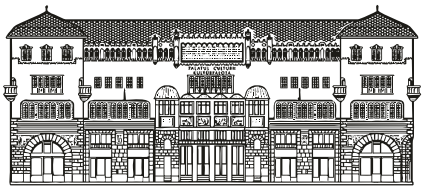
MARISIA

Studii și materiale

XXXIV–XXXV

Arheologie



Front cover:
The fibula from Suseni (photo: B. Rezi)

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XXXIV–XXXV

ARHEOLOGIE

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CONTENTS

ARTICLES

BOOK REVIEW

MEDIEVAL WEAPONS FROM BISTRA MUREŞULUI

ZALÁN GYŐRFI

Keywords: arms, coat of plates, horse equipment, fortress, Middle Ages
Cuvinte cheie: arme, plăci de armură, accesorii de călărie, cetate, Evul Mediu
Kulcsszavak: fegyver, lemezpáncél, lovasfelszerelés, vár, középkor

The finds from Bistra Mureşului represent the richest weapon assemblage in the Upper Mures region, so far. The weapons and harnesses were discovered in the surroundings of an unknown medieval fortification in specialized literature. Besides the dating and evaluation of the finds, we will also talk about the identification of the fortification, its owners, and the possible functions of the building.

A few years ago several dozens of iron objects came into the Mureş County Museum's possession partly by donation, partly by takeover. Usually the circumstances of similar discoveries are either unknown or questionable, but this was not the case. The exact location of this find was marked and the circle of objects assuredly stemming from the same site was also ascertained.[1] At a first glance it could be established that the collection consisted mainly of weapons, weapon accessories and few objects of horse equipment. Hereinafter, we will undertake their presentation and analysis, highlighting the fact that this is so far the richest find of medieval metal objects and the most abounding weapon assemblage of the Upper Mureş region. Due to the lack of archaeological excavations, the mentioned finds can only be dated by means of their morphological characteristics, analogies and other datable objects of the same collection. Beside presenting the newly identified site and assessing the assemblage of artefacts, we will shortly discuss the possible functions of the site.

The site

Bistra Mureşului (Dédabisztratelep) lies between the Călimani (Kelemen) and Gurghiu (Görgényi) mountains at the Mureş (Maros) gorge's gate. The finds turned up at the foot of a precipitous boulder rising above the high terrace of Bistra (Bisztra) creek's valley, northeast from the settlement. A narrow path, scooped into the rock during the ages, leads to the rock's dissected 30 meters long and only 10-12 meters wide plateau. At the plateau's north-western end a circle shaped cistern with a diameter of 2.8-3.0 m was dug and is probably well filled up by now. No traces of construction can be seen on the rock's surface, but to the east from the narrow path, in its close vicinity, the foundation of a ruined wall has been preserved in a small spot. According to the locals, the cistern was 'cleaned and searched' in the third part of the 20th century by the village's history teacher and his pupils, interested in local history. However, the local school holds no archaeological material, the collected items might be in private possession or may even have been lost. On the terrace lying at the rock's foot, on the road leading to the fortress one can notice heaps of stone that allude to the remains of walls. One can also not exclude the possibility that these may be related to Roman finds excavated in the surrounding area. Further research is required in order to clarify the relationship between the Roman finds and the Roman road mentioned by Neigebaur.

Few sources are known in relation to the site, known by locals under the name *Cetate*. Citing a teacher from Reghin (Szászrégen), J. F. Neigebaur mentions remains of walls and the discovery of bones on the territory of the village Deda (Déda), without determining its exact location. A few paragraphs later he talks about the Deda castle that

[1] I would like to thank Mr. Pop Iuliu Cristinel for the information regarding the places of discovery.

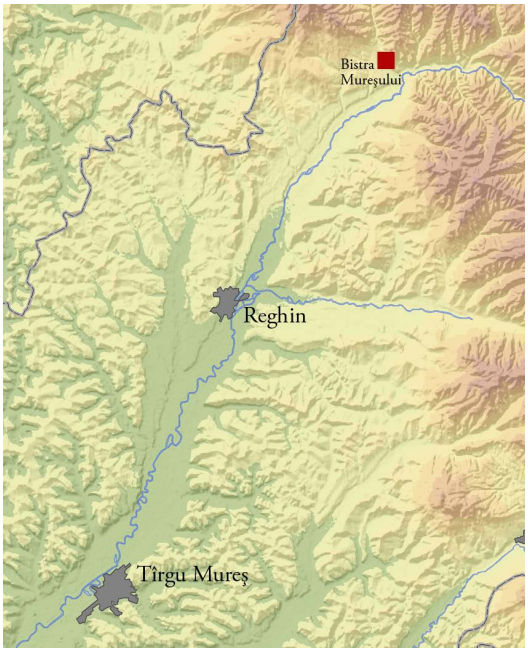

Fig. 1. The location of the site (Map by M. Szabó)

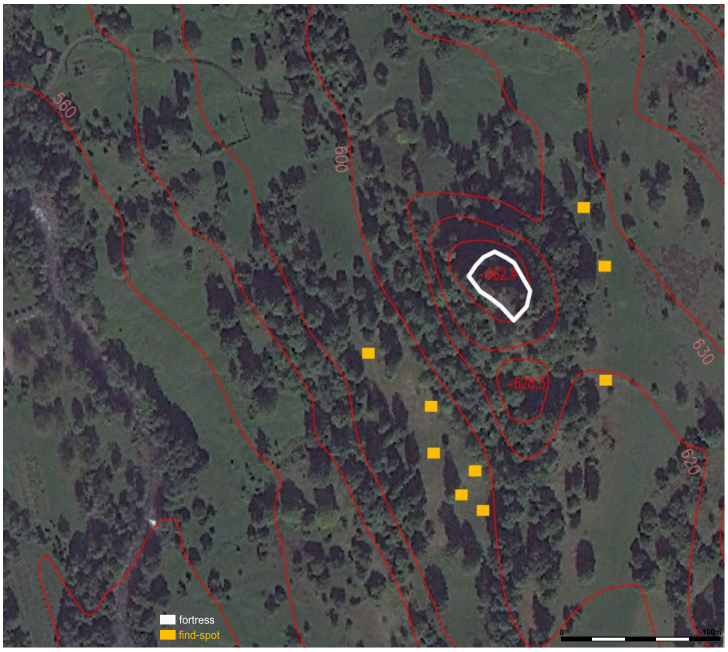

Fig. 2. The find spots of the weapons.

rests on Roman foundations *('das alte Schloss Déda welches auf römischen Substructionen ruhen soll')*.[2] His data and most of all their Roman relation was later taken over by many,[3] K. Goos was the only one expressing any doubts.[4] The description does not really fit the presently discussed Bistra fortress. The question arises whether the author published his own field research or a piece of second-hand information. Following Neigebaur, it was István Paulovics who later attempted the field identification of Deda fortress. His survey was unsuccessful; he therefore took the existence of a Roman fortress for erroneous information. However, his field research resulted in some useful information for us. Although he could not find the ancient fortress's place in Deda's surroundings, he learned from locals about the existence in the Bistra valley of the *Cetate* rock bearing a hole and mistakenly took it for a prehistoric cave.[5] This is without a doubt the place of our weapons' origin. Kővári does not mention a fortress in Deda; his statement is in line with that of Paulovics.[6] Although its name denotes a one-time fortification, we only have knowledge of sparse Bronze Age finds, but no remains of walls or any defences at the *Kisvár* site in the northern part of the village.[7]

In the light of the above it is not groundless to presume that the medieval fortress resting on Roman foundations mentioned by Neigebaur is identical with our site in Bistra Mureşului.

The find

The larger part of the Bistra find consists of objects that fall into the category of weaponry, however, there are some artefacts with different functions. We will concentrate below on the presentation of the weapons, but will refer to some of the other remaining relics when dating the find. Only those weapons are the object of our analysis that have assuredly turned up from the fortress's environment. Weapons and objects of horse equipment will be discussed separately, as we cannot ascertain a direct relationship between the two at all times.

I. Weapons

Before describing them in detail, it is important to note that almost each item was recovered from the embanked, currently bushy-grassy area below the fortress, and some of them were found immediately in the steep north-eastern side of the rock. We have so far no knowledge of any weapons found on the plateau. Our map shows the finding spots indicated by the locators. Unfortunately, we could not always match the object to the point where it was found, but we still consider it important to mark these spots in order to illustrate the site's dimensions. Assault

[2] Neigebaur 1851. 251–252.
[3] Ipolyi 1861, 243; Vass 1863, 119.
[4] Goos 1876, 70.
[5] *'It lies high in a hillside and a hole is mentioned in connection with it. It is evidently some kind if prehistoric cave.'* Paulovics 1944. 26.
[6] Kővári 1892.
[7] Roska 1942, 66, 31. sz.; RepertoriuMS 1998, 119 punct B.

weapons are represented within the find by lance spearheads used in close combat and arrowheads coming from bow and crossbow arrows used as long range weapons.

1. Staff-weapons

Of the close combat weapons only three spearheads can be classified as staff-weapons. All three present similar formal characteristics. The leaf shaped flake with a sharp spine turns narrower towards the end and continues in a cylindrical socket. The socket mounts up to half of the spearhead's length in two cases and only to a third of it in one case. Spearheads are rarely found during archaeological research and are mostly poorly preserved, therefore their dating and systematization stands on uncertain ground. Spearheads found during the excavation in Iacobeni (Mezőszentjakab)[8] and Loman (Lomány)[9] were probably similar to the ones found in Bistra. The conditions of their finding, in both cases support their dating to the 14th and 15th century. Based on analogies from the Carpathian Basin,[10] as well as on finds from farther regions,[11] they can be dated to the period between the 12th and 15th centuries.

1. Leaf shaped, lean, sharp spine spearhead. Total length: 28.1 cm; Socket length: 8 cm, Socket diameter: 2.2 cm; Largest width: 3.9 cm; Weight: 134 g *(Fig. 3/1)*

2. Leaf shaped, lean, sharp spine spearhead. Total length: 26 cm; Socket length: 12 cm, Socket diameter: 2,1 cm; Largest width: 3.5 cm; Weight: 175g *(Fig. 3/2)*

3. Leaf shaped, lean, sharp spine spearhead. Total length: 22 cm; Socket length: 10 cm, Socket diameter: 2 cm; Largest width: 3.2 cm; Weight: 122 g *(Fig. 3/3)*

2. Long-range weapons

The memory of the medieval Transylvanian archery's weapons is almost exclusively kept by different types of arrowheads as we know of only a few Transylvanian medieval finds related to bows and crossbows. This issue has never been thoroughly and comprehensively treated in Transylvania, either from a historical or an archaeological point of view. The general works of military history from the 1970s are mostly based on written and pictorial sources and only allude to archaeological finds.[12] A few of these latter will be mentioned further on in a short historical overview dedicated to the subject.[13] The vast majority of the preserved artefacts ended up in the museums' possession as stray finds or without the context of discovery. Due to the unclear finding circumstances the identification of the arrowheads' function remains in most cases questionable. While the heavier, more robust crossbow boltheads were mainly, but not exclusively used for military purposes until the 16th century, the simpler and formally diverse arrowheads' function is hard to determine. In the case of some of the below discussed items we cannot exclude a double function.[14]

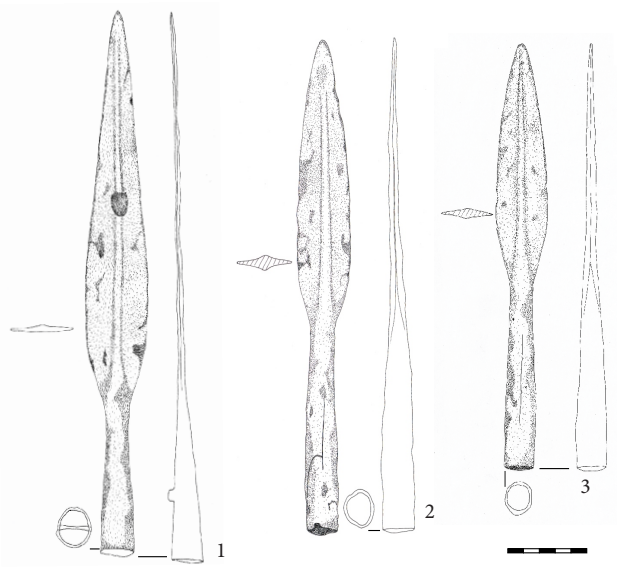

Fig. 3. Spearheads from Bistra Mureşului (Drawn by M. Ferenczi)

2.1. Arrowheads

Arrowheads can formally be divided into several groups. We will first discuss the tanged and socketed bow arrowheads, and later boltheads used for crossbows. One must highlight however that overlaps between the two groups may occur, and it is often very difficult to draw a sharp distinction line between them.[15]

[8] Pintea 1967, 537, fig. 9/8.

