Brooches of the Alesia group in Slovenia

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Izvleček

Članek podaja izsledke raziskav fibul skupine Alesia. Zajeli smo 18 fibul od skupaj 24, kolikor je poznanih iz Slovenije. Poleg tipoloških in kronoloških vidikov smo podrobno obravnavali material, iz katerega so izdelane. Glavnina teh fibul je iz medenine, izdelane pa so bile najverjetneje v Italiji. Fibule skupine Alesia so torej zaenkrat najstarejša skupina rimskih predmetov, za katero so (v Italiji) praviloma uporabljali medenino. Omenjeni izsledki nakazujejo, da je bila medenina pri Rimljanih v predavgustejski dobi v širši uporabi, kot se je doslej domnevalo.

Ključne besede: Slovenija, 1. st. pr. n. št., fibule skupine Alesia

Abstract

This paper presents the results of research on brooches belonging to the Alesia group. The study includes 18 out of the 24 examples known from Slovenia. In addition to typological and chronological questions, the paper concentrates on the alloys used for the brooches. The majority of these brooches were made of brass and originate most probably from Italian workshops. Brooches of the Alesia group are, for now, the oldest group of Roman brooches for which brass was used (at least in Italy). These results indicate that the Romans used brass in pre-Augustan period more extensively than has been generally accepted.

Keywords: Slovenia, 1st cent. BC, brooches of the Alesia Group

1. INTRODUCTION

Brooches of the late La Tène and early Roman periods were usually made of copper alloys,[1] - generally referred to as 'bronze' in publications (cf. Demetz 1999). Without analyses, which are extremely rare,[2] such attributions have no secure basis and are often inaccurate.

The precise composition of the alloy from which an object is made is not insignificant. This is particularly true of the late La Tène and early Roman periods, - a time when the older prehistoric traditions of alloying were probably merging with the newly-introduced Roman ones (cf. Bayley 1990). The innovations brought by Romans to the region under discussion (as well as to other places in Europe) included the use of brass (*ibid*., 13). Its earliest use in Roman Europe dates from no later than the second half of the 1st century BC (Craddock 1978a, 9; Burnett, Craddock, Preston 1982, 264; Istenič 2000a, 178; Istenič 2000b, 3-4).

The purpose of the present analyses of alloys used for the Alesia group of brooches was to establish whether, in the Caesarian period and during the civil wars following Caesar's death, the Romans were already using brass to make brooches. If so, the type of alloy used during the transition from the late La Tène period to the early Roman period could

[1] Iron brooches are also relatively common (cf. Demetz 1999, pls. 6; 9: 1; 14: 3,4; 15: 2; 17: 8; 22: 7; 28: 6,7; 32: 3; 40: 7 - cf. *ibid*., 160); silver brooches, however, are rare (cf. *ibid*., pls. 4: 1; 5: 2; 7: 3,7; 16: 1; 17: 1?; 21: 8; Božič 1993, 141-143).

[2] The author was aware of XRF analyses of two Alesia-group brooches "which, in addition to the presence of copper and tin, indicated a significant silver component" (Vičič 1944, 27, pl. 1: 8,9; unfortunately, the published results lack numerical values), and of the analyses of two bronze brooches of Almgren Type 65 (Grasselt, Gall, Stoi 1993, 135-136, 139, fn. 2, fig. 10: 5,7) before Dr. Dragan Božič, after having read author's manuscript, drew the author's attention to the analysis of 113 brooches (two of them of Alesia group) from Haltern (Riederer 2002a, 109-121).

prove an important element in determining the cultural milieu from which particular brooches had originated.

The present study included 18 Alesia-group brooches found in Slovenia: thirteen brooches (from various sites) belong to the National Museum of Slovenia (Narodni muzej Slovenije), or are from private collections and were registered by the National Museum of Slovenia, three are in Gorica Museum (Goriški muzej Nova Gorica; found at Lokavec-Kovačevše); one is held by State Cultural Heritage Agency, Regional Office Nova Gorica (Zavod za varstvo kulturne dediščine, Območna enota Nova Gorica; found at Kobarid-Gradič) and another is in Museum of Dolenjska (Dolenjski muzej; found at Novo mesto-Beletov vrt). The study thus included all the available Alesia-group brooches in Slovenian museums that had not been previously analysed.[3]

2. OBJECTIVES

In the later pre-historic period, Iron Age brooches were primarily made of bronze, an alloy of copper and tin, and of leaded bronze, an alloy of copper, tin and lead (Giumlia-Mair 1998; Jerin 2001).

The use of brass (an alloy of copper and zinc) was introduced to Europe by the Romans. It is likely that they themselves would have encountered brass in Asia Minor, where its mass-production (i.e. brass produced intentionally by the cementation process) had started at the beginning of the 1st century BC. The earliest known brass coin-series, dating to within the period c.75-65 BC, had been issued by Mithradates VI, the king of Pontus. By about 50 BC, brass coins were already common in the Roman provinces of Asia, Bithynia-with-Pontus and Cilicia (Burnett, Craddock, Preston 1982).

In about 23 BC, the general monetary reform of the emperor Augustus involved the introduction of brass coins (*dupondii* and *sestertii*). However, even before that, the Romans had used brass in the West. This has been confirmed by the diffusion of brass coins issued by Caesar's prefect Clovius and minted in Cisapine Gaul in 46/45 BC, an episode which has been known since early twentieth century (Bahrfeldt 1909, 79-80; Burnett, Craddock, Preston 1982, 263-268). In addition, recent research has shown that, by the beginning of the second half of the 1st century BC at the latest, brass was already being used in the manufacture of Roman military equipment (Istenič 2000a; Istenič 2000b). Were brooches of that period already made of brass too?

Alesia-group brooches, the earliest brooches with a hinge, are among the leading objects of Roman material culture for the late Republican period. They were worn, for example, by Caesar's soldiers at *Alesia* (Brouquier-Reddé, Deyber 2001, 295, 298, pl. 91: 48), and by Roman soldiers during the civil wars following the death of Caesar (Ocharan Larrondo, Unzueta Portilla 2002, fig. 2: 10; perhaps also Istenič 2005), and still, very rarely, at the beginning of the mid-Augustan period (cf. section 4). As far as we know, the alloys from which these brooches were made, have not yet been the subject of any research.[4]

Analyses of Roman brooch-types dating to the Augustan period and the 1st century AD have shown that they were mainly made of brass (Bayley 1990, 14-20; Riederer 2001, 225-235; Riederer 2002a, 109-120; Riederer 2002b, 286-290). From the considerable number of examples analysed and published, Aucissa-type brooches, which developed from Alesia-type brooches, and which belong to the Augustan period and the first half of the 1st century AD (Demetz 1999, 164), seem generally to have been made of brass (Bayley 1990, 15, 20, fig. 3; pl. 1; Bayley, Butcher 1995, 114, fig. 2; Riederer 2001, 225-226, 228, 231; Riederer 2002a, 114-116; Riederer 2002b, 286, 288; Bayley, Butcher 2004, 66-69).

This evidence suggested to the author that the study of Alesia-group brooches could shed important light on the pre-Augustan Roman use of brass. In addition, it could be very valuable for determining the cultural milieu from which particular brooches of the late La Tène and early Roman (late Republican) periods had originated. The use of brass with high percentage of zinc ("pure brass" - see below) for the brooches of this period would be an indicator of their Roman origin. It seems namely unlikely that the non-Roman population of the wider region in question (south-eastern Alps, northern Italy) would have already mastered the production of brass in pre-Roman times. However, they might have re-used imported Roman brass objects by melting them down, either on their own, or mixed with bronze. In either of these instances, the alloy from such processes would inevitably reflect in the presence of zinc.

[3] The two brooches from Bodrež as well the brooch from Idrija pri Bači are held by Naturhistorisches Museum Wien (Vienna Natural History Museum; Guštin 1991a, 11-2, 16, pls. 17: 10; 39: 14; 40: 3); the brooch from the site Loke-Kolenovca near Nova Gorica (*ibid*., 43, fn. 87) was unavailable at the time of study, and the two brooches from Ljubljana (Vičič 1994, 27-29, 37, pl. 1: 8,9) had already been analysed.

[4] Cf. fn. 2.

3. THE TECHNIQUES USED IN ARCHAEOMETRIC ANALYSES

To define the materials from which the brooches had been made and to identify possible surface coatings, such as tinning, X-ray fluorescence and proton induced X-ray emission were used. In addition, two brooches were viewed and analysed through a scanning electron microscope.

