveni (Olt county) auxiliary fort or less probable the military *vicus*. Archaeological excavations. Incomplete; the barbs and the greater part of the socket are missing. Breaches of the edges of the head. L: 123; Lh: 86; W: 9.

MO-Craiova.

Amon 2004, 205, no. 6, pl. 8/5.

32. Racovița (Vâlcea county) auxiliary fort. Archaeological excavations led by Vlădescu in 1976. Breaches on the edges of the head and in the lower part of the socket. The head is slightly bent. L: 190; Lh: 86; W: 12; D: 18.5.

MMN-București, inv. no. 37970.

Vlădescu 1983, 164, no. 9, fig. 101/5.

33. Crâmpoia (Olt county) auxiliary fort. Stray find in 1964. The barbs are missing; breaches on the edges of the head and on the lower half of the socket. L: 190; Lh: 95; W: 10; D: 12.

MJA-Pitești, inv. no. I.V. 1189.

Petculescu 1998, 188, no. 180; Măndescu 2006, 269 information on the circumstances of its discovery.

34. Jidava (Câmpulung, Argeș county) auxiliary fort, in the burning layer inside the western tower of the *porta praetoria*. Archaeological excavations led by Gr. G. Tocilescu in 1901. Part of the edge of the socket is missing. The head is slightly bent. L: 190.

MNA-București, lost or currently inaccessible.

Tudor 1944, 77, no. 2, fig. 1/4.

35. Mătășaru (Dâmbovița county) autochthonous settlement beyond the Roman *limes*. Incomplete; a large portion of the tip, a barb and a part of the edge of the socket are missing. Breaches on the edge of the head. L: 144; Lh: 77; W: 12; D: 15-16.

MJA-Pitești, inv. no. F 805/1049.

Bichir 1984, 60 vârf de *pilum*, pl. 58/8 before the restauration with all the three barbs; Petculescu 1999, 895, no.1, pl. 1/1 current state of preservation.

Incomplete; the socket is missing. Breaches on the edges of the head. Lh: 72; W: 18.

MAE-Corabia.

Amon 2004, 178, no. 5, pl. 8/6.

36. Sucidava (Celei, Olt county) late Roman fortress, trench 1/1994, 1.80 m. of depth.

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ABBREVIATIONS

- AMN** — Acta Musei Napocensis.
AMP — Acta Musei Porolissensis.
BCMI — Buletinul Comisiunii Monumentelor Istorice.
EN — Ephemeris Napocensis.
JRGZ-Mainz — Jahrbuch des Römisch-Germanischen Zentralmuseums Mainz.
JRMES — Journal of Roman Military Equipment Studies.
Materiale — Materiale și Cercetări Arheologice

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