[9] Ghenescu 2009, 120, 123, Pl. II/1.

[10] A comprehensive, more thorough collection and systematization in the Carpathian Basin took place in Slovakia: Ruttkay 1976, 299–301; for finds in Hungary, see: Kovács 1970, 91. 6. ábra 6, 93. 7. ábra 1, 99; Kovács 1986, 260–261; Kovács 1988, 222–223.

[11] Kirpičnikov 1966, 3, 10–11, Fig.1; Nadolski 1956, 54–56, 264. Tabl. XXIV/2, 4, 266. Tabl. XXVI/3–4; Broń 1978, 61, 83–84.

[12] Vlădescu – König 1972, 63–66; Vlădescu 1973, 79–84.

[13] Bordi 2006.

[14] References also often mention the possible double function of the finds. In his typology, Jessop describes several arrowhead groups as such (see 'multi-purpose' types): Jessop 1996. Zimmermann speaks similarly of crossbow boltheads: Zimmermann 2000. 22–24.

[15] On determining the arrowheads' functions, types and on problems of interpretation: Zimmermann 2000, 19–21.

Several types of the simple tanged arrowheads can be differentiated. The drawn lozenge, deltoid, triangle or leaf shaped arrowheads are 4 to 6 cm long, their weight does not exceed 5–6 g. In several cases one can notice a cylindrical shoulder between the blade and the tang. Besides the flatter arrowheads we also have items tanged with lozenge and square cross sections, these will be discussed separately. Pieces similar to our first type, the drawn lozenge-shaped tanged arrowheads (cat. 1) were found in other Eastern Transylvanian fortresses and settlements: Sf. Gheorghe (Sepsiszentgyörgy)–*Bedeháza* (11–12th century),[16] Angheluş (Angyalos),[17] Turia (Torja),[18] and the tower in Rika forest (12–13th century).[19] The best parallels to our second type, the short-edged deltoid shaped arrowheads (cat. 2) come from Reci (Réty)–*Telek* (14–15th century),[20] Cernat (Csernáton)–*Haszmann garden/Damokos mansion* (14th century).[21] Perfect parallels of the third arrowhead with a triangle-shaped cutting edge (cat. 3) have been published from the Cernat–*Haszmann garden* site,[22] as well as from the Codlea (Feketehalom) fortress.[23] Identical specimens within similar chronological frames have turned up in other Transylvanian fortresses.[24] We have no knowledge of any Transylvanian parallel that would correspond to our lozenge shaped arrowhead (cat. 4). The more massive, with oval cross section, irregular leaf shaped arrowhead (cat. 5) has neither closer nor farther precise analogies, based on its formal characteristics we take it for a hunting arrowhead.

The parallels from Slovakia[25] and Hungary[26] of our drawn lozenge-shaped arrowheads have been dated to the 10th and 13th centuries, but the same chronological frames can be found in works discussing weapons and local history in other regions.[27] However, items from the 14-15th centuries are also known in Moldova.[28] The second type fragmentary arrowhead resembles most the Ruttkay B1b type,[29] its Slovakian parallels are dated to the 10–11th, and 12–13th centuries. Some examples coming from South of the Carpathians have been published with the same dating.[30] Its numerous Moldavian analogies from the 14–15th centuries can be found among type A1 arrowheads in Mandache's typology.[31] The closest 14–15th century parallels of the triangle-edged arrowheads come from Moldova.[32] Specimens found on the Eastern-European lowlands have also been dated to the 14th century.[33] The lozenge-shaped arrowheads resemble most the Ruttkay B2b type that has mostly been dated to the 12–13th century,[34] but few 14th century examples have also turned up in Moldova.[35]

The Bistra material carries two types of leaf-shaped socketed arrowheads, distinguished by the length of the socketed handle and by the form of the edge. The first three arrowheads (cat. 6, 7, 8) have a larger-based edge, emphatically separated from the socket that broadens toward its end. In two further cases (cat. 9, 10) the bay leaf-shaped edge is slimmer and continues in a less accentuated arc past the socket. The specialized bibliography mostly refers to these as characteristic objects of the Árpád period,[36] we are presently short of their excavated Transylvanian examples of later date. In Moldova they have shown up in 14–15th century finds coming from both fortresses and settlements.[37] Ruttkay labelled their analogies from Slovakia type 7 and dated them quite loosely (10–14th century),[38] similarly to their Eastern-European parallels processed by Medvedev.[39] A. Ioniţă classified them in Wallachia as type II.1. and dated them similarly to the previous.[40] Similar Central European arrowheads have been dated to

[16] Székely 2000, 241, 2. ábra 1.
[17] Székely 2000, 241, 2. ábra 2.
[18] Székely 1986, 198–199, fig. 4/4; Székely 2000, 242, 2. ábra 4.
[19] Bordi–Dénes 1999, 177, 8. ábra 2.
[20] This appeared earlier at the Cernat–*Haszmann garden* site: Székely 1971, 144–145, fig. 3/2, later at the Reci find-spot: Székely 2000, 241, 2. ábra 3; Bordi 2009, 51, 8 kép.
[21] Bordi 2009, 50, 6. kép; Székely 1990, 5, III. tábla 8.
[22] Székely 1990, 5, III. tábla 11.
[23] Costea 1968, 80–81, fig. 1/2–3, fig. 2/1.
[24] e. g. Doboka: Iambor 1984, 199, 208, Pl. IV/6–7, or in Floreşti (Szászfenes): Rusu 1993, 294, 296, Fig. 10C.
[25] These are closest to the Ruttkay B3 type: Ruttkay 1976, 327. Abb. 54, 330.
[26] Kovács 1986, 226–229.
[27] Spinei 1994, 119, 441. Fig. 7/2, 172, 458. Fig. 24/6; Medvedev 1966, 50, Tabl. 18/21, 20/36, 30/48; Ioniţă 2005, 95 (type I.3), 223. fig. 51/11.
[28] Mandache 2013, 54–55, Fig. 11 – type A4.
[29] Ruttkay 1976, 327. Abb. 54, 329–330.
[30] Ioniţă 2005, 95 (type I.4), 223, fig. 51/13.
[31] Mandache 2013, 54–55, Fig. 11.
[32] Mandache 2013, 54–55, Fig. 11 – type A2a.
[33] Spinei 1994, 252, 466, Fig. 32/10; Medvedev 1966, 105, Table 26/10.
[34] Ruttkay 1976, 327. Abb. 54, 330.
[35] Spinei 1994, 252, 466, Fig. 32/9.
[36] Kovács 1986, 229. Fig. 16, 274.
[37] Mandache 2013, 57, type B2.
[38] Ruttkay 1976, 327. Abb. 54, 329.
[39] The dozen specimens corresponding to Medvedev's type 3 and 4 come from the 11–14th century: Medvedev 1966, 40, 97. Tabl. 18/5, 99. Tabl. 20/3–4, 102. Tabl. 23/2–3, 109. Tabl. 30/3–4.
[40] Ioniţă 2005, 95, 223, fig. 51/7.

the 11–14th century.[41] According to Jessop, these arrowheads might have been used both in battle and hunting,[42] similarly to the Central European data, their chronological classification is quite large (10–16th century). Moldavian analogies of our bay leaf-shaped arrowheads come from 14–15th century settlements.[43] Similar examples dated to the 12–15th century were classified by Jessop as type M10 and defined as armour-piercing arrowheads.[44]

The barbed arrowhead (cat. 12), whose analogies have turned up at several Transylvanian sites must have been used for hunting down wild animals. Earlier (12–13th century) items were published from Chilieni (Kilyén),[45] the Rika forest tower,[46] Cernat (Csernáton)–*Ika fortress.*[47] Those specimens that were found in Transylvanian fortresses – Codlea (Feketehalom),[48] Tilişca (Tiliske),[49] Breaza (Bráza),[50] Loman (Lomány),[51] Racu (Csíkrákos)[52] – and settlements – Cernat (Csernáton)–*Fülöp garden*,[53] Barátos–*Horváth garden*[54]) can be dated to the late Árpád period and the 14–15th century. Close to 50 arrowheads coming from a 14–15th century find have been identified in Moldova,[55] and Wallachian examples share the same chronology.[56] This shape was used in Hungary both during the Árpád period,[57] and later.[58] It is the Ruttkay A1 type that corresponds to our items,[59] and the Medvedev 2 type[60] on Kievan Rus' territory, with the same chronological frames in both cases (9–14th century). Analogies stemming from Polish fortresses and castles are dated similarly to the above mentioned territories.[61] Its Central and Western European parallels are type T5-8 of Zimmermann's synthesis which the author dated to the 11–13th century, but based on pictorial sources assumed that their use exceeded this period.[62] The MP8, H3, H4? types in Jessop's general work correspond best to the Transylvanian examples, however their dating to the 13–14th century follows more likely the Central European typologies' values.[63]

One of the barbed arrowheads deserves special attention. Between its socket and edge a twisted part can be distinguished (cat. 11). The different arrowhead typologies sometimes discuss this as a separate variant.[64] The purpose of the spiral-like twisted part has been explained in several ways, but no unequivocal proof can support either of these explanations. Ruttkay explains the socket's form with structural considerations.[65] Other possibilities, such as their use as igniter or poisoned arrowheads, among others, have also been discussed. The latest thesis dedicated to these suppositions belongs to M. Stapor and considers the last possibility the most likely.[66] In clarifying the proposed functions, experimental methods might be of help. Until then it is worth considering the possibility of looking at this arrowhead as a multi-purpose one.

Zsigmond Bordi attempted to create a typology based on the ratio of the barbed arrowhead's edge and the socket's length.[67] In our opinion the different shapes were simultaneously used during the Middle Ages. Analogies of the shorter socketed arrowhead which he considered late medieval had occurred already in the 9–10th century,[68] while the longer socketed type, taken for an Árpád period object is also known from 14–15th century sites.[69] Their purpose has been much debated,[70] but most researchers highlighted their use in hunting.

Conical arrowheads that turn narrower at the socket's alignment were most probably used for hunting. Each of them (cat. 13–17) has a slightly blunt tip. The edge that connects organically to the socket and follows it without any transi-

[41] Zimmermann 2000, 61–63, Taf. 16.
[42] Jessop type MP3: Jessop 1996, 194. Fig. 1, 196.
[43] Mandache 2013, 57–58, type B3.
[44] Jessop 1996, 194. Fig. 1, 199.
[45] Bartók – Bordi 2000, 179, fig. 5/3.
[46] Bordi – Dénes 1999, 177, 8. ábra 1.
[47] Székely 1977, 62, 16. kép 2.
[48] Costea 1968, 80, Fig. 3.
[49] Nägler 1967, Taf. III/4.
[50] Nägler 1969, 114, fig. 6/1.
[51] Ghenescu 2009, 120, pl. II/4, pl. V/4.
[52] Székely 1977, 63, 24. kép 6.
[53] Bordi 2009, 50, 5. kép.
[54] Bordi 2009, 49, 3. kép.
[55] Mandache 2013, 56–57, type B1.
[56] Ioniţă 2005, 95 (type II.2), 223. fig. 51/4–6.
[57] Kovács 1986, 226–230. 16. á. 24–25, 274.
[58] Kalmár 1971, 148.
[59] Ruttkay 1976, 327–328, Abb. 54.
[60] Medvedev 1966, 39. Tab. 30/2, 92. Tab. 13/1, 97. Tab. 18/1, 99. Tab. 20/2.
[61] Nadolski 1956, 64–66,type I., Tabl. XXX/5–6; Broń 1978, 75.
[62] Zimmermann 2000, 64–66.
[63] Jessop 1996, 194. Fig. 1, 197, 200.
[64] Nadolski 1956, 270, type I., Tab. XXX/5; Medvedev 1966, 92, Tab. 13/1, pieces of a very early date, Ruttkay 1976, 324 (type A1b, Abb. 54), 325.
[65] The shaping of the socket may have kept the arrowhead from 'sliding' toward the edge: Ruttkay 1976, 328.
[66] Stąpór 2013, 63.
[67] Bordi 2006, 93, 99, Figure 4.
[68] Medvedev 1966, 92, Tab. 13/2.
[69] Mandache 2013, 56–57.
[70] János Kalmár defines them as igniting arrowheads and takes them for hunting arrows only starting from the 15th century: Kalmár 1971, 148.

tion makes it difficult to draw the borderline between the socket and the arrowhead's edge. Therefore all given socket and edge dimensions are relative. There are slight formal differences among the five preserved specimens. Their size is smaller than that of socketed arrowheads, only one piece is shorter than 4.0–4.7 cm (cat. 13). Slight formal differences can also be seen, in two cases the arrowhead's socket and its edge are more emphatically detached (cat. 16, 17). One such arrowhead has a small sphere-shaped end (cat. 17). No precise parallel has been found for this piece in the Transylvanian material, but it is probably identical with the Ruttkay A4 type.[71] Zimmermann publishes no similar item in his Central European collection, unless we consider his flat edged type T6-12 arrowhead a variant. The fraction of a very similarly tipped arrowhead was found in the Wartenberg fortress.[72] This type was used for hunting birds, possibly for a paralyzing shot in case they didn't want to inflict upon the hunted animal a lesion that would cause blood loss.[73]

The Carpathian Basin parallels for our short arrowheads are the Ruttkay type A3 ones from the 12–13th century, while their Central European analogies belong to the Zimmermann type T6-7d group.[74] According to János Kalmár short, tanged arrows like ours were used for hunting down feathered game.[75] A mostly similar opinion was formulated by Zimmermann,[76] while Ruttkay considered them useful for bringing down smaller furred animals as well.[77] Jessop ranged similar arrowheads among type MP9[78] and thought they were used for training. His theory is worth considering, and the arrowheads' multifunctional character cannot be excluded.