The technique of energy dispersive spectroscopy X-ray fluorescence (EDS XRF) was used to roughly define the alloy, or rather to determine the presence or absence of zinc. The measurements were made on the unprepared surfaces, i.e. on the corrosion products left on the surface of the brooches. For this reason, the results provided only a tentative indication of the metal from which the brooches were made (cf. Šmit et al. 2005).

The technique of proton induced X-ray emission (PIXE) provided analyses of small parts of the surface (ca. 2 mm). The corrosion layer was removed from one or more small areas on the surface of each brooch. In this way, the basic material could be measured without significant damage to the object. After the analyses, any damage to the surface was easily repairable. The detailed results of the measurements are given in Šmit et al. 2005.

Under the scanning electron microscope (SEM), an examination of the microstructure of the surface of the sample can be carried out; in combination with energy dispersive spectrometry of X-rays it can also provide semi-quantitative analysis of a very small surface area (0.1 mm). Both techniques were applied to the surface of bronze brooch No. 7 in order to see whether the high percentage of tin on the surface (cf. Šmit et al. 2005) stemmed from tinning or other factors. For comparison, a brass brooch No. 11 with proven tinning (cf. *ibid.*) was also submitted for SEM examination. Tinning on brass is not difficult to determine, because tin is scarce or absent in the alloy.

4. BROOCHES OF THE ALESIA GROUP: DESCRIPTION, DEFINITION

Brooches defined as belonging to the Alesia group include the following characteristics: an inward-bent (strap-like) hinge (*Hülsenscharnier*), a sheet metal bow of a triangular shape (sometimes with slightly bulging sides), wide at the head and then narrowing sharply towards the foot, a high rectangular or trapezoidal foot with a raised pierced terminal and an iron axis set through the piercing, holding two lateral knobs (Feugère 1985, 299; Luik 1997, 463). Mitja Guštin (1986; 1991a; 1991b; 1992) called attention to the variants in which the bow is segmented in various ways. Romana Erice Lacabe has rightly pointed out that the hinge can be either strap-like (bent towards the inside, or more rarely towards the outside) or tubular (as the present author adds, the latter will therefore have been cast).[5] In addition, instead of the two side knobs at the foot-terminal, there may be a vertically- (not laterally-) positioned knob (Erice Lacabe 1995, 91-92, fig. 8).

Because of the great diversity of brooches with these features, such as very different shapes of bow and foot, Stefan Demetz (1999, 156-157) suggested the term Alesia "group", within which he distinguished several types. The present article follows Demetz's term Alesia "group" and his definitions of individual variants within the group (*ibid.*, 157-162).

Alesia-group brooches are the oldest brooches with a hinge. They are perceived as distinctively Roman and are widespread, the highest concentrations being in Italy and France (Feugère 1985, 301, fig. 38, 307-309; supplemented by Demetz 1999, 163, fn. 1019 and Luik 1997, fig. 5; 6; 474-476). Some of the most recently published contexts of these brooches (e.g. Brouquier-Reddé, Deyber 2001, 295, 298, pl. 91: 48; Ocharan Larrondo, Unzueta Portilla 2002, fig. 2: 10; Istenič 2005) tend to confirm their close connection with the Roman army (Guštin 1986, 684; 1991b, 434; 1992, 202-203; Luik 1997, 467, fn. 29).

A brooch from a reliably dated context at *Alesia* demonstrates without a doubt, that they were worn by Roman soldiers as early as Caesar's Gallic Wars (Brouquier-Reddé, Deyber 2001, 295, 298, pl. 91: 48). At Andagoste (northern Spain) an Alesia-group brooch was found in a military context dated to the 4th decade BC (Ocharan Larrondo, Unzueta Portilla 2002, fig. 2: 10). It seems that they were still worn by Roman soldiers in the early Augustan period. At Dangstetten, an early/middle-Augustan[6] legionary fortress on the Upper Rhine, the ratio of Alesia-group brooches to Aucissa-type brooches is

[5] Feugère (1985, 302, figs. 38; 40) mentioned tubular hinge as a characteristic of his 21a4 variant.

[6] The exact dating of the fortress is uncertain. Based on her study of the fine table-wares, Roth-Rubi (2002) has recently presented cogent arguments against the generally accepted dating of between 15 and 9/7 BC. She suggested that the fortress at Dangstetten was early Augustan and was founded about 20 BC.

11:101.[7] Thus it seems, that in the early-Augustan period, or no later than the beginning of the mid-Augustan period, Aucissa-type brooches became prevalent, whereas the typologically older Alesia-group brooches (and their later variants in particular), which were probably no longer in production at the time, were worn only by rare individuals. Certain Aucissa-group brooches from Dangstetten exhibit close typological parallels to Alesia-group brooches. For example, from its distinctive foot, the brooch, Fingerlin 1998, 1038: 1, seems to belong to the Aucissa group; however, its bow still resembles that found on Alesia-group brooches (cf. Feugère 1985, pls. 111-112: 1441-1448).[8] At Oberaden, a double-legionary fortress on the Lippe river, dated to between 11/10 and 8/7 BC, ten of the thirteen published brooches are of Aucissa type, and not a single one of Alesia group (Kühlborn 1992, 123, 133).[9] In later Roman military establishments, Alesia-group brooches are absent[10] or an exception. From Haltern, for example, there are only two known brooches of the Alesia group and 290 brooches of the Aucissa type (Müller 2002, 18-29).

Demetz (1999, 164) thought that Alesia-group brooches with a segmented bow (his Group II) were later than the "classic" Alesia-group brooches with a triangular bow (Alesia I, in his classification). Although not all Alesia-group brooches from the eponymous site of *Alesia* should be linked to Caesar's siege of 52 BC, most, in fact, have a triangular bow. However, the only Alesia-group brooch dated with certainty to 52 BC has a segmented bow (Brouquier-Reddé, Deyber 2001, 295, 298, pl. 91: 48), and therefore belongs to the Alesia II grouping. In addition, the brooches from Dangstetten include examples of the Alesia I and II groupings. Thus typologically, brooches belonging to Alesia Group II (with a segmented bow) may be later than brooches of Alesia Group I (with a triangular bow), although they had been in use since at least the end of Caesar's Gallic Wars. Alesia-group brooches with a triangular bow (Alesia I), which are probably typologically earlier, were nevertheless still in use in the (middle of the) fourth decade BC (Ocharan Larrondo, Unzueta Portilla 2002, fig. 2: 10) and also, as a variant with a perforated triangular bow, at the end of the early-Augustan and the beginning of the mid-Augustan period (cf. Fingerlin 1986, 257: 1; 404: 4).

The discovery of Alesia-group brooches at Grad near Reka is important for their dating. There is good reason to assume that this had been a pre-Roman native stronghold (probably of the Carni), which the Roman army besieged and occupied at the beginning of Octavian's Illyrian wars (35-33 BC; Istenič 2005) or perhaps in the early Augustan period at the latest.[11] Three Alesia-group brooches have been found at Grad near Reka: one of Alesia I-group, with a triangular bow (No. 1) and two of Alesia II-group with a segmented bow (Nos. 8, 11). Unfortunately, the other Alesia-group brooches from Slovenian sites came from contexts that are either imprecisely dated (e.g. Nos. 3, 9, 14-17) or unknown (Nos. 2, 4-7, 10, 12, 13, 18).

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[7] Brooches of the Alesia-group: Fingerlin 1986, 29: 3 (iron, local product?); 257: 1; 297: 2; 360: 3; 404: 4; 450: 4; Fingerlin 1998, 819: 1; 834: 1; 1038: 1; 1143: 2, 1295: 2, 1309: 1. Cf. Metzler 1995, 231, fig. 119: 1-6,11.

Aucissa-type brooches: Fingerlin 1986, 10: 1; 42: 2; 85: 1; 115: 1; 129: 1; 164: 3; 176: 4; 181: 2; 187: 1; 211: 3; 222: 1; 268: 3,4; 279A: 2; 285: 3; 289: 1; 291: 1; 344: 1; 363: 9; 373: 2; 399: 1; 401: 3; 404: 3; 449: 9,13; 455-457: 1,2; 463: 2; 483: 2; 484: 3; 519: 3,4; 544: 12?; 545: 6; 548:1; 594: 1; 595: 2; 597: 1; Fingerlin 1998, 657: 1,2; 660: 1; 685: 2; 697: 1; 698: 1; 699: 1,2; 700: 1; 748: 5; 753: 1; 754: 1; 788: 2,3; 793: 1; 819: 2; 833: 1; 834: 1; 841: 1,2; 844 A: 1; 876: 2; 880: 1; 895: 2,3; 902: 1; 910: 2; 920: 1; 925: 3; 957: 2; 966: 1; 978: 1; 981: 1; 1011: 1; 1013: 1; 1048: 1,2; 1054: 1; 1060: 1?; 1093: 1; 1101: 1; 1107: 1; 1124: 1; 1142: 1; 1155: 1; 1181: 1; 1220: 4,9; 1221: 2; 1223: 2; 1234: 1; 1246: 2; 1291: 2; 1292: 1; 1295: 1; 1298: 1; 1307: 1; 1310: 5; 1350: 6; 1351: 1; 1357: 1-3.

[8] Brooches, that are typologicaly between the Alesia and Aucissa groups, from Dangstetten, were also mentioned by Metzler (1995, 232, fig. 119: 7).

[9] Albrecht 1942, pl. 44: 1-3 (three brooches, two of Aucissa type); Kühlborn 1992, pl. 33: 45-53 (ten brooches, of which eight are of Aucissa type).

[10] Gechter 1979, 78, table 10.

[11] In her 2005 publication the author dated the finds to the beginning of the Octavianic Illyrian wars 35-33 BC. Recently, Rageth (2005) published Roman and indigenous military finds from the Crap-Ses gorge in the district of Oberhalbstein (Switzerland, Canton of Graubünden), found by an amateur using a metal detector. They include an iron catapult-bolt with pyramidal head and rod-like tang (for more poorly preserved examples from the same site see Rageth 2004, 299, fig. 4) and iron shoe-nails (Rageth 2005, 304, figs. 2: 6,16; 3: 2-14), which are good parallels to the finds from Grad. Among the finds are oblong/slightly biconical lead slingshots with stamps of the 3rd, 12th and 10th legion (*ibid*., 302-303, figs 2: 9-13; 4-6) as well as a brooch of the Alesia IIc variant (see below, p. 195). In Rageth's opinion (2005, 306) the finds from Crap-Ses reflect fights between the Roman army and indigenous population during the Roman military expedition across the Alps in 16/15 BC. The finds from Roman towers at Walensee (Switzerland, Cantons of St. Gallen and Glarus) which encompass tanged pila with a single-lobed barb, quoted as relatively distant parallels of the pila from Grad, are dated to the period of the Alpine expedition of 15 BC or to the years of preparation immediately preceding the expedition (Roth-Rubi et al. 2004, pls. 4: F 64,65; 7: B 38). In this light, the dating of Roman military finds from Grad near Reka to 35 BC now seems less reliable, but not confuted.

5. THE BROOCHES OF THE ALESIA GROUP FROM THE TERRITORY OF SLOVENIA

5.1 The brooches of the Alesia group with a triangular bow (Demetz Alesia I-group)

Demetz Alesia Ia3

Demetz classified brooches with a triangular bow, decorated with an incised network of triangles ("*Waffelmuster*") as a variant Ia3 (Demetz 1999, 157-158, 274, list 29: 1.1.3, pl. 40: 3, map 53).

There are two known brooches of this variant in Slovenia: one from Grad near Reka (No. 1) and the other from Stari grad above Unec (No. 2). Both brooches were made by hammering and their decoration is chased. The hinge was produced by a downward and inward twist of the upper end of the bow around an iron axis. Both brooches were made of brass.

Another 15 or 16 examples of this brooch variant exist, characterised by relatively similar form and decoration. Their find-spots concentrate in and around Aquileia (seven or eight examples: Demetz 1999, 274, list 29: 1.1.3, map 53; Buora 1999, 110, pls. 2: 4,7,8; 3: 1-4). In addition, two brooches were found at Gurina (Jablonka 2001, 119, pl. 83: 5,11) and Magdalensberg, one in the Po Valley (Solferino-Staffolo NW of Mantua), Karlstein, Ribić and one at Sisak (Demetz 1999, 274, list 29: 1.1.3, map 53). They were probably made by a small group of workshops (possibly connected to one another) or even by a single workshop in the area where they were most frequent, - perhaps at or near Aquileia (Demetz 1999, 158; Buora 1999, 109-110).

Because, from their shape and decoration, they form a homogeneous group, we may assume their production was short-lived. The brooch from Grad near Reka might suggest that they were used in the middle of the 4th decade BC (Istenič 2005).

Description (*pl. 1:* 1,2; *fig. 1*)

1. Bow and hinge of a brooch (the foot and pin do not survive). Brass; the axis of the hinge is iron. The present very thin dark brown layer of corrosion is probably sulphidic and was not present on the original surface, but was only evident after the original layer of corrosion had been deliberately removed (the unskilled action of the finder). The brooch was made by hammering and the decoration is chased. The hinge, which is slightly wider than the bow on the left side, was made by twisting inwards the sheet metal of the bow and then pressing its sides down, probably in order to attach the axis to the hinge; the details are asymmetric. Length 46 mm, width 19 mm.

Fig. 1: Photograph of brooches Nos. 1-3 (left to right). Not to scale. Photographic archive of the Archaeological Department of the National Museum of Slovenia (photo: Tomaž Lauko). *Sl. 1:* Fotografija fibul kat. št. 1 (levo), 2 (v sredini) in 3 (desno). Brez merila. Fototeka Arheološkega oddelka Narodnega muzeja Slovenije (foto: Tomaž Lauko).

Grad near Reka. Found by an amateur using a metal detector. National Museum of Slovenia, Inv. No. R 17393. Bibliography: Svoljšak et al. 1994-1995, 252-253, pl. 4: 25; Božič 1999, 72, fig. 2: 10; Buora 1999, 110, pl. 2: 6; Istenič 2005, 81, fig. 5: 15. Analyses: EDS XRF, PIXE.

2. Brooch, parts of the foot, hinge and pin are missing. Brass. The original surface is well preserved in a thin, dark grey-green layer of corrosion; on the exposed spots, where it has been rubbed off, light green powdered corrosion can be seen. The brooch was made by hammering, and the hinge was formed by an inward twist of the sheet-metal bow; a small part of the iron axis survives. The incised elongated triangles are in-filled with net-like decoration. Surviving length 76 mm, maximum width 17 mm.

Stari grad above Unec. Found by an amateur using a metal detector. National Museum of Slovenia, Inv. No. P 19282. Unpublished. Analyses: EDS XRF, PIXE.

Demetz, Alesia I, various

A fragmentary brooch from Lokavec-Kovačevše is an example of Alesia I-group brooches. A brooch from Gurina has a similar decoration (Demetz 1999, 159-160; Jablonka 2001, 119, pl. 83: 6). Demetz (*loc. cit.*) did not suggest a local source for these brooches. However, the analysis of the brooch from

the Lokavec-Kovačevše has shown that it was not made of brass, but of gunmetal, which should imply a relatively local origin.

Description (*pl. 1:* 3; *fig. 1*)

3. Front part of the bow, hinge and part of the pin of a brooch; the bow is slightly bent. Gunmetal; the axis of the hinge is iron. The original surface is partially preserved in a grey-green layer of corrosion. The brooch was finished by hammering, and the decoration was chased. The hinge was made by an inward twist of the sheet-metal bow. The hinge has knobbed terminals, open on both sides, so the iron axis is visible. The aperture where the pin joins the axis, does not lie in the middle of the hinge, but is positioned slightly to the left.[12] The surviving length is 28 mm, width 29 mm.

Lokavec-Kovačevše. Not from a controlled archaeological context. Gorica Museum, Inv. No. 7. Bibliography: Svoljšak 1983, 5, 18, No. 1, pl. 1: 17; Guštin 1991a, 22-23, 43, pl. 41: 16; Buora 1999, 109-110, pl. 1: 5; Demetz 1999, 159. Analyses: EDS XRF, PIXE.

Demetz Alesia Ic

Brooches with a smooth, undecorated triangular bow, with various foot and hinge types, were defined by Demetz as variant Ic. The brooches in this group are not homogeneous in shape (Demetz 1999, 158).

The four brooches discussed here (Nos. 4-7) are rather similar in shape. It is assumed that the basic outline of each brooch was cut from sheet metal and that the foot was then formed by hammering. The hinge was made by a downward and inward twist around an iron axis.

Only one brooch (No. 4) is made of brass, the rest are of bronze. The brooch from Novo mesto (No. 7) was tinned.

Brooches Nos. 4-7 are similar to a brooch from Magdalensberg (Demetz 1999, 158) and another one from *Alesia* (Brouquier-Reddé, Deyber 2001, 299, pl. 92: 62: from the upper part of the filling of the ditch of camp C, where there is risk of later contamination). Generally similar to these are two brooches from Ljubljana, dated on stratigraphic grounds to between approximately 50 and 25 BC (Vičič 1994, 27, 30, pl. 1: 8,9).