The second of the tanged arrowheads with a lozenge cross section (cat. 19) might as well have been used for an early crossbow. The first form's (cat. 18) slight weight indicates that it was probably a simple bow's ammunition. These arrowhead forms were in all probability used for combat and not hunting, however the first slim version may have served the other purpose as well. The heavier, stodgier piece's (cat. 19) close parallels are known from Codlea fortress.[79] Medvedev's synthesis publishes analogies from several fortresses: while he determined the first arrowhead type's dating very loosely (10–14th century),[80] the second type is illustrated mainly by 13–14th century examples.[81] Central and Western European parallels are found in Zimmermann's D2-5 group, dated mostly to the 13–14th century, but he also lists a few 15th century specimens.[82]

1. Drawn lozenge-shaped arrowhead. Total length: 5.9 cm, tang's length: 1.7 cm, largest width: 1.1 cm, weight: 2g *(Fig. 4/1)*

2. Arrowhead with a short deltoid-shape blade and a circular thickening between the blade and the tang. Total length: 5.6 cm, tang's length: 2.3 cm, largest width: 1.6 cm, weight: 4g *(Fig. 4/2)*

3. Arrowhead with a triangular blade and a circular cross section thickening on the tang's bladed side. Total length: 5.9 cm, tang's length: 1.7 cm, largest width: 1.1 cm, weight: 4g *(Fig. 4/3)*

4. Lozenge-shaped arrowhead. Total length: 8.1 cm, tang's length: 3.3 cm, largest width: 1.4 cm, weight: 7g *(Fig. 4/4)*

5. Leaf-shaped arrowhead with oval cross section. Total length: 7.5 cm, tang's length: 3.1 cm, largest width: 1.8 cm, weight: 18g *(Fig. 4/5)*

6. Leaf-shaped, flat bladed arrowhead. Total length: 3.2 cm, socket's length: 2 cm, socket's diameter: 1 cm, largest width: 1 cm, weight: 4g *(Fig. 4/6)*

7. Leaf-shaped, flat bladed fragmentary arrowhead. Total length: 4 cm, socket's length: 2.8 cm, socket's diameter: 1.1 cm, largest width: 1,1 cm, weight: 9g *(Fig. 4/7)*

8. Leaf-shaped, flat bladed fragmentary arrowhead. Total length: 4.2 cm, socket's length: 3 cm, socket's diameter: 1 cm, largest width: 1 cm, weight: 6g *(Fig. 4/8)*

9. Leaf-shaped arrowhead with lozenge cross section. Total length: 4.7 cm, socket's length: 3.8 cm, socket's diameter: 1 cm, largest width: 1 cm, weight: 7g *(Fig. 4/9)*

10. Leaf-shaped arrowhead with lozenge cross section. Total length: 4.0 cm, socket's length: 2.9 cm, socket's diameter: 0.7 cm, largest width: 1 cm, weight: 6g *(Fig. 4/10)*

11. Barbed arrowhead with twisted socket, two thirds of its socket's length twisted toward the blade. Total length: 8.2 cm, socket's length: 5 cm, socket's diameter: 0.9 cm, largest width: 2.7 cm *(Fig. 4/11)*

12. Barbed arrowhead with short socket. Total length: 5.8 cm, socket's length: 3.5 cm, socket's diameter: 1.3 cm, largest width: 3 cm *(Fig. 4/12)*

13. Arrowhead with a conical shape. Total length: 3,5 cm, socket's length: 1.6 cm, socket's diameter: 1.3 cm *(Fig. 4/13)*

14. Arrowhead with a drawn conical shape. Total length: 4,3 cm, socket's length: 1.8 cm, socket's diameter: 1.1 cm *(Fig. 4/14)*

[71] Ruttkay 1976, 328.
[72] A fractioned piece from the 13th century, conditionally taken for an arrowhead used for bird hunting: Krauskopf 2005, 204, Taf. 32/8.
[73] Ruttkay 1976, 328.
[74] Zimmermann 2000, 70–71, Taf. 21.
[75] Kalmár 1964, 116–117, 11. ábra b.
[76] Zimmermann 2000, 71.
[77] Ruttkay 1976, 328.
[78] Jessop 1996, 197.
[79] Costea 1968, 81, Fig. 2/5–6.
[80] Medvedev 1966, 61, 112, Tabl. 30/89.
[81] Medvedev 1966, 114, Tabl. 31/18.
[82] Zimmermann 2000, 76, Taf. 25.

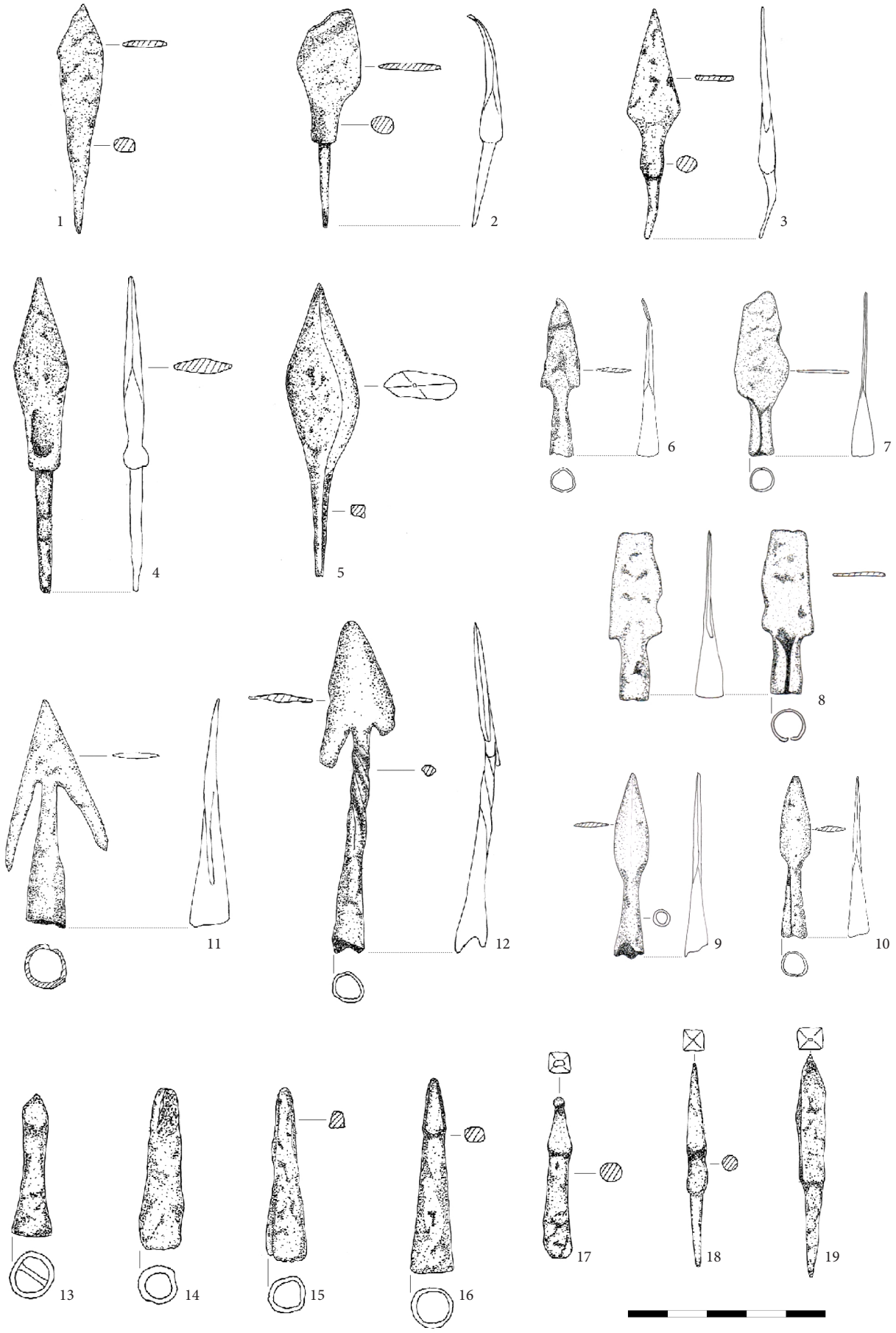

Fig. 4. Arrowheads from Bistra Mureşului (Drawn by M. Ferenczi)

15. Arrowhead with a drawn conical shape. Total length: 4.5 cm, socket's length: 2.7 cm, socket's diameter: 1.2 cm *(Fig. 4/15)*

16. Arrowhead with a protuberant conical shape blade. Total length: 4.7 cm, socket's length: 3.2 cm, socket's diameter: 1.3 cm *(Fig. 4/16)*

17. Arrowhead with a protuberant conical shape blade and a blunt, knob-like tip. Total length: 4.2 cm, socket's length: 2.6 cm, socket's diameter: 0.9 cm *(Fig. 4/17)*

18. Slim arrowhead with a drawn conical shape blade and a spheroid broadening on the tang's end closest to the blade. Total length: 5.2 cm, tang's length: 2 cm, largest width: 1.1 cm, weight: 2g *(Fig. 4/18)*

19. Arrowhead with an angular cross section and pyramid shaped head. Total length: 5.9 cm, tang's length: 2.4 cm, largest width: 1 cm, weight: 6g *(Fig. 4/19)*

2.2. Boltheads

Although they are frequently mentioned among finds in fortresses, nobody has so far undertaken a more serious research of our boltheads. It would be useful to determine their date from well interpretable finds and set up their typology in order to tone the fairly vague image we have from written sources on the use of crossbows in Transylvania. The few pieces from the Bistra fortress are unfit for a more thorough examination, the objects' sketchy assessment is only possible through the detailed and frequently discussed Central-European parallels. Accordingly, our classification can only be based on formal characteristics and not on functional ones, the criteria being the objects' weight and the method of fastening.

The first group (cat. 1, 2, 3, 4, 5) consists of the lighter boltheads, weighing 35-36g. These are the most numerous in our find (5). Their formal design is quite uniform: the tubular socket is followed by the blade that reaches its maximal width in the last third of the bolthead's length, its pyramidal point generally terminates in a blunt tip. In one case the blade is more distinctly separated from the socket. We would especially like to bring to the limelight a 9 cm long thin, slimmer bolthead that is well distinguished within the group (cat. 5). The projecting speed of lighter boltheads was greater, therefore they were useful for firing at farther targets. The thinner, long boltheads were probably used for piercing the mail shirt. The tanged item with the lozenge cross section broadening at the base of its tip into a cylinder may be part of the same group. Another piece weighing over 18 g and having an irregular square cross section may have served the same purpose.