Fig. 2: Photograph of brooches Nos. 4, 5, 6 and 7. Not to scale. Photographic archive of the Archaeological Department of the National Museum of Slovenia (photo: Tomaž Lauko).
Sl. 2: Fotografija fibul kat. št. 4, 5, 6 in 7. Brez merila. Fototeka Arheološkega oddelka Narodnega muzeja Slovenije (foto: Tomaž Lauko).

Description (*pl. 1:* 4-7; *fig. 2*)

4. Brooch, well preserved. Brass; the axis of the hinge is iron. The original surface partly survives in a thin layer of corrosion, which has an unusually even brown-black colour. Where it becomes the hinge, the bow widens at a right angle (ca. 3 mm in both directions), so that the hinge is wider than the widest part of the bow. It was also made by an inward twist and the whole is skilfully crafted; on the left side, the iron axis overshoots the tube of the hinge by a millimetre. The brooch is bent to the right, skewed off its longitudinal (head-foot) axis, which explains why the hinge does not form a right angle with the bow and the pin does not sit in its clasp. Length 54 mm, width 20 mm.

Stari grad above Unec. Found by an amateur, probably using a metal detector. National Museum of Slovenia, Inv. No. R 17281. Bibliography: Svoljšak et al. 1994-1995, 254, pl. 6: 7. Analyses: EDS XRF, PIXE.

5. Brooch, foot missing. Bronze; the axis of the hinge is iron. The original surface is well preserved in a dark grey, smooth layer of corrosion covering most of the brooch; it has only been lost in a small patch. The hinge was also made by an inward twist and is skilfully crafted. Length 51 mm, width 19 mm.

Šentviška planota. Found by an amateur using a metal detector. National Museum of Slovenia, Inv. No. R 19080. Unpublished. Analyses: EDS XRF, PIXE, SEM/EDX.

[12] The terms 'right' and 'left' in the descriptions of the brooches assume that the brooch is viewed with its head upwards, its foot downwards, and with the bow projecting upwards.

6. Brooch, well preserved but with the pin missing. Bronze; the axis of the hinge is iron. The original surface is well preserved in a dark grey-green layer of corrosion. The corrosion of the iron axis has spread from the hinge to the underside of the brooch. Where the bow turns into the hinge, it widens laterally, so that the hinge is wider than the widest part of the bow (by ca. 3 mm on either side). The hinge was made by an inward twist and the whole is skilfully crafted. The aperture, where the pin joins the axis, does not lie in the middle of the hinge, as is usual, but is positioned to the right, so that one side of the hinge is wider than the other (9 mm : 13 mm). Length 68 mm, width 25 mm.

Stari grad above Unec. Found by an amateur using a metal detector. National Museum of Slovenia, Inv. No. P 19283. Unpublished. Analyses: EDS XRF, PIXE.

7. Brooch, well preserved, but with most of the pin missing; the upper part of the foot had been bent (during or after its discovery). Leaded bronze; the axis of the hinge is iron. The original surface of the upper side is well preserved as a smooth, silver shining layer (tinning). Under the point where the surface is damaged, light green, powdered corrosion can be seen. The bow widens where it turns to form the hinge, so that the hinge is distinctively wider than the widest part of the bow (ca. 1, 5 mm on both sides). The hinge is made by an inward twist and is skilfully crafted. On the right side of the hinge, there is distinct evidence of corrosion from the iron axis. Length 70 mm, width 26 mm.

Novo mesto-Ljubljanska cesta. Excavations in 1890. National Museum of Slovenia, Inv. No. R 1464. Patek 1942, 108, 194, pl. 5: 11. Analyses: EDS XRF, PIXE.

5.2 **Brooches of the Alesia group with a segmented bow (Demetz Alesia II)**

Demetz Alesia IIa
(Feugère Type 21b1; Guštin Group I, variant 2[13])

Brooches with a hinge and foot similar to those occurring on classic Alesia-type brooches, but with a triangular or rectangular bow with lateral rectangular expansions-(forming a discontinuous segmented outline), belong to the Alesia IIa variant according to Demetz. Their distribution is concentrated in southern Gaul (Feugère 1985, 304, 311, fig. 42; Demetz 1999, 160).

Three such brooches are currently known from the region of the eastern Alps (Nos. 8-10). Those from Grad near Reka (No. 8) and the site of Lokavec-Kovačevše (No. 9) are so similar in shape and decoration they may be assumed to have originated in the same workshop. Most likely, this centre also manufactured the brooch from Lovaria near Udine (Italy) and a brooch from an unknown findspot (cf. Demetz 1999, 160), as well as a brooch from Oderzo/Roman *Opitergium* (Callegher 1992, 47-49, pl. 6: 3[14]). The distribution of these brooches allows the supposition that they originate in northeastern Italy.

The hinges of brooches Nos. 8-10 were not made by twisting the bow around the axis, as in the Alesia I-group brooches. In profile, the end of the bow widens more or less symmetrically into a thin tube, which would suggest a casting process. The bow and hinge of these brooches were therefore initially cast as one; then the detailing, such as the foot, the clasp for the pin and the finishing, were executed by hammering and filing, and the decoration was chased. So far, only Romana Erice Lacabe (1995, 91-92, 96, fig. 8: 19.1) has drawn attention to the nature of such hinges on brooches of the Alesia group. Brooches Nos. 8-10 also have distinct knobs, set on either side of the iron hinge-axis. The knobs are open at the side, revealing the iron axis.

The brooch from Alesia, found in a context dated to 52 BC (Brouquier-Reddé, Deyber 2001, 298, No. 48, pl. 91: 48), and the brooch from Grad near Reka (for dating, see above) are important for the dating of Alesia IIa brooches.

All three brooches of this variant are brass.

Description (*pl. 1:* 8-10; *fig. 3*)

8. Brooch. Well preserved, only the pointed tip of the pin is missing. Brass; the axis of the hinge is iron. The original surface is relatively well preserved in a smooth dark grey layer of corrosion, which is rubbed off in several places down to a light green powdered layer of corrosion. The brooch is cast and hammered; the decoration on the bow is chased. The two knobs on either side of the tubular hinge are open at the side, exposing the iron axis. Length 46 mm, width 21 mm.

[13] Guštin discussed brooches of the Alesia group in four publications (1986; 1991a; 1991b; 1992). The descriptions of certain groups, and other details in the 1991 and 1992 publications are not identical to these in the 1986 paper. Unless otherwise stated, the present paper follows Guštin's 1986 classification.

[14] Dr. Dragan Božič called my attention to this brooch.

Fig. 3: Photograph of brooches Nos. 8 (left), 10 (above) and 9 (right). Not to scale. Photographic archive of the Archaeological Department of the National Museum of Slovenia (photo: Tomaž Lauko).
Sl. 3: Fotografija fibul kat. št. 8 (levo), 10 (zgoraj) in 9 (desno). Brez merila. Fototeka Arheološkega oddelka Narodnega muzeja Slovenije (foto: Tomaž Lauko).

Fig. 4: Photograph of the foot of brooch No. 9. The undulating groove is the result of folding back the end of the foot and hammering it inwards (cf. description p. 194). Lines caused by filing the area are also visible. Larger than life-size. Photographic archive of the Conservation Department of the National Museum of Slovenia (photo: Sonja Perovšek).
Sl. 4: Fotografija noge fibule kat. št. 9. Viden je žleb, ki je nastal pri kovanju (prim. opis na str. 207) in sledovi piljenja. Povečava, brez merila. Fototeka Konservatorskega oddelka Narodnega muzeja Slovenije (foto: Sonja Perovšek).

Grad near Reka. Found by an amateur using a metal detector. National Museum of Slovenia, Inv. No. R 18974. Bibliography: Istenič 2005, 81, fig. 5: 14). Analyses: EDS XRF, PIXE.

9. Brooch. Brass; the axis of the hinge is iron. The original surface is very well preserved in a smooth dark grey layer of corrosion, eroded in several places (particularly at the pin). The brooch was cast and hammered; the decoration on the bow is chased. The two knobs on the sides of the tubular hinge are open at the side, exposing the iron axis. On the outside of the foot, an undulating groove can be seen, resulting from the hammering (fig. 4). It would seem the maker had initially hammered out a longer foot, and then folded it back and hammered it inwards to bond with, and reinforce the foot. Length 53 mm, width 23 mm.

Lokavec-Kovačevše. Unskilfully acquired. Gorica Museum, Inv. No. 10. Bibliography: Svoljšak 1983, 18, No. 4, pl. 1: 24; Guštin 1991a, 23, pl. 41: 23. Analyses: EDS XRF, PIXE.

10. Brooch, partly preserved: parts of the head, foot and pin are missing. Brass; the axis of the hinge is iron. The brown areas of the present surface comprise a thin layer of corrosion on the metal core, whereas the superimposed light green patches above it represent powdered corrosion. The sparse remnants of harder, grey-green corrosion are probably the last traces of the original corroded surface of the brooch. The head, the bow with its decorative ribs, and the hinge were cast and then probably also hammered to form the foot. A knob at the side of the iron axis survives on the right side of the tubular hinge. Length 53 mm, width 23 mm.

Ulaka above Stari trg pri Ložu. Found by an amateur using a metal detector. National Museum of Slovenia, Inv. No. R 17319. Unpublished. Analyses: EDS XRF, PIXE.

Demetz Alesia IIb
(Guštin group II, variant 6[15])

Brooches with a bow expanded at the top and bottom, and with a small roundel in the middle were classified by Demetz as variant IIb. He discussed five examples from find-spots at Aquileia (NE Italy), Wartau-Oberschan in the Rhine Valley in the Alps (Switzerland, Canton of St. Gallen), Magdalensberg (Austria, Carinthia), Samaria (Palestine, Israel's West Bank) and Bayard-sur-Marne (France; Demetz 1999, 161, 275, list 2.1).

[15] Guštin (1986, 679-680) assigned the brooch from Aquilea (*ibid*., fig. 1) to his variant grouping I 3, and the brooch from Wartau-Oberschan into his variant grouping II 6. *Inter alia,* he assigned to his variant grouping I 3, the two brooches from southern France (Feugère 1985, Nos. 1452, 1453), and the brooch from Perugia (Rieckhoff 1975, fig. 6: 5), which, according to Demetz, should belong to group IIc (see below). Demetz (1999, 161) assumed Guštin's variant II 6 to correspond to his variant IIb.

The example from Grad near Reka has an excellent analogy in the brooch from Aquileia (Guštin 1986, 679, fig. 1; Guštin 1991b, fig. 3: 8), the brooch from Wartau-Oberschan (Ettlinger 1973, 147, pl. 17: 3; Overbeck 1982, 94, pl. 35: 13; Guštin 1991b, fig. 3: 12), and the brooch from Magdalensberg (Kenner 1961, 135, fig. 75: 6; Demetz 1999, 275 - described as unpublished). The remnants of the silvering mentioned by Guštin and Ettlinger are most likely traces of tinning, as already noticed by Overbeck (1982, 94, pl. 35: 13) for brooch from Wartau-Oberschan. The tinning is well preserved and has been adequately analysed on the brooch from Grad near Reka. The surface of the central roundel of this last brooch is also excellently preserved, and was tinned too. Speculation that this roundel was surmounted with a semi-precious stone or enamelled (cf. Kenner 1961, 135; Ettlinger 1973, 147; Overbeck 1982, 94; Guštin 1986, 680; Demetz 1999, 161) is therefore untenable. The brooch from Grad near Reka was made of brass.

The brooches from Grad near Reka, Aquileia, Wartau-Oberschan and Magdalensberg are so similar, in shape, decoration, proportions and tinning, that they probably came from the same workshop. The distribution of Demetz IIb variant brooches over a wide area, from France to Israel, should point to an Italian origin.

Brooches of this variant were made in a technique similar to that of variant IIa; the bow and hinge were cast, and then the foot, clasp and detailed finish were completed by hammering and filing. The hinges of the brooches have knobs on both sides, set on the iron axis in such a way that the axis protrudes at the side.

Description (*pl. 1:* 11; *fig. 5*)

11. Brooch, complete. Brass, the upper part of bow is tinned; the axis of the hinge is iron. The original surface is relatively well preserved in the tinned parts and in light green powdered corrosion (on the underside of the bow it is covered with a thin layer of earth), which in places (on part of the foot, pin, and a small part of the underside area of the bow) has been rubbed off down to brown corrosion on the metal core. Cast and hammered. The badly preserved decoration on the bow was probably chased. On the outside of the knobbed ends of the hinge, corrosion from the iron axis of the hinge is clear. Length 51 mm, width 15.5 mm.

Fig. 5: Photograph of brooch No. 11. Not to scale. Photographic archive of the Archaeological Department of the National Museum of Slovenia (photo Tomaž Lauko).
Sl. 5: Fotografija fibule kat. 11. Brez merila. Fototeka Arheološkega oddelka Narodnega muzeja Slovenije (foto: Tomaž Lauko).

Grad near Reka. Found by an amateur using a metal detector. National Museum of Slovenia, Zn 198/49. Unpublished. Analyses: EDS XRF, PIXE, SEM/EDX.

Demetz, Alesia IIc
(Guštin group I, variant 3[16])

Brooches with a substantial oval and flat expansion roughly in the centre of the bow, belong to Alesia IIc variant. Their shape is particularly homogeneous within the group. To Demetz's list of twelve brooches (Demetz 1999, 161, 275, list 2.2) we may add another example from Dangstetten (Fingerlin 1998, 150, 1143: 2), a brooch from the burial ground Gropello Carioli-Cascina Menabrea near Pavia (Macchioro Malnati 1994-1999, 151, 189-191, fig. 8[17]), a brooch from Crap-Ses gorge (Switzerland, Canton of Graubünden; Rageth 2005, fig. 2: 14) and three examples from Slovenia: from Šentviška planota (No. 12), Stari grad above Unec (No. 13) and Gradič at Kobarid (No. 14). Thus the majority of the brooches of this variant have been found in Italy (seven examples), three in France, two at Dangstetten on the Upper Rhine, and three in western and central Slovenia.

The analyses and a detailed examination of the brooches Nos. 12, 13 and 14 indicated that they had been made of brass and that a tiny silver plate had been soldered to the central oval expansion.

[16] For the inconsistencies in Guštin's typology over the distinctions between his variants I 3 and II 6, see fn. 15.
[17] I would like to thank Dragan Božič for drawing my attention to this publication.
[18] The description mentions a round medallion decorated at the edge by granulation (as seen in the published photograph). Surprisingly, the only material mentioned is bronze. In fact, I would also have expected traces of silver.

A similar feature occurs on a same brooch-variant from Ensérune (southern France). The drawing (Feugère 1985, pl. 112: 1452) seems to suggest that this brooch also had solder on its oval expansion, but there is no description to corroborate this in the published text. The remnants of solder on the central oval are, however, mentioned in the description of one of the brooches from Dangstetten (Fingerlin 1998, 150, 1143: 2). It seems that the decoration on the oval expansion is best preserved on the brooch from the cemetery at Gropello Cairoli-Cascina Menabrea (Macchioro Malnati 1994-1999, 151, 189-190, fig. 8[18]).

Like the Alesia IIa and IIb variants, these brooches were also cast (including the front part of the bow and the hinge), and then shaped and finished by hammering and filing (to produce the foot, clasp, and oval widening). The hinges of these brooches have knobs on both sides, set on the iron axis in such a way that the axis protrudes at the side. The decorative grooves on the front of the bow and the lateral expansions adjoining both sides of the oval plate are best preserved on brooch No. 14. These were made by chasing.

The presence of two brooches of this variant at Dangstetten, one brooch among the finds from the Crap-Ses gorge in the District of Oberhalbstein (probably in connection with the military expedition of 16/15 BC across the Alps; Rageth 2005, 302-306; cf. fn. 11) and one brooch in grave 1 at San Martino di Aviano (Vitri 1990) suggests that they belong to the later variants of the Alesia group, which were still in use in the early-Augustan period or even somewhat later.

Description (*pl. 1:* 12-14*:* 14; *fig. 6*)

12. Brooch, with parts of foot and the pin missing. Brass; the axis of the hinge is iron. The original surface does not survive. The present surface, which has developed over the surface of the metal core, is brown on the upper side of the brooch; on the underside, are traces of a light green powdered corrosion. On the upper side of the central oval plate is a lead-tin solder with a tiny fragment of a thin silver coating, which originally probably covered the whole of the oval expansion. Because the brooch is not well preserved, the lateral expansions adjoining the central oval are poorly pronounced and the groove on the front side of the bow is barely apparent. The hinge has knobbed ends on both sides, from which the iron axis protrudes at the side. The corrosion products of the axis have partly covered the left half of the hinge. Cast and hammered. Preserved length 96 mm, width 20 mm.

Fig. 6: Photograph of brooches Nos. 13, 14 and 12 (left to right). Not to scale. Photographic archive of the Archaeological Department of the National Museum of Slovenia (photo Tomaž Lauko).
Sl. 6: Fotografija fibul kat. št. 13, 14 in in 12 (od leve proti desni). Brez merila. Fototeka Arheološkega oddelka Narodnega muzeja Slovenije (foto: Tomaž Lauko).