Boltheads of 'medium' weight (37–50g) include two massive pieces (cat. 6, 7). Their weight exceeds 43 g, their length 7 cm. They are formally similar to the previous group's items, although in the case of the second bolthead the largest diameter of its pyramid-like blade is the same as the cylindrical socket's and the blade ends in a blunt and roundish edge. There are two pieces included in the category of heavy boltheads, exceeding 50 g (cat. 8, 9). One represents the group of stockier heads with a lozenge cross section blade, the other the group of slimmer, longer types that have a pyramidal blade. The medium and heavy weight boltheads were probably used for piercing plate armour. Although their range was smaller than that of light boltheads, their efficiency was much higher.

Some of the boltheads found in Transylvania are fairly easy to date due to the circumstances of their finding. One piece similar to the slimmer (tanged) one from Bistra turned up from a 14th century layer in Dăbâca (Doboka).[83] In Hungary several series of finds from fortresses and settlements have been published. One of the rare, well-datable collections in the Carpathian Basin comes from the Kőszeg fortress's excavation where 13–14th and 15th century layers contained analogies for both types we analyzed.[84] The carved Hungarian analogies of pyramid bladed boltheads come from the 15th century.[85] With respect to the dating, it is important to highlight that boltheads from Ozora group 2, similar to the most frequent medium boltheads, were used until the second half of the 16th century,[86] and there are 16–17th century pieces from Füzér fortress.[87] The 15th century parallels of the pyramid tipped heads are known from Csorbakő fortress,[88] but they turned up in large numbers from Nevicke fortress as well.[89] The Medvedev type 3,[90] found on the Kievan Rus's territory is dated to the 13–15th century, just like its Polish analogies.[91] This is the most frequently found type in Central-European archaeological material, especially in fortresses. It was used from the second half of the 13th century until the end

[83] Iambor 1984, 199, 208, Pl. IV/8.
[84] Holl 1992, 67–69.
[85] Kalmár 1971, 149–150.
[86] Gere 2003, 15–16.
[87] Simon 2000, 114–115, 199. 56. ábra. 1, 3–4.
[88] Szörényi 2004, 247–249, 294. 2. t. 2–3, 8–9, 11.
[89] Dzembasz 1999, 274, 285–286, 299. Taf. XIII/1, 5, 300. Taf. XIV/8, 11–13, 301. Taf. XV/3–5.
[90] Medvedev 1966, 68, 114. Tabl. 31/14.
[91] Broń 1978, 85, Pl. 30; Glinianowicz 2005, 161–162, Tabl. XV, 5–6.

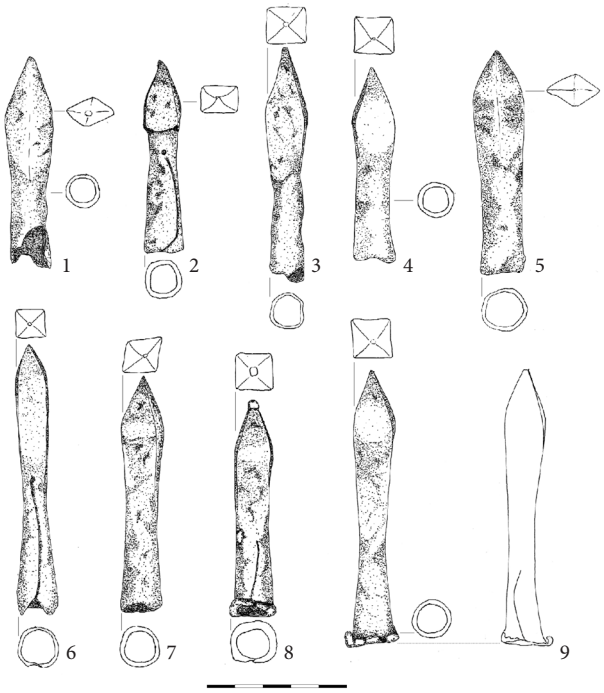

Fig. 5. Boltheads from Bistra Mureşului
(Drawn by M. Ferenczi)

of the 15th and the beginning of the 16th century.[92] The thin, slimmer form is the correspondent for Medvedev type 6, its analogies from Novgorod were dated to the 14–15th century.[93] Examples of lozenge cross-sectioned, more massive heads are known from Nevicke[94] and Csorbakő[95] fortresses, both dated to the 15th century. Similar pieces are known from Poland from the 14–15th century.[96] Medvedev classified them to the 8th category, dating their Baltic and Ukrainian specimens to the 13–14th, sporadically to the 15th century.[97] The lower time limit in Central Europe for the Zimmermann type T2-5 group of arrowheads of over 2000 pieces is the 13th century, its upper limit can be drawn at the end of the 15th, first half of the 16th century.[98]

1. Bolthead. Total length: 7.1 cm; socket's length: 2.5 cm, socket's diameter:1.2 cm; largest width: 1.6 x 1.1 cm; weight: 30g *(Fig. 5/1)*

2. Bolthead. Total length: 6.4 cm; socket's length: 3.9 cm, socket's diameter:1.2 cm; largest width: 1.2 x 1.1 cm, by the socket: 1.4 cm; weight: 31g *(Fig. 5/2)*

3. Bolthead. Total length: 7.9 cm; socket's length: 2.5 cm, socket's diameter: 1.1 cm; largest width: 1.4 x 1.2 cm; weight: 35g *(Fig. 5/3)*

4. Bolthead. Total length: 6.5 cm; socket's length: 2.5 cm, socket's diameter:1.4 cm; largest width: 1.3 x 1.3 cm; weight: 35g *(Fig. 5/4)*

5. Bolthead. Total length: 9.1 cm; socket's length: 3.8 cm, socket's diameter:1.4 cm; largest width: 1.0 x 1.0 cm; weight: 36g *(Fig. 5/5)*

6. Bolthead. Total length: 7.9 cm; socket's length: 2.7 cm, socket's diameter:1.2 cm; largest width: 1.6 x 1.4 cm; weight: 44g *(Fig. 5/6)*

7. Bolthead. Total length: 7.3 cm; socket's length: 2.8 cm, socket's diameter:1.7 cm; largest width: 1.3 x 1.3 cm; weight: 48g *(Fig. 5/7)*

8. Bolthead. Total length: 7.5 cm; socket's length: 2.5 cm, socket's diameter:1.6 cm; largest width: 1.9 x 1.2 cm; weight: 51g *(Fig. 5/8)*

9. Bolthead. Total length: 9 cm; socket's length: 2.6 cm, socket's diameter:1.3 cm; largest width: 1.3 x 1.2 cm; weight: 50g *(Fig. 5/9)*

3. Coat-of-plates

Plate armours were in use as body protection all along the late Middle Ages. Even though they were more vulnerable and more demanding than large plate armours, and also needed to be replaced more often, plate armours were popular due to their lower production costs and efficiency. We almost have no information on their Transylvanian use, since written sources of different body protection equipments are difficult to link to real objects. Their identification is therefore questionable, except for a few cases. The latest short synthesis of Transylvanian defensive armour only alludes to their use,[99] but except for pictorial data could not offer anything more. Despite frequent fortress excavations, they rarely turn up in archaeological material.

We have identified 18 pieces of similarly shaped riveted iron plates in our find. Almost each of them is a rectangle, their surface carries one or two rows of rosette headed rivets. One single piece has simple disc-shaped rivet heads, this is probably not part of the same armour, or it might have replaced an originally rosette-headed missing piece. The rivets are placed in one corner or in the quarter of the plate, their diameter is 0.5 cm. The distance between them is usually 1.5–2.5/3.00 cm. The distance between the rivet and the plate is generally 1.5–2.5 mm, the material that carried these plates and served also as body protection was approximately this thick. By the manner of fastening the rivets it is obvious that it was from the inside that these plates were fastened on the cloak of either leather or another kind of

[92] Zimmermann 2000, 46–48, type T1-5, Taf. 6.
[93] Medvedev 1966, 68, 114. Tabl. 31/6.
[94] Dzembasz 1999, 274, 285–286, 299. Taf. XIII/3, 300. Taf. XIV/5, 7, 301. Taf. XV/1, 6.
[95] Szörényi 2004, 247–249, 294. 2. t. 5–6, 12–14.
[96] Glinianowicz 2005, 161–162. Tabl. XV, 1–4.
[97] Medvedev 1966, 68–69, 114. Tabl. 31/15, 20.
[98] Zimmermann 2000, 51–53, Taf. 9.
[99] Bordi 2003, 315.

organic material. Only the decorated rivets were visible, as the period's pictorial sources indicate it as well. The size of the plates is variable, but their length is generally between 8 and 9 cm, and their width 6–7cm. The plates' thickness shows slight differences, most of them are somewhere between 1.1–1.5 mm thick. So far, we do not know of any such plates in Transylvania but very similar pieces are exposed at the permanent exhibition's medieval part at the Alba Iulia museum. The preserved finds are the remains of plate armour that one can consider the jack of plate's (brigantine) forerunner. One fastened metal plates to a poncho-like coat of plates, wearing probably a plated mail underneath in order to assure the protection of the upper body. Several works of history of weapons have dealt with the mentioned coat of plates' origin and spread, and although most of the data related to armature have refined and toned the thesis of C. Blair and B. Thordeman's monographic works, they did not fundamentally shake them. The beginning of its large scale use is set by references to the end of the 13th and the beginning of the 14th century.[100] This type of armour is probably of North Italian origin,[101] although many have assumed it came from the East.[102] Research has attempted to set up a line of development for armour plates, but 14th century pieces of varied forms found on the Wisby battlefield[103] imply rather that several different types of the mentioned armour were simultaneously used.[104] The Wisby typology and analysis is of capital importance to this day, as it is the largest archaeological find ever. The Bistra plates resemble armour nr. 27's plates 20-26 most, but determining their structure has not been successful.[105]

A segmented coat of armour was reconstructed from plates similar to ours, found in Bibentenburg in the vicinity of Zürich. Its publishers consider it the forerunner of the jack of plates (Plattenharnisch),[106] just like Blair, who analyzed similar plates and came to the conclusion that it was often impossible to draw a clean-cut line between the two forms.[107] One can often find similar armour components in archaeological material from Silesian fortresses. In shape and size it is the Szczerba (Schnallenstein) plates that resemble the Bistra ones best.[108] These and other analogous Silesian items have been dated to the second half of the 14th and first half of the 15th century.[109]

It would be useful to reconstruct the armour from the preserved pieces, but based on the number of plates we consider this a risky endeavour. We think that the Bistra armour was not much unlike the reconstructed Bibentenburg armour but its exact structure could only be determined by means of further plates. Depending on the battle conditions, the Bistra armour offered a more or less efficient protection to its wearer. It could, by all probability neutralize the effects of close combat and smaller bullets, but it is uncertain whether it could counter the impact of crossbows that have also been found in Bistra.