Šentviška planota. Found by an amateur using a metal detector. National Museum of Slovenia, Inv. No. R 19078. Unpublished. Analyses: EDS XRF, PIXE.

13. Brooch. The foot and part of bow are missing. The original surface on the top and front of the bow is excellently preserved in a smooth dark grey layer of corrosion; in other parts this layer has mostly rubbed off, exposing the light green powdered corrosion, which has developed under the original surface. Brass; the axis of the hinge is iron. The middle of the bow widens into an almost circular plate which has the remnants of solder and a thin silver coating. The lateral bar-like expansion of the bow adjoining the circular plate is quite pronounced. The upper part of the bow and the head are decorated with shallow grooves. The hinge has knobbed terminals, from which the iron axis protrudes on both sides. The brooch (comprising the hinge and front part of the bow) was cast and then hammered to produce the central widening on the bow. Surviving length 39 mm, the width of the round central plate on the bow 16 mm.

Stari grad above Unec. Found by an amateur using a metal detector. National Museum of Slovenia, Inv. No. P 19946. Unpublished. Analyses: EDS XRF, PIXE.

14. Brooch, well preserved, reconstructed from two parts (joining at the central oval plate). Brass; the axis of the hinge is iron. The original surface is mostly well preserved as a brown-green layer of corrosion; on the foot and part of the pin, the condition of this layer is much worse, and has rubbed off, exposing the metal core and light green pow-

dered layer of corrosion, which developed under the original surface. The corrosion products of the iron axis of the hinge cover a major part of the hinge, particularly on the underside. The middle of the bow of the brooch widens into a more or less oval plate which has traces of a lead-tin solder. The bar-like lateral expansions adjoining the oval plate are quite pronounced and decorated with two grooves. The upper part of the bow and the head are also decorated with small grooves. The hinge has knobbed terminals, from which the iron axis protrudes on both sides. Length 52 mm, width of the oval plate on the bow 19 mm.

Kobarid-Gradič. Excavations of 1993. State Cultural Heritage Agency, Regional Office Nova Gorica, Inv. No. K 1874. Unpublished. Analyses: EDS XRF, PIXE.

Fig. 7: Photograph of brooches Nos. 15, 16 and 17 (left to right). Not to scale. Photographic archive of the Archaeological Department of the National Museum of Slovenia (photo Tomaž Lauko).
Sl. 7: Fotografija fibul kat. št. 15, 16 in 17. Brez merila. Fototeka Arheološkega oddelka Narodnega muzeja Slovenije (foto: Tomaž Lauko).

Demetz Alesia IId
(Guštin group II, variant 7[19])

A distinctive variant of the Alesia family comprises brooches with a pair of perforated oval expansions on the bow separated by a narrow waist. Chased decoration can still be seen on the better-preserved examples. Demetz (1999, 161, 275, list 2.3) cited seven examples: one from Chur (Switzerland), two from northern Italy, one from an unknown find-spot in Rumania[20], and three from Slovenia. Guštin (1986, 682-683; 1991a, 44) assumed that the examples from Bodrež and Lokavec-Kovačevše had been made locally, in the Soča valley.

Because two brooches of this variant have since been found at Lokavec, the total number in Slovenia is now four: Lokavec-Kovačevše (Nos. 15, 16)[21], Bodrež (Guštin 1991a, pl. 39: 14) and Novo mesto-Beletov vrt (Bele's garden), grave 187 (No. 17). Analyses of the brooches (Nos. 15, 16 and 17) show they had been made of brass. There are no traces of tinning or any other coating on the surface (cf. the description of the brooch from Chur, which was thought to be silvered: Guštin 1991a, 44).

The brooches from this group were probably made in a technique similar to that used for brooch-variants IIa, IIb and IIc (i.e. by casting and hammering, and with chased decoration).

Closely related to Alesia IId variants, is a brooch-variant with three pairs of oval expansions on the bow (Guštin 1986, group II, variant 8[22]). An example was found in Dangstetten (Fingerlin 1998, 819: 1) and suggests that brooches of this variant should be relatively late in date.

Description (*pl. 1:* 15-17; *fig. 7*)

15. Brooch, lacking only a small part of the upper oval expansion; deliberately bent, by folding over the waist in the middle of the bow, so that the foot and the hinge touch. A chain of four round links of different sizes is attached to the pin. Brass; the axis of the hinge is iron. The original surface is well preserved in a smooth and compact grey-green layer of corrosion, which has crumbled on exposed parts. The oval expansions show traces of chased decoration. The hinge has knobbed terminals, from which the iron axis protrudes on both sides. The length of the bent brooch is 31 mm, the width is 26 mm.

[19] Guštin discussed these variants several times (Guštin 1986; 1991a; 1991b and 1992). The classification utilised here is that from his 1986 publication.

[20] The bibliography cited by Guštin (1991a, 44, fn. 94) has shown that this brooch (it was found in Sprîncenata) does not correspond to the Alesia IId variant. I would like to thank Dr. Dragan Božič for this information.

[21] Dragan Božič noticed while reading the manuscript that the brooch No. 16 differed from the rest of the brooches of variant IId. During author's renewed examination of this fragmentary brooch it became clear that the brooch most probably had only one (and not two) perforated oval expansions on the bow. Otherwise it is very similar to brooch no. 15. In the author's opinion it would be reasonable to treat (in the future) the brooches with one, two or three perforated oval expansions together, as one variant.

[22] Described as group 2, variant 7, in Guštin's 1991a, b and 1992 publications.

Lokavec-Kovačevše. Archaeological excavations of 1949. National Museum of Slovenia, Inv. No. P 12982. Bibliography: Svoljšak 1983, 14, pl. 1: 25; Guštin 1991a, 23, pl. 41: 20. Analyses: EDS XRF, PIXE.

16. Brooch, a large portion of the bow, the whole foot and part of hinge are missing; deliberately bent: folded over on the upper part of the bow. Brass; the axis of the hinge is iron. The original surface is poorly preserved as a dark grey-green layer, which is badly damaged by numerous deep pits of corrosion, which exhibit light green powdered corrosion products. Surviving on one side of the hinge is a knob, with the iron axis protruding at the side. The surviving length of the bent brooch is 16 mm, width 23 mm.

Lokavec-Kovačevše. Unskilfully acquired. Gorica Museum, Inv. No. 8. Bibliography: Svoljšak 1983, 14, pl. 1: 12; Guštin 1991a, 23, pl. 41: 21. Analyses: EDS XRF, PIXE.

17. Brooch; large portions of the foot and the two oval expansions have been heavily restored with artificial resin; the knobbed end of the foot and one knob on the hinge are missing. Brass; the axis of the hinge is iron. Little or no original surface remains. The pitting from the corrosion penetrates deep below the level of the original surface. The entire surface of the brooch is painted (due to restoration in the Römisch-Germanisches Zentralmuseum, Mainz). Originally, the hinge would have had knobbed ends on both sides, but one does not survive, and the other is covered with corrosion products from the iron axis. The surviving length is 48 mm, width 26 mm (as reconstructed).

Novo mesto-Beletov vrt, grave 187. Archaeological excavations of 1976. Museum of Dolenjska, Inv. No. 1256. Bibliography: Knez 1992, 63, pl. 66: 8. Analyses: EDS XRF, PIXE.

Alesia, unclassified

The surviving fragment of the brooch No. 18 suggests it to be an early hinged Roman brooch belonging to the Alesia grouping. A more precise classification is impossible.

Description (*pl. 1:* 18)

18. Part of the bow and hinge of the brooch. Brass; the axis of the hinge is iron. The light green layer of corrosion forming the current surface of the brooch is so heavily corroded that the original surface no longer survives. The corrosion products from the iron axis cover part of the underside of the brooch. The hinge is cast. Preserved length 29 mm, width 12 mm.

Mihovo. Found by an amateur using a metal detector. National Museum of Slovenia, Inv. No. R 24045. Unpublished. Analyses: EDS XRF, PIXE.

6. **DISCUSSION**

The brooches discussed here make up almost four fifths of all known brooches belonging to the Alesia group which have been found in Slovenia. From present evidence, apart from brooches Nos. 1-18, there are only six more examples from Slovenia: two from Ljubljana (Vičič 1994, 27-29, 37, pl. 1: 8,9) and Bodrež (Guštin 1991a, 43, pls. 39: 14; 40: 3), and one from Idrija pri Bači (Guštin 1991a, pl. 17: 10; variant Demetz Id[23] - cf. Demetz 1999, 36, 124, 125) and Loke-Kolenovca near Nova Gorica (variant Alesia Ic[24]; Guštin 1991a, 43, fn. 87).

In the last two decades, the total number of brooches of the Alesia group found in Slovenia has more than doubled (apart from the two brooches from Ljubljana, there are twelve more examples: Nos. 1, 2, 4-6, 8, 10-4, 18). Unfortunately, all but two were dug out by amateurs and divorced from their original contexts. The actual number of brooches found in this manner is probably much higher, because museums have managed to acquire or record only a portion of these finds.

The results of the analyses show indisputably that brass was the predominant alloy used for the production of brooches of the Alesia group. Out of the 18 brooches analysed, 14 were made of brass, 3 were of bronze (copper and tin alloy), and one was of gunmetal (copper, tin and zinc alloy). The hinge-axis of all the brooches discussed here was made of iron. The most likely reason for this was a very practical one; an axis made of copper alloy would have been too soft.

For the brass brooches, the analyses showed a high proportion of zinc, fluctuating between at least 15 and 22%. These fluctuations are undoubtedly the result of inconsistencies in the removal of the corrosion from the areas chosen for analysis and also the dimensions of these patches (on small spots, it is difficult to ensure that the measuring beam does not encompass corrosion from the edge

[23] The fragment of a foot cannot belong to the same brooch as the front part of the bow and the hinge, as drawn in Guštin 1991a, pl. 17: 10. I would like to thank Dragan Božič for this information as well as for drawing my attention to this brooch.

[24] I would like to thank Dragan Božič for this information.

of the prepared area - see Šmit et al. 2005). For most of the brooches (9 examples), the highest measured percentage of zinc was about 20% (19-22%). It is likely that the actual proportion of zinc falls around this figure in other brass brooches too; however, the measurements as a rule indicated a lower percentage for reasons already mentioned. The brooches would therefore have been made of Roman pure brass; that is, brass produced by the so-called cementation process (Craddock 1978a, 9-11; Bayley 1990, 9-11; Craddock 1995, 296). Such brass contained about 20% of zinc and very little lead and tin (cf. Craddock, Lambert 1985, 164; Jackson, Craddock 1995, 93).

Brass is suitable for casting and hammering (cf. Voß, Hammer, Lutz 1998, 279, 281), and was thus particularly appropriate for the processes used in the production of the brooches discussed here. The use of pure brass for brooches of the Alesia group corroborates the generally accepted opinion that these brooches were Roman, i.e. that they were made in workshops situated in Roman territory.

Our research has shown that so far, this is the oldest group of Roman brooches made of brass. The analyses show that brass was used for the brooches of Alesia Ia3, Ic, IIa, IIb, IIc and IId variants. For variants Ia3, IIa, IIb, IIc and IId, all the brooches analysed were brass. In Alesia Ic variant, only one brooch was made of brass (No. 4), whereas three were bronze (Nos. 5-7). Brooch No. 3 was made of gunmetal, most likely the result of melting bronze and brass together.

The use of brass in brooches of distinctive variants is an important element in the identification of their production sources. This has already been suggested from their distribution (see section 4). Thus, Alesia Ia3 brooches are most likely to have been produced in Italy, probably in or near Aquileia; the same can be assumed for the examples of brooches of the variant IIa which are represented in Slovenia. The distribution of the brooches and the use of brass also hint at a (north) Italian source for brooches of Alesia IIb, IIc and IId variants. In connection with the use of brass, Guštin's hypothesis that variant IId brooches from Lokavec-Kovačevše and Bodrež were produced in the Soča Valley (see section 4), when the region had only just become part of the Roman state (Šašel Kos 2000, 282-283; Istenič 2005), no longer seems tenable. The high proportion of zinc in the only brass brooch from the group Ic (No. 4) suggests pure brass and therefore an origin in "Roman" workshops.

Four of the brooches analysed were not made of brass. These belong to variants Alesia I various (No. 3) and to Ic (Nos. 5-7) and suggest that these non-typical brooches were made in smaller, "local" workshops, possibly (although not necessarily) within the wider area of the sites where they were found. One was made of gunmetal (about 3% of zinc; No. 3), and the other three were of bronze (Nos. 5-7). "Local" workshops were therefore copying the shape of the Alesia Ia3 and Ic brooches. However, instead of brass, they used alloys of copper and tin, or copper, tin and lead, - that is, alloys with a long pre-historic tradition (Giumlia-Mair 1998, 47-48; Trampuž Orel 1999, 415-417; Jerin 2001; Trampuž Orel, Orel 2004, 42-43), or they used gunmetal. This last alloy is most likely to have been made by adding to the bronze, brass derived from objects of Roman origin (cf. Craddock 1978a, 12).

All the bronze brooches belonged to the Alesia Ic variant. Brooch No. 5 was made of an alloy of copper and tin. Because the percentage of tin in the corrosion was very high, and because repeated measurements indicated that the proportion of tin dropped after an additional "cleaning" of the point of measurement, we assume that the proportion of tin in the core of the brooch was less than 13%. In fact, 13.2% is also the highest value that may be expected in hammered bronze objects (Brown 1976, 25). Research with a scanning electron microscope showed that, despite the high percentage of tin on its surface, this brooch was probably not tinned (Šmit et al. 2005).

For the brooch from Stari grad above Unec (No. 6), the measurements indicated bronze with a small, but definite proportion of zinc (around 1%; cf. Šmit et al. 2005). The presence of zinc suggests that a brass object (or a fragment of such) had been added to the alloy at the melting stage. The proportion of lead recorded (around 2%) is surprising, because according to published information, it is not consistent with the production technique of this brooch (see below).

The brooch from Novo mesto (No. 7) was made of leaded bronze. Analysis of two areas where the layer of corrosion had been removed, showed a relatively high percentage of lead (around 4-5%; Šmit et al. 2005), which is extremely rare in hammered objects; in fact, objects of hammered sheet-bronze are not supposed to contain any lead at all (cf. Craddock 1978b, 381; Craddock, Giumlia-Mair 1988; 319; Giumlia-Mair 1998, 35-36).

7. CONCLUSIONS

Brooches of the Alesia group are relatively well represented in Slovenia. They are known from the

following find-spots (listed in order of frequency): Lokavec-Kovačevše (Nos. 3, 9, 15-16), Stari grad above Unec (Nos. 2, 4, 6, 13), Grad near Reka (Nos. 1, 8, 11), Šentviška planota (Nos. 5, 12), Bodrež (2 brooches), Ljubljana (2 brooches; Vičič 1994, 27, pl. 1: 8,9), Novo mesto (Nos. 7, 17), Kobarid-Gradič (No. 14), Ulaka above Stari trg pri Ložu (No. 10), Mihovo (No. 18), Idrija pri Bači (one brooch; Guštin 1991a, pl. 17: 10) and Loke-Kolenovca near Nova Gorica (one brooch).[25]

Most of the brooches of the Alesia group (14 *in toto*) come from find-spots in western Slovenia (*fig. 8*), more precisely, from Posočje (Kobarid-Gradič, Idrija pri Bači, Bodrež, Loke-Kolenovca near Nova Gorica), the Vipava Valley (Lokavec-Kovačevše) and Šentviško-Cerkljansko hribovje (Grad near Reka, Šentviška planota). The other, smaller group of these brooches comes from Notranjska (Stari grad above Unec, Ulaka). Two brooches are known from Ljubljana (Vičič 1994, 27, pl. 1: 8,9) and three from Dolenjska (Novo mesto-Beletov vrt, Mihovo under Gorjanci).

The presumably locally manufacutred brooches, i.e. the ones that were not made of brass, seem to be evenly spread: two in western Slovenia (Nos. 3, 5), two in Ljubljana (Vičič 1994, 27, pl. 1: 8, 9), one in Notranjska and one in Dolenjska (Nos. 6-7). On the other hand, considering the general frequency of the Alesia-group brooches in these regions, it becomes clear that the non-brass brooches are relatively frequent in the central and south-eastern regions (Ljubljana - cf. Vičič, *loc. cit*. and in Dolenjska: one bronze brooch - No. 7; two brass brooches: Nos. 17, 18) and very rare in western Slovenia (two non-brass brooches: Nos. 3, 5; eight brass brooches: Nos. 1, 2, 8, 9, 11, 12, 14-16), as well as in the Notranjska region (one non-brass brooch: No. 6; four brass brooches: Nos. 2, 4, 10, 13).