1. Angled plate, one side bent, slightly curved. Dimensions: Long sides (henceforth: ls): 8.8 and 8.6, short sides (henceforth: ss): 6.4 and 5.5. Its four rosette rivet heads are at an almost identical distance from each other. (2.5–2.9 cm). The average distance between the rivet head and the plate is of 2.4 mm. Pth: 1.1 mm *(Fig. 6/1, 7/1)*

2. Rectangular plate, very slightly curved. Dimensions: ls: 8.1 and 8.0, ss: 6.2 and 6.1. Of its four rosette rivet heads, set in two parallel rows, two are intact, one fragmented, one has perished. The average distance between the rivet head and the plate is of 2.1 mm. Pth: 1.1 mm *(Fig. 6/2)*

3. Rectangular plate, curved. Dimensions: ls 8.2 and 8.0, ss: 7.0 and 6,5. Its four rosette rivet heads are at almost identical distance from each other (2.3–2.4 cm). The average distance between the rivet head and the plate is of 2.0 mm. Pth: 1mm *(Fig. 6/3)*

4. Rectangular plate, very slightly curved. Dimensions: ls: 8.0 and 8.0, ss: 6.2 and 6.0. Its three rosette rivet heads are at almost identical distance from each other (2.3 cm). The average distance between the rivet head and the plate is of 2.4 mm. Pth: 1 mm *(Fig. 6/4)*

5. Rectangular plate, very slightly curved. Dimensions: ls: 8.5 and 8.4, ss: 6.5 and 6.3. Its three rosette rivet heads are at almost identical distance from each other (2.0–2.2 cm). The distance between the rivet head and the plate is of 1.8–2.0 mm. Pth: 1.8 mm *(Fig. 6/5)*

6. Rectangular plate, very slightly curved. Dimensions: ls: 8.6 and 8.5, ss: 6.1 and 6.1. Of its three rosette rivet heads two are at bigger distance on the longer side (2.2 cm) and at smaller distance on the shorter side (1.7 cm) from each other. The distance between the rivet head and the plate is of 2.0 mm. Pth: 1.8–2.0 mm *(Fig. 6/6, 7/2)*

7. Rectangular plate, very slightly curved. Dimensions: ls: 8.3 and 8.3, ss: 6.3 and 6.2. It has three

[100] Blair 1958, 39–41.
[101] Nicolle 2002, 206–221.
[102] Oakeshott 1960, 269–271.
[103] Thordeman 1940.
[104] Töll 2009, 88.
[105] Thordeman 1940, 405–408, Fig. 393.
[106] Leutenegger 2004, 98–100, Abb. 14.
[107] Blair 1958, 59.
[108] Marek 2008, 89. Fig. 3/1–2, 91–93.
[109] Marek 2008, 97–99.

rosette rivet heads. The distance between the rivet head and the plate is of 2.0 mm. Pth: 2.0 mm *(Fig. 6/7)*

8. Trapeze shaped plate, very slightly curved. Dimensions: ls: 8.5 and 8.3, ss: 5.5 and 6.0. It has three rosette rivet heads. The distance between the rivet head and the plate is of 1.5 mm. Pth: 1.8 mm *(Fig. 6/8)*

9. Trapeze shaped plate, slightly curved. Dimensions: ls: 8.3 and 8.0, ss: 5.0 and 4.5. It has three rosette rivet heads, the distance between them is bigger on the longer side. The distance between the rivet head and the plate is of 1.5 mm. Pth: 1.5 mm *(Fig. 6/9)*

10. Rectangular plate, very slightly curved. Dimensions: ls: 8.4 and 8.3, ss: 6.7 and 6.5. Its four rosette rivets are at almost identical distance from each other (2.0–2.5 cm). The distance between the rivet head and the plate is of 1.8–2.0 mm. Pth: 1.2 mm *(Fig. 6/10)*

11. Rectangular plate, slightly curved. Dimensions: ls: 8,4 and 8,3, ss: 6,8 and 6,5. Its four rosette rivet heads are at almost identical distance from each other (2.0–2.2 cm). The distance between the rivet head and the plate is of 1.8–2.5 mm. Pth: 1,1 mm *(Fig. 6/11, 7/3)*

12. Rectangular plate, very slightly curved. Dimensions: ls: 8.5 and 8.3, ss: 6.5 and 6.5. Its four rosette rivets were set in two rows. The distance between the rivet head and the plate is of 1.5–2.0 mm. Lv: 1.1 mm *(Fig. 6/12)*

13. Rectangular plate, slightly curved. Dimensions: ls: 8.5 and 8.3, ss: 6.4 and 6.1. Its four rosette rivets were set in two rows. The distance between the rivet head and the plate is of 1.5–2.0 mm. Pth: 1.1 mm *(Fig. 6/13)*

14. Rectangular plate, slightly curved. Dimensions: ls: 8.4 and 8.4, ss: 6.4 and 6.3. Its four rosette rivets were set in two rows. The distance between the rivet head and the plate is of 1.8–2.0–2.5 mm. Pth: 1.5 mm *(Fig. 6/14)*

15. Rectangular plate, very slightly curved, one of the sides fragmentary. Dimensions: ls: 8.4 and 8.4, ss: 6,0 and 6,0. Its four rosette rivets were set in two rows. The distance between the rivet head and the plate is of 1.5–2.0–2.5 mm. Pth: 1.1 mm *(Fig. 6/15)*

16. Polygonal plate, slightly curved, one of its longer sides bent. Dimensions: ls: 8.5 and 8.4, ss: 5.6 and 6.1. Its four rosette rivets were set in two rows. The distance between the rivet head and the plate is of 1.5–2.0 mm. Pth: 1.1 mm *(Fig. 6/16)*

17. Rectangular plate, very slightly curved.

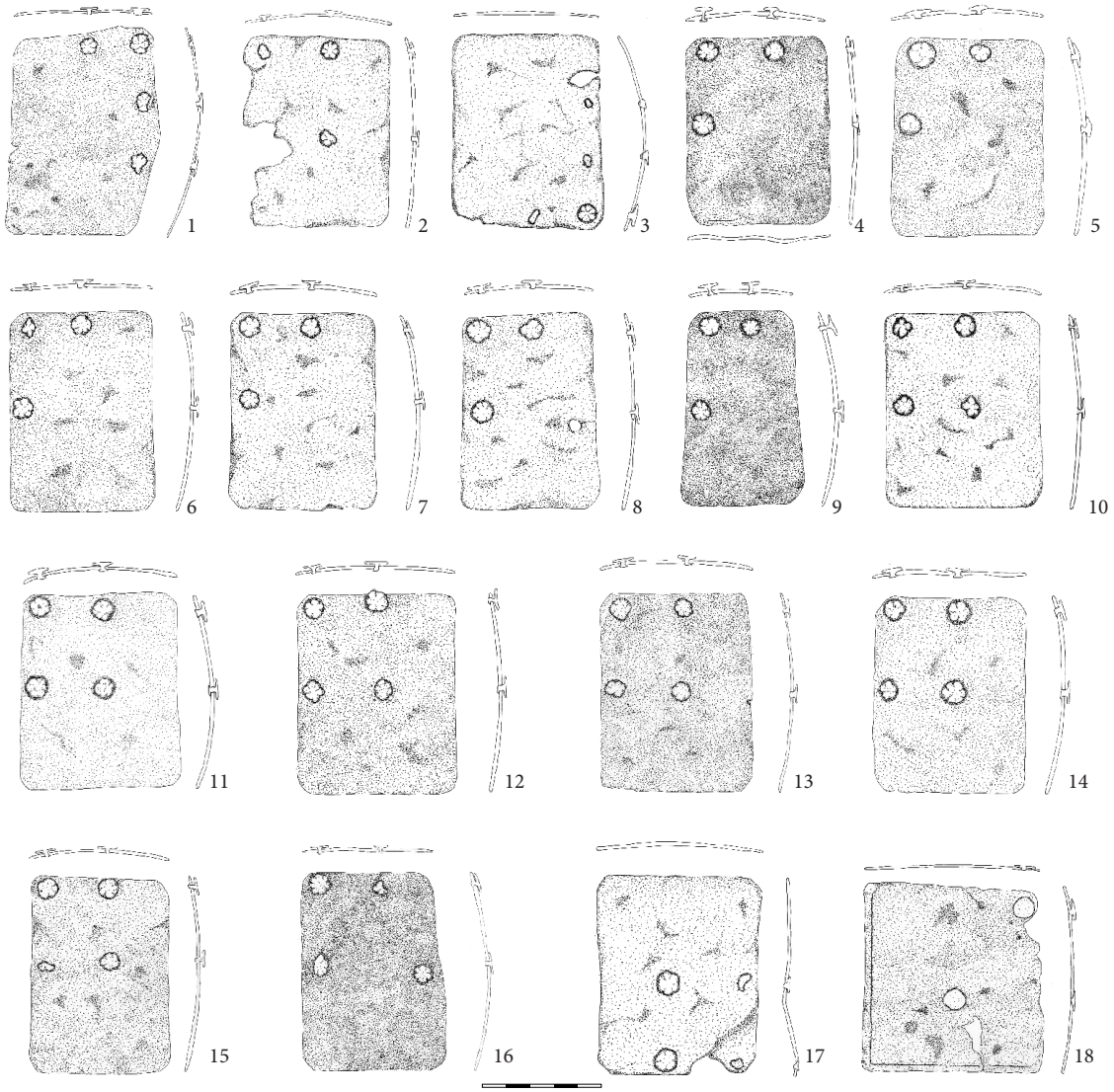

Fig. 6. Armour plates from Bistra Mureşului (Drawn by M. Ferenczi)

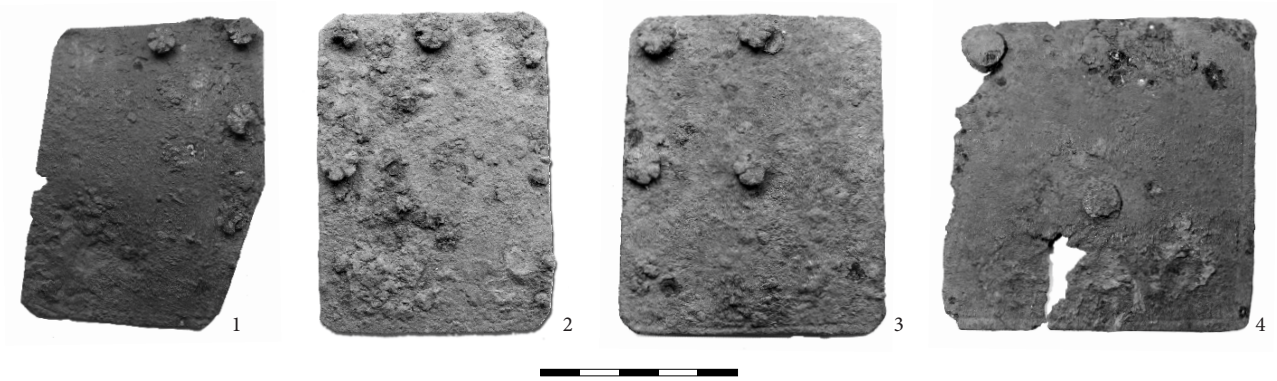

Fig. 7. Armour plates from Bistra Mureşului. 1: cat. 1; 2: cat. 6; 3: cat. 11; 4: cat. 18.

Dimensions: ls: 8,4 and 8,0, ss: 7,0 and 6,8. Its four rosette rivets were set in two rows, two of them are fragmentary. The distance between the rivet head and the plate is of 1,5–2,0 mm. Pth: 1,5 mm (Fig. 6/17)

18. Rectangular plate, very slightly curved. Dimensions: ls: 8,0 and 7,5, ss: 8,0 and 7,7. It was probably fastened with three rivets, one of which was destroyed. The distance between the rivet head and the plate is of 1,9–2,0 mm. Pth: 1,1 mm (Fig. 6/18, 7/4)

Even though indirectly, we must also discuss within the category of weapons the metal stiffener which was indispensable for carrying the case of combat knives. A detailed analysis of this object's medieval occurrence in Transylvania has recently been published.[110] On the basis of analogies the Bistra piece can be dated to the same 14–15th century period as the rest of this find of objects.

1. Knife case stiffener, fragmentary on the upper end, with a U-shaped bend on the lower side and a rectangular handle on the upper side. Both preserved branches are square cross sectioned. Dimensions: length: 11 cm, width of branch: 0.4–0.6 cm *(Fig. 8)*

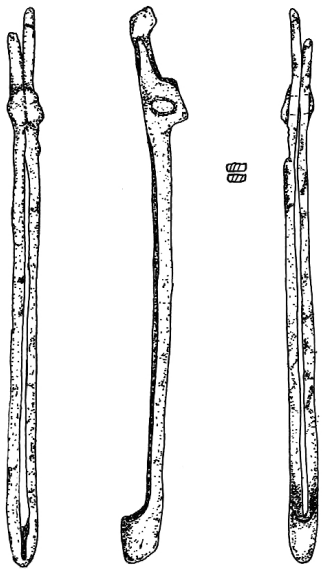

Fig. 8. Knife case stiffener (Drawn by M. Ferenczi)

[110] Rusu 2008, 84–97.

II. Horse equipment

We can rate 16 objects as horse equipment. Beside spurs, bits, horseshoes and curry combs we have identified a few buckles belonging to harnesses and in the case of two earlier buckles we must consider the possibility of their functioning as horse equipment.

1. Spurs

The four spurs can be classified into two well-defined typological groups. They will be discussed in detail, as they supply important information from the viewpoint of the find's dating. The first group includes three short necked pieces (cat. 1, 2, 3) with a curved side, of an average length of 11–12.5 cm. They display the characteristics of early rowel spurs. The thick specimen with a polygonal cross section and the shortest neck has a rowel of a small diameter. Two items present identical execution of the neck, they are composed of thin sides of the neck. Both are decorated, one of them has a moulding decorated with incised lines at the basis of the neck, while the other shows incised lines across the left branch. All three spurs can be dated to the 14th–15th century.[111]

The other group is represented by the almost straight, long-necked specimen that has a warding gap growing thin at the end (cat. 4). Both its rowel and hook attachments have been preserved. This spur type was mostly characteristic for heavy cavalry and is of later date than the other three. Based on its Transylvanian analogies we can consider it characteristic for the second half of the 14th century and the 15th century.[112]

[111] Győrfi 2006, 102–103.
[112] Győrfi 2005, 106.

One of the buckles found in this material, as well as a small iron plate may also have served for fastening spurs.

1. Rowel spur, its emphatically curved branches end in a single-ring terminal, its neck is short, it has a star rowel of eight points at its end, Tl: 12.5 cm, Bl: 10.5 cm, Neck: 2 cm, triangle cross section, Rowel's diameter: 1.2 cm *(Fig. 9/1)*

2. Rowel spur, its slightly curved branches end in a simple single-ring terminal decorated at the meeting point by incised lines, its neck broadens at the end into a circle, its rowel is missing, Tl: 12.5 cm, Bl:10.3, Neck: 2.2 cm *(Fig. 9/2)*

3. Rowel spur, its branches end in a single-ring terminal and are strongly curved, decorated by two pairs of lines engraved askew, rowel boxes with prominent rowel bosses, its rowel is missing, Tl: 11 cm, Bl: 8.5 cm, N: 2.5 cm *(Fig. 9/3)*

4. Rowel spur, semicircle cross section, its straight branches end in a two-hole terminal with an oval outline, its right and left branch is decorated by four, respectively three incised lines, two of its hook attachments are intact, one is fragmentary. Its long, massive, half slit neck broadens at the end into conical rowel bosses, it has a star rowel of eight points, Tl: 15.5, Bl: 10 cm, N: 5.5 cm, size of the iron plates: 3.1 x 1.9 and 3.1 x 2.1 *(Fig. 9/4)*

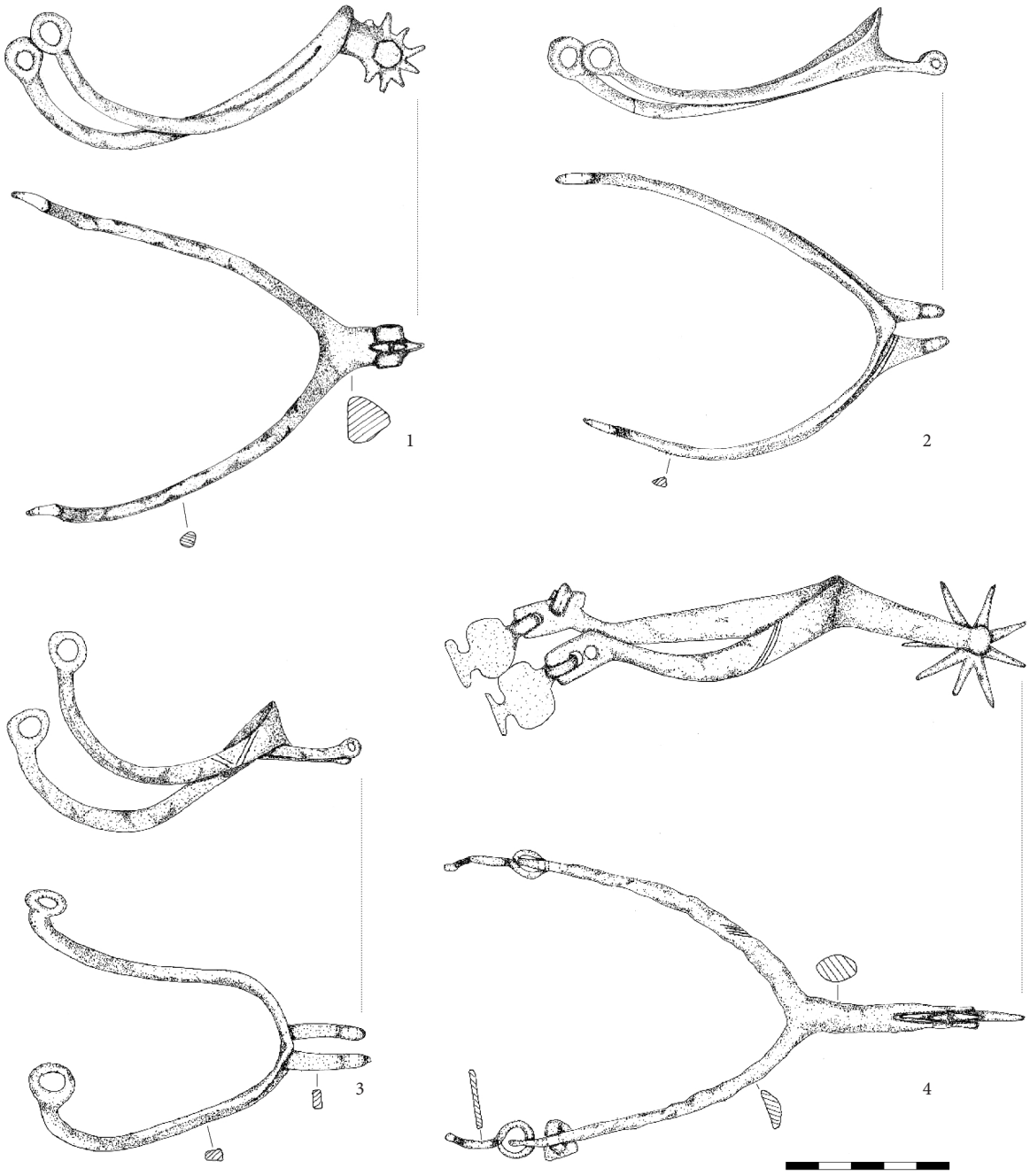

Fig. 9. Spurs from Bistra Mureşului (Drawn by M. Ferenczi)

2. Bits

This group of objects consists of one intact and two fragmentary pieces. The intact one is part of a simple category of ring snaffle bits (cat. 1). These are present in archaeological material with very slight formal changes all through the Middle Ages. Also, part of the category of snaffle bits is a preserved mouthpiece (cat. 2). A fragment of a cheek-piece is probably the relic of a more complex curb bit (cat. 3).

1. Snaffle bit, asymmetrical, with curb axis, the rings are of different dimensions; dimensions: mouthpieces: 9 and 9.5 cm long, diameter of the rings: 4.7 and 5 cm *(Fig. 10/1)*

2. Snaffle bit's curb mouthpiece, dimensions: 8.5 x 1.9 *(Fig. 10/2)*

3. Cheek-piece, dimensions: 5.7 x 4.0 cm *(Fig. 10/3)*

3. Horseshoes

The four preserved horseshoe parts belong to three different types. The first type is represented by two fragments, these are massive horseshoes with folded calkins adapted to more difficult soil conditions (cat. 1, 2). The second horseshoe's calkin, also folded, is similar to the first one, only its turn-down heel is smaller and flatter. We shall finally highlight a piece that belongs to the category of horseshoes with plain edge (cat.4). The objects' dating based on their formal characteristics is extremely difficult, quite impossible as it were.

1. Horseshoe. Tl: 12 cm, width at web 3.5, at heels 1.5 and 2 cm, calkin 1,5 cm high, distance between the branches at the ends 5.5 cm, the nail-slot is 0.5–0.7 cm wide, two nail-holes of a 0.7 x 0.5 cm diameter have been preserved on both branches *(Fig. 10/1)*

2. Horseshoe. Tl: 11 cm, width at web 3.2 cm, at heels 0.7-1.0 cm, calkin 2 cm high, distance between the branches at the ends 6 cm, three nail-holes of a 0.8 x 0.5 cm diameter on the branch, distance between the nail-holes 1.8–2.3 cm *(Fig. 10/2)*

3. Horseshoe. Tl: 10.5 cm, width at web 2.7, at heels 1.8 cm, distance between the branches at the ends 5.5 cm, the nail-slot is 0.4-0.6 cm wide, three nail-holes of a 0.4 x 0.2 cm diameter have been preserved on both branches *(Fig. 10/3)*

4. Piece of branch from a corroded horseshoe, Tl: 13 cm, width at web 3.3 cm, at heels 1.2 cm, calkin 2 cm high, its only remaining nail-hole contains a very poorly preserved nail *(Fig. 10/4)*

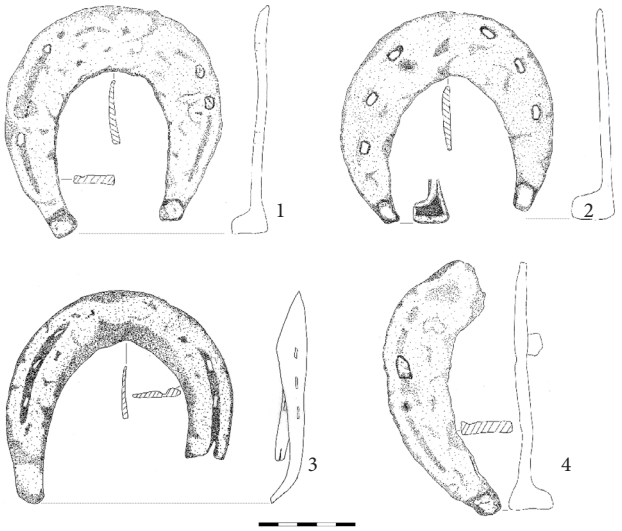

Fig. 10. Horseshoes from Bistra Mureşului (Drawn by M. Ferenczi)

4. Other horse equipment accessories

A fragmentary piece of iron, with dentation on its edge can be defined as a curry comb (cat. 1).

We have been able to identify three of the buckles used for assembling the harness and the strap, two of these (cat. 2, 3) were assuredly, the third one (cat. 4) very probably girth buckles.

In the case of two other pieces it is difficult to determine whether they were part of everyday clothing, fighting outfit or horse equipment. A smaller, notched buckle (cat. 6) might also be part of the harness, but we cannot exclude the possibility of being used for joining armour elements. Similar piece were found at Cristuru Secuiesc (Székelykeresztúr)–*Arany János street nr. 23–27*.[113] Without knowing more precisely its purpose, a bigger decorated buckle with ribbing on its curved side is also worth mentioning (cat. 7). Its close counterpart is known from Rapsóné fortress.[114]

1. Curry comb fragment, dimensions: 6.1 x 3.8 *(Fig. 10/4)*

2. D-shaped buckle with a large frame; its narrower bar holds in the middle a pin dissected by a circularly broadening plate, dimensions: 5.3 x 4.8. Buckle frame w: 1 cm, pin's length: 4.6 cm *(Fig. 10/5)*

3. Rectangular girth buckle, its pin is missing, dimensions: 7.3 x 3.2 *(Fig. 10/6)*

4. Rectangular girth buckle, its pin is missing, dimensions: 6.5 x 2.6 *(Fig. 10/7)*

5. Oval buckle divided into two, with a central axis, its pin is missing, dimensions: 3.8 x 3.4 (Fig. 10/8)

6. Rectangular buckle divided by a narrow central axis into two, its curved, broad bars are decorated with simple and double grooves, dimensions: 3 x 2.8 cm, pin's length 1.7 cm *(Fig. 10/9)*

7. D-shaped buckle, decorated on its sides and outside edges with wide grooves, dimensions: 3 x 2.8 cm, pin's length: 1.7 cm *(Fig. 10/10)*

[113] Benkő – Székely 2008, 154. 46. kép 6, 166.
[114] Sófalvi 2011, 245.

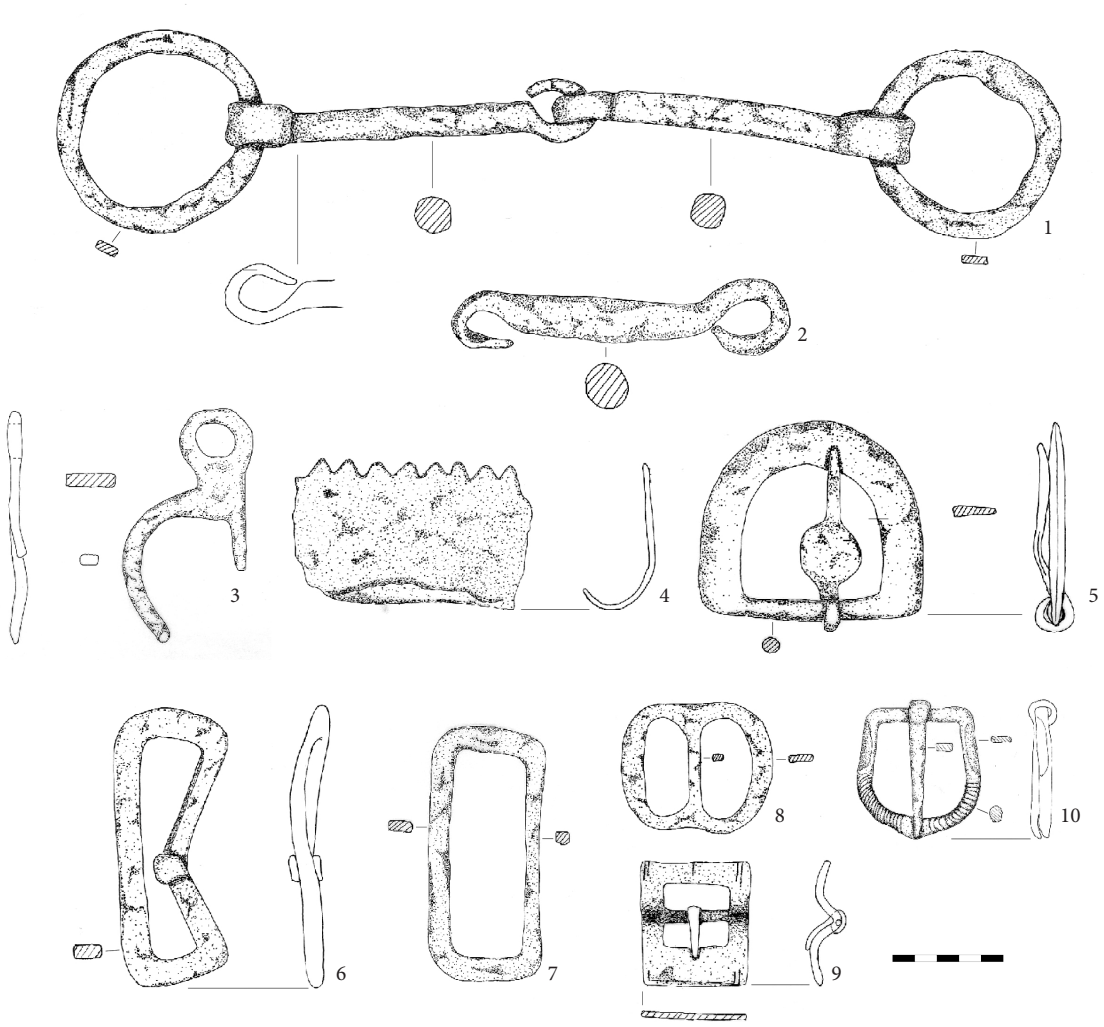

Fig. 11. Horse equipment from Bistra Mureşului. 1-3: bits; 4: curry comb fragment; 5-10: buckles (Drawn by M. Ferenczi)

Dating the find

In the absence of archaeological and stratigraphic observations, we attempted to date our finds by means of geographically closer and farther situate analogies, as well as on the basis of well dated objects from the assemblage.

We have mentioned the fact that our preserved weapons, spearheads, arrowheads and boltheads are unsuitable for a more refined and precise dating. Most of them can be characteristic for the entire period from the 12–13th century to the 16th. The spearheads can be dated to the 12–15th century based on analogies from the Carpathian Basin[115] or further regions.[116] Tanged arrowheads' chronological frames are also large, a step forward might be brought by their increase in number and detailed analysis. Tanged arrowheads from Bistra have closer parallels mostly from the Árpád period,[117] but one can find proof of their later existence as well. The socketed leaf or lance-shaped heads are formally diverse, but the different types were in use for a long time, therefore their dating capacity is limited. Barbed arrowheads have practically occurred throughout the Middle Ages,[118] they are impossible to date without information on their finding circumstances. The smaller, tanged, square cross section arrowheads are mostly dated to the 12–13th century, but there are examples for their later existence. It is obvious that although boltheads are mostly the decisive finds of the 14–15th century,[119] they were used later as well.

[115] A comprehensive and more thorough collection and systematization in the Carpathian Basin took place in Slovakia: Ruttkay 1976, 299–301, Hungary: Kovács 1984, 260–261.

[116] East and Northeast from the Carpathian, see: Kirpičnikov 1966, 3, 10–11, fig.1; Nadolski 1956; Broń 1978, 61, 83–84.

[117] Székely 2000, Kovács 1986, 273–275.

[118] Nadolski 1956, 64–66, Tab. XXX; Medvedev 1966, 92. Tab. 13/2, 97. Tab. 18/2, 98. Tab. 20/2, 102. Tab. 23/1; Zimmermann 2000, 64–66.

[119] Medvedev 1966, 114, Tab. 31.

We have succeeded at best in reducing the chronological frames of armour plates. All around Europe armour plates similar to the ones found in Bistra are dated by written and pictorial sources, as well as by archaeological finds to the period between the second half of the 14th century and the middle of the 15th century. Nonetheless, their later use cannot be excluded since these are simple and efficient armours. As mentioned above, different types coexisted already in the first half of the 14th century.[120] As far as horse equipment is concerned only the spurs can be more precisely dated.

The find includes also a few objects that are neither weapons nor parts of horse equipment, these may also serve as strong basis for dating. Two knife blades with master stamp are Central European imported products, and their age is roughly the same as that of the weapons'. One can date them to the 14–15th century. A grooved padlock is a well-preserved specimen of the otherwise rarely found locks, even its key has been preserved. Its precise analogy is unknown but on the basis of its almost perfect copy on a painting in Austria we can date it to the 15th century.[121] Based on the well-dated weapons and other finds, we date the Bistra material to the 14–15th century with maintaining the possibility that further research could modify this.

The medieval fortress (dating, owner, function)

We can only give short and by no means definite answers to each of the questions raised in the subtitle.

There is no known medieval mention of Bistra, and even the 18th century Habsburg military survey didn't find traces of a settlement. Its population must have settled here at the end of the 18th and beginning of the 19th century. Therefore no medieval written evidence could have been preserved from Bistra fortress. Deda, lying close by was mentioned at the end of the 14th century for the first time in a document,[122] the surrounding smaller settlements also turned up in written sources in the second half of the 15th century, or at the beginning of the 16th century.[123]

Starting from the 13th century, the Losonci family enlarged their estate in the region which most probably was part of Torda County in the Middle Ages. At the beginning of the 14th century the sons of Dénes, Deseu, Tamás and István divided the Széplak or Régen property among themselves. The piece closest to our territory consisted of Magyaró and Oroszfalu settlements and was received by Tamás, son of Dénes and reeve of the Szeklers.[124] The document of division from 1319 contained the name of *Menteu* fortress belonging to castellan magister Balázs. Specialized literature identifies this name for today's Aluniş (Magyaró).[125] Géza Entz identified the settlement below the fortress mentioned by sources as *Warallya* with Aluniş, because during his field work local people identified the hill above the village as the location of the ruins of former fortress.[126] On several occasions during the last century it was mentioned as a Roman fortress, mainly on basis of floor tiles found among the ruined walls.[127]

In his blog dedicated to fortresses, József Dénes linked the name of *Horodete* baulk shown on the first military survey at Aluniş's boundary with the Slavic *Horodiste* and placed the medieval Mentővár here.[128] A few years ago the same person raised the issue of *Menteu/Mentew* fortress being identical with Bistra fortress, identifying Váralja settlement mentioned by sources with Deda. In his opinion 16th century sources mentioned the Bistra fortress in Aluniş's boundary, because the territory was probably part of the Magyaró estate.[129]

Overviewing our medieval sources, it turns out that the documents mentioning *Menteu/Mentew* fortress do not locate it accurately. The most expressive document is the one from 1333[130] which informs us that the fortress was built in an undivided and empty spot in the mountains by Tamás Losonci at his own expense with no help from his brothers. The name of the settlement below, cited by this same document is only

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[120] Kalmár 1971, 289–290; Marek 2008, 116.
[121] IMAREAL, Bild Nr. 002166, <http://tethys.imareal.sbg.ac.at/realonline/images/7002105.JPG> (10.02.2015)
[122] 1393: Ub III, 62–63.
[123] Pietriș/Kövesd: 1461 (Csánki V, 718), Morăreni/Monosfalu: 1509 (KmJkv II, 295, nr. 3519), Filea/Füleháza (KmJkv II, 295, nr. 3519)
[124] EOkm II, 144, nr. 342.
[125] Entz 1996, 31; Rusu 2005, 502.
[126] Entz 1996, 31.
[127] Neigebaur 1851, 252; Ipolyi 1861, 243 ('*old walls and namely the frequent 8 shaped mosaic bricks*'), Martian 1909, 337. The name *Várbérc* in Mureș County's archeological repertory (RepertoriuMS 1995, 46, punct G) is incorrect, because the data taken over from Károly Benkő is related to Nyárádmagyaros in Maros Seat, see: Benkő 1869, 202–203.
[128] <http://www.erdelyivarak.hu/magyar/oldalak/varkutatas_mentovar/ > (10.01.2015)
[129] Karczag – Szabó 2012, 156.
[130] EOkm II, 287, nr. 787.

known from a later source, in which *Warallya* is mentioned in 1364.[131] It has to be noted that *Monyoro*, later Magyaró (Aluniş) was already in 1319 among the properties of Tamás Losonci. We do not hear of *Warallya* settlement during the later centuries, it was either depopulated, or merged into another settlement, or its name changed at an unknown moment. It can therefore be of little or no use in locating Mentővár. Apart from that, in 1497 János Bánffy gave in exchange to László Bánffy, among others, his mansion from Aluniş.[132]

There are references to an ancient fortress in the toponyms of both settlements. It is doubtless at the same time that the name Mentő only comes up among names from Deda,[133] while in Aluniş data has been kept only about an old fortress.[134] Furthermore, in this latter settlement there exists an allusion to a (bare) castle at the beginning of the 18th century, but it remains a question whether this is the same as the fortress or rather a different building. It might as well be a mansion house attested at the end of the 15th century.

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Based on the above discussed data our conclusions can be summarized as follows: the traces of a building identified by Géza Entz in Aluniş could be the remains of a 15th century mansion house (later probably altered, enlarged, fortified), but they can also represent earlier, Roman period constructions as the shape of the floor tile elements indicate it. We cannot entirely discard the possibility of identifying it with the medieval fortress, as Roman brick material may have ended up here at a later date. Besides, the first Austrian military survey's map from the 17th century shows the location of the mansion house within the current settlement and not on the hill in its vicinity. There is no trace of medieval fortification on the high grounds from Aluniş-*Horodete*, this hypothesis needs further investigation in order to be proven or rejected. Lastly, archaeological data, local toponymy and medieval sources allow the presumption which identifies Mentő fortress with the one built on the Bistra rock. A comforting clarification is only possible through the means of archaeological research.

Just as it is clear that Mentő fortress was built and owned by Tamás Losonci, it is almost as certain that the Bistra fortress close by was his or belonged to one of his successors' property, since our archaeological finds' lower dating limit is roughly the same. In case some of our finds were older, on the basis of our sources we would still have no reason to look for another owner starting from the 14th century.

The finds from Bistra fortress indicate that the fortress functioned in the 14–15th century. There are objects that were characteristic to earlier times as well, therefore one cannot exclude the possibility that the fortification was built during the Árpád period. In the 14–15th century it was definitely the property of the reeve of Szeklers, Dénes Losonci's son, Tamás and his successors. We have no information about the time and reasons of its abandonment. Should the Bistra fortress be identical with Mentő fortress mentioned by sources, it is certain that it became ownerless in the first half of the 16th century, as it appears as a bare fortress at the middle of the century. In case the above identification is incorrect, it was abandoned and lost its function anyway during the 17th century, as later sources talk of an empty fortress. Its 16th century survival could be supported by some finds that could be dated between larger time limits.

Concerning its size, the Bistra fortress was one of the smaller nobiliary fortresses. Due to the lack of archaeological research one cannot say much about its insides. Traces of stone building(s) have not been kept on the rock's plateau and constructions fit for housing conditions cannot be seen anywhere. However, we cannot exclude their prior existence and we must also take into consideration the fact that identifying possible wood constructions is very unlikely.

The fortress's efficient protection is given by its geographical position, the steep rock could only be approached from one side, and even that was a very difficult endeavour. From the fortress there is an excellent view and visibility of the farther Maros valley, but also of the Bistra valley that lies almost at its feet. We have no information on the road's exact location in that period, but likely it was not very far from the one shown on the first military survey's map. In this case, Bistra fortress lies in the vicinity of the road leading to Bistriţa (Beszterce) through the Bistra valley, and it could have 'controlled' the road as well. We consider that the fortress had multiple functions, but their precise outline requires further research.

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[131] EOkm IV, 131, nr. 284.
[132] Entz 1996, 371.
[133] ETH 7A, 80–81: 1713 - *„Bisztra vize mellet mentő vár alat" ('by the Bisztra water below mentő fortress')*; 1714- Mentő vára (Mentő fortress) (Differently: in the forms *Puszta Mentő vára* and *Mentő puszta vára*); *„az Vár hegi alatt" ('below the Vár mountain')*
[134] ETH 7A, 288–291.

It is worth mentioning that although only few objects turned up from the fortress, there is a rich find coming from the path that leads to the first and second terrace of the Bistra creek. These could mean the remains of a siege or a smaller battle. The finds answer our questions regarding the fortress's capacity of protection. It is almost certain that there were crossbowmen among its defenders who could efficiently withstand the besiegers of this fortress which was almost impossible to approach. Based on the size of the fortress we cannot assume that its garrison was a large one, and it could not have had a larger cavalry unit since no necessary infrastructure was at their disposal.

The dispersion of the Bistra find and its topographic position brings an important viewpoint into the discussion: a fortification with poor finds does not necessarily mean that it was only temporarily populated by those who withdrew here from danger.[135] Poor finds can also be because of the methodical cleaning of the fortress while still in use or at the time of its abandonment. This process could be proven by the household objects found at the rock's feet on the steep hillside that were carried to their final destination by the secular erosion.

The Bistra find provides subtle but by far incomplete insight into the equipment of a 14–15th century nobiliary estate's representational building. More detailed and more thorough knowledge of the fortress would only be possible through further research. We know very little of the fortress's function. If Bistra fortress could be identified as *Mentew* fortress, we could speak more clearly about the fort that played a major role in the administration of the region and the estate.

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List of figures

Fig. 1. The location of the site (Map by M. Szabó)
Fig. 2. The find spots of the weapons
Fig. 3. Spearheads from Bistra Mureşului (Drawn by M. Ferenczi)
Fig. 4. Arrowheads from Bistra Mureşului (Drawn by M. Ferenczi)
Fig. 5. Boltheads from Bistra Mureşului (Drawn by M. Ferenczi)
Fig. 6. Armour plates from Bistra Mureşului (Drawn by M. Ferenczi)
Fig. 7. Armour plates from Bistra Mureşului. 1: cat. 1; 2: cat. 6; 3: cat. 11; 4: cat. 18 (Drawn by M. Ferenczi)
Fig. 8. Knife case stiffener (Drawn by M. Ferenczi)
Fig. 9. Spurs from Bistra Mureşului (Drawn by M. Ferenczi)
Fig. 10. Horseshoes from Bistra Mureşului (Drawn by M. Ferenczi)
Fig. 11. Horse equipment from Bistra Mureşului. 1-3: bits; 4: curry comb fragment; 5-10: buckles (Drawn by M. Ferenczi)

Rezumat

Piesele de armură și armament de la Bistra Mureșului, ajunse în colecţia Muzeului Județean Mureș, reprezintă cel mai important lot de acest gen descoperit pe valea superioară a râului Mureș. Ele provin din apropierea unei fortificaţii medievale identificate de curând în valea pârâului Bistra. Pe lângă situl arheologic este cunoscut și locul de descoperire al pieselor. Materialul este compus din diferite tipuri de vârfuri de lance (3), vârfuri de săgeţi (19), bolţuri de arbaletă (9), plăci de armură (18), pinteni (4), zăbale (3), potcoave (4) și catarame (6). Unele categorii de piese au analogii pe o arie foarte întinsă și pot fi datate vag în perioada medievală. Este vorba în special de vârfurile de lance, unele tipuri de vârfuri de săgeată, potcoave sau zăbale. Repere cronologice mai stabile ne oferă pintenii, plăcile de armură și bolţurile de arbaletă, care pot fi datate în secolele XIV–XV. Datare similară au unele tipuri de vârfuri de săgeată precum și o ramă de teacă de cuţit. Cetatea de la Bistra Mureșului nu este menţionată în sursele scrise, deși reinterpretarea unor documente medievale și unele indicii de toponimie locală ar permite identificarea ei cu cetatea *Mentew* construită de Toma Losonci la începutul secolului al XIV-lea.

Kivonat

A Maros Megyei Múzeum gyűjteményébe került dédabisztratelepi fegyverek a Felső-Maros mente egyik legjelentősebb fegyverlelet együttesét alkotják. A szórvány leletek egy eddig ismeretlen erődítmény közelségében kerültek elő, a Bisztra-patak völgyéből kimagasló meredek sziklatömb közelségében. Szerencsés véletlen, hogy a lelőhely mellett a leletek pontos lelőkörülményeit is ismerjük. A fegyverek között különböző típusú lándzsahegyeket (3), nyílhegyeket (19), számszeríj nyílhegyeket (9) találunk. A védőfegyverzetet egy szegmentált vértezet lemezei alkotják. A lovasfelszerelés tárgyai közül a sarkantyúkat (4), ép és töredékes zablákat (3), patkókat (4) kell megemlítenünk. A fennmaradt csatok egy része bizonyára a lószerszámok kategóriájába sorolható, egyeseknek azonban más rendeltetésük is lehetett. A lándzsahegyek, nyílhegyek, zablák, patkók számos, széles területen elterjedt párhuzammal rendelkeznek és igen tág időhatárokon belül keltezhetők. A sarkantyúk és számszeríj nyílhegyek a Kárpát-medencei analógiáik alapján a 14–15. századra keltezhetők, akárcsak az egyes nyílhegytípusok vagy a késtok merevítő.
A bisztrai erősséget nem említik középkori forrásaink, bár néhány oklevél újraértelmezése és a helyi toponímia adatai alapján nem zárható ki a forrásokban a 14. században felbukkanó, Losonci Tamás által építtetett Mentővárral való azonossága.

Abbreviations

Acta	Acta. Anuarul Muzeului Naţional Secuiesc şi al Muzeului Secuiesc al Ciucului, Sf. Gheorghe
ActaAntPhilippo	Acta Antiqua Philippopolitana, Sophia
ActaArchHung	Acta Archaeologica Academiae Scientiarum Hungaricae, Budapest
ActaHistSzeged	Acta Historica. Acta Universitatis Scientiarum Szegediensis, Szeged
ActaMM	Acta Moldaviae Meridionalis, Vaslui
ActaMilMed	Acta Militaria Mediaevalia, Sanok
ActaMN	Acta Musei Napocensis, Cluj-Napoca
ActaMP	Acta Musei Porolissensis, Zalău
ActaSic	Acta Siculica, Sf. Gheorghe/Sepsiszentgyörgy
Aluta	Aluta, Sf. Gheorghe
AnB	Analele Banatului, Timişoara
Apulum	Apulum. Acta Musei Apulensis, Alba Iulia
ArbFBerSächs	Arbeits- und Forschungsberichte zur sächsischen Bodendenkmalpflege, Dresden
ArchÉrt	Archaeologiai Értesítő, Budapest
ArchKözl	Archaeologiai Közlemények, Budapest
Aregia	Alba Regia. Annales Musei Stephani Regis, Székesfehérvár
Areopolisz	Areopolisz. Történelmi és társadalomtudományi tanulmányok, Székelyudvarhely
ArhMed	Arheologia Medievală, Cluj-Napoca
ArhMold	Arheologia Moldovei, Bucureşti
Banatica	Banatica. Muzeul Banatului Montan, Reşiţa
BrukenthalAM	Brukenthal. Acta Musei, Sibiu
Carnuntum Jb	Carnuntum-Jahrbuch. Zeitschrift für Archäologie und Kulturgeschichte des Donauraumes, Wien
Carpica	Carpica, Bacău
Castrum	Castrum. A Castrum Bene Egyesület Hírlevele, Budapest
CCA	Cronica Cercetărilor Arheologice din România, Bucureşti
CCDJ	Cultură şi Civilizaţie la Dunărea de Jos, Călăraşi
CercArh	Cercetări arheologice, Bucureşti
Colloquia	Colloquia: Journal of Central European History, Cluj-Napoca
CommArchHung	Communicationes Archaeologicae Hungaricae, Budapest
Corviniana	Corviniana, Hunedoara
Crisia	Crisia, Oradea
CsSzMÉ	A Csíki Székely Múzeum Évkönyve, Csíkszereda
Cumidava	Cumidava, Braşov
Dacia	Dacia. Revue d'Archéologie et d'Histoire Ancienne, Bucarest
Danubius	Danubius, Galaţi
DissArch	Dissertationes Archaelogicae ex Instituto Archaeologico Universitatis de Rolando Eötvös Nominatae, Budapest
Dolg	Dolgozatok az Erdélyi Nemzeti Múzeum Érem- és Régiségtárából, Kolozsvár

Drobeta	Drobeta, Drobeta-Turnu Severin
EL	Erdővidéki Lapok, Barót
EphNap	Ephemeris Napocensis, Cluj-Napoca
Emúz	Erdélyi Múzeum, Kolozsvár
FVL	Forschungen zur Volks- und Landeskunde, Sibiu/Hermannstadt
HOMÉ	A Hermann Ottó Múzeum Évkönyve, Miskolc
Istros	Istros. Muzeul Brăilei, Brăila
JAMÉ	A Nyíregyházi Jósa András Múzeum Évkönyve, Nyíregyháza
JbRGZM	Jahrbuch des Römisch-Germanischen Zentralmuseums, Mainz
JromMilSt	Journal of Roman Military Equipment Studies
KHKM	Kwartalnik Historii Kultury Materialnej, Warszawa
Marisia	Marisia (V-). Studii şi Materiale, Târgu Mureş
Marmatia	Marmatia, Muzeul Judeţean de Istorie şi Arheologie Maramureş, Baia Mare
MatCercArh	Materiale şi Cercetări Arheologice, Bucureşti
MedArch	Medieval Archaeology, London
MemAnt	Memoria Antiquitatis. Acta Musei Petrodavensis, Piatra Neamţ
MFMÉ	A Móra Ferenc Múzeum Évkönyve, Szeged
MIMK	A Molnár István Múzeum Közleményei, Székelykeresztúr
MNMAK	Magyar Nemzeti Múzeum Adattárának Közleményei, Budapest
OH	Opuscula Hungarica, Budapest
PRS	Proceedings of the Royal Society A: Mathematical, Physical & Engineering Sciences, London
PZ	Praehistoriche Zeitschrift, Berlin
REA	Revue des études anciennes, Bordeaux
RMM-MIA	Revista Muzeelor şi Monumentelor. Monumente istorice şi de artă, Bucureşti
RevBist	Revista Bistriţei, Bistriţa
Sargetia	Sargetia. Acta Musei Devensis, Deva
SCIV(A)	Studii şi Cercetări de Istorie Veche (şi Arheologie 1974–), Bucureşti
SCN	Studii şi Cercetări de Numismatică, Bucureşti
SlovArch	Slovenská Archeológia, Bratislava
SMMIM	Studii şi materiale de muzeografie şi istorie militară, Bucureşti
SSz	Soproni Szemle, Sopron
StCercIstorCluj	Studii şi Cercetări de Istorie, Cluj
StComSM	Studii şi Comunicări, Seria Arheologie, Satu Mare
StComSibiu	Studii şi comunicări. Muzeul Brukenthal, Sibiu
StudUCH	Studia Universitatis Cibiniensis, Series Historica, Sibiu
StudUClujH	Studia Universitatis "Babeş-Bolyai" – Historia, Cluj-Napoca
Terra Sebus	Terra Sebus. Acta Musei Sabesiensis, Sebeş
Thraco-Dacica	Thraco-Dacica, Bucureşti
UPA	Universitätsforschungen zur Prähistorischen Archäologie, Bonn
VAH	Varia Archaeologica Hungarica, Budapest
VjesAMuzZagreb	Vjesnik Arheološkog muzeja u Zagrebu, Zagreb
VMMK	A Veszprém Megyei Múzeumok Közleményei, Veszprém
VTT	Veszprémi Történelmi Tár, Veszprém
WA	Wratislavia antiqua, Wrocław
WiadA	Wiadomości Archeologiczne. Bulletin archéologique polonais, Warszawa