The largest number of brooches comes from locations which were probably used for ritual offerings (seven brooches: Šentviška planota - a recently found find-spot,[26] Kobarid-Gradič,[27] Lokavec-Kovačevše?[28]), five from burial sites (Bodrež, Idrija pri Bači, Novo mesto[29]), three from settlements (Loke-Kolenovca near Nova Gorica, Ljubljana) and three from Grad near Reka, the supposed stronghold of the Carni, besieged by the Roman army (Istenič 2005). Due to the imprecise circumstances of the discovery of the four brooches from Stari grad above Unec, one brooch from Ulaka above Stari trg pri Ložu and one brooch from Mihovo, their exact contexts are unknown.

The geographical distribution of the brooches of the Alesia group in Slovenia (with their concentration in the West, a substantial presence in Notranjska and only a token presence in Dolenjska) is entirely consistent with a gradual spread of Roman control towards the East and the South-East (cf. Horvat 1999, 218-219, 248).

The results of the archaeometric analyses of the Alesia-group brooches from Slovenia show that this is currently the oldest group of Roman brooches that were usually made of brass. The few Alesia-group brooches made from copper alloys other than brass indicate that only rare variants of the brooches from this group were imitated, produced by workshops which had no or only very limited access to brass (as scrap).

The brass brooches of the Alesia group from Grad near Reka (Nos. 1, 8, 11), might indicate that brass brooches of the Alesia group were probably already being made four decades BC, at the latest. From the evidence for the emergence of brooches of the Alesia group, at the time of Caesar at the latest, and from the sheath of a sword with brass fitments probably dating to the same period (cf. Istenič 2000a; 2000b), we may assume that the Romans began to use brass during Caesar's Gallic Wars at the latest, that is between 59 and 52 BC.

The latest results of current research on the composition of Celtic coins in Gaul have recently provided an unexpected, additional and very valuable contribution to our understanding of the early use of brass. Among the coins of Arverni (a Celtic tribe inhabiting central-southern Gaul), analyses indicated six brass examples, containing 10-15% of zinc. All had been found at *Alesia*. Two of them bear the name of Vercingetorix, the leader of the Gaulish uprising of 53/52 BC. These brass coins are of the same basic types as the gold staters which they imitated. They were, therefore, most likely minted at *Alesia* in 52 BC, at the time of the siege. Brass was evidently used, due to a shortage of gold, and the source of brass were Roman brass objects (Nieto 2004).[30] The Gallic brass coins of 52 BC therefore confirm the results of our own research,

[25] Found by Dr. Dragan Božič, unpublished. For the information on the site cf. Žbona Trkman 1985.

[26] Publication is in preparation.

[27] Osmuk 1997; Osmuk 1998.

[28] Compare e.g. Gleirscher, Nothdurfter, Schubert 2002 with bibliography; Zanier 1999, 103-104.

[29] Brooches Nos. 7 and 17 come from the same Celtic to Roman burial ground in Novo mesto. The major part of the cemetery, dating from the 1st century BC until the 2nd century AD, is known by the name Beletov vrt ("Bele's garden"; cf. Knez 1992, 7-23).

[30] Nieto's 2004 study was published just before this paper went to press.

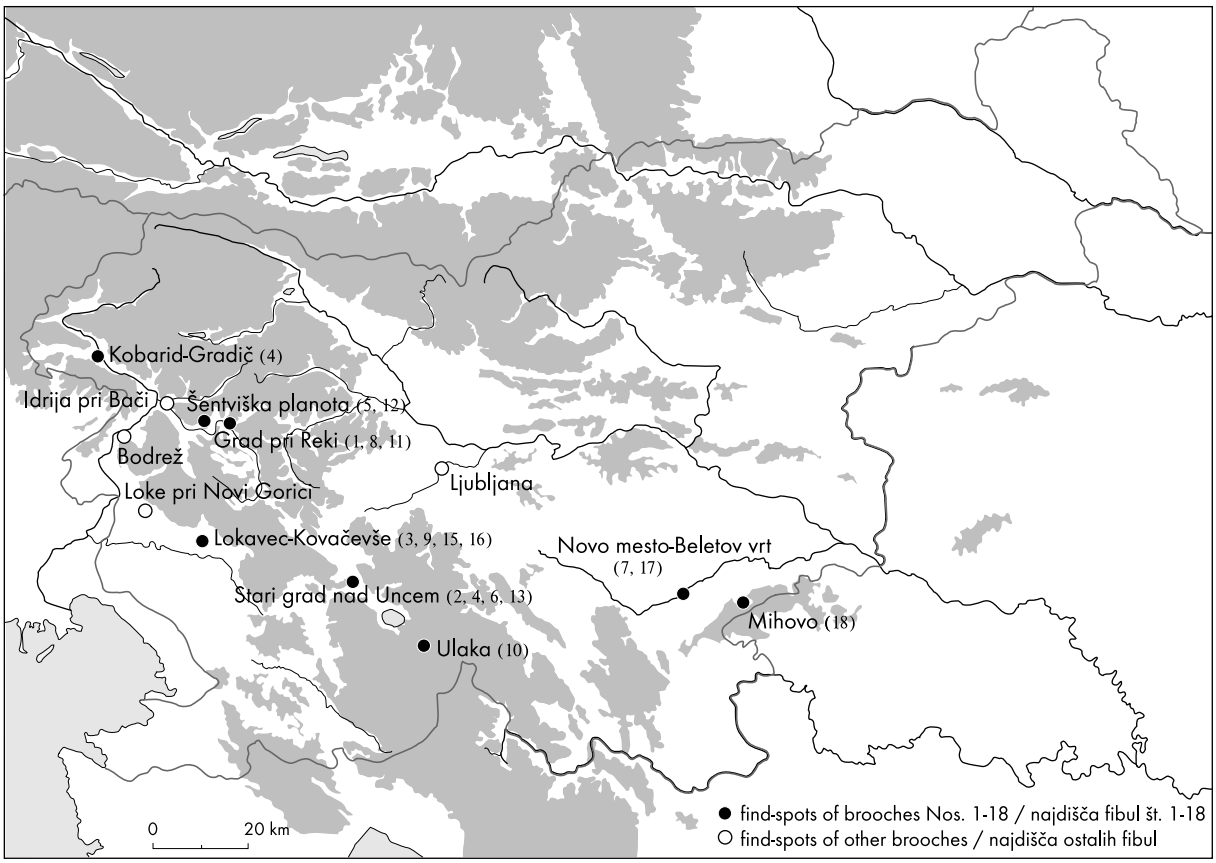

Fig. 8: Location of sites in Slovenia where brooches of the Alesia group have been found.
Sl. 8: Geografska lega najdišč fibul skupine Alesia v Sloveniji.

namely that the Romans were using brass already at the time of Caesar's Gallic Wars.

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ALBRECHT, C. 1942, *Das Römerlager in Oberaden*. - Veröffentlichungen aus dem Städt. Museum für Vor- und Frühgeschichte Dortmund 2.

BAHRFELDT, M. 1909, Die letzten Kupferprägungen unter der römischen Republik. - *Numismatische Zeitschrift* 42, 67- 86.

BAYLEY, J. 1990, The Production of Brass in Antiquity with Particular Reference to Roman Britain. - In: P. T. Craddock (ed.) *2000 Years of Zinc and Brass,* British Museum Occasional Paper 50, 7-27.

BAYLEY, J. and S. BUTCHER 1995, The Composition of Roman Brooches found in Britain. - In: *Acta of the 12th International Congress on Ancient Bronzes. Nijmegen 1992,* Nederlandse Archeologische Rapporten 18, 113-120.

BAYLEY, J. and S. BUTCHER 2004, *Roman Brooches in Britain: A Technological and Typological Study based on the Richborough Collection*. - Reports of the Research Committee of the Society of Antiquaries of London 68.

BOŽIČ, D. 1993, Slovenija in srednja Evropa v poznolatenskem obdobju. - *Arheološki vestnik* 44, 137-152.

BOŽIČ, D. 1999, Tre insediamenti minori del gruppo protostorico di Idrija Pri Bači dell'Isontino. - In: S. Santoro Bianchi (ed.), *Studio e conservazione degli insediamenti minori romani in area alpina: atti dell' incontro di Studi, Forgaria del Friuli, 20 settembre 1997,* Studi e scavi 8, 71-79.

BROWN, D. 1976, Bronze and pewter. - In: D. Strong, D. Brown, *Roman crafts,* 25-41, London.

BROUQUIER-REDDÉ, V. and A. DEYBER 2001, Fourniment, harnachement, quincaillerie, objets divers. - In: M. Reddé, S. von Schnurbein, *Alésia,* Mémoires de l'Académie des inscriptions et belles-lettres 22, 293-333.

BUORA, M. 1999, Osservazioni sulle fibule dei tipi Alesia e Jezerine. Un esempio di contatti commerciali e culturali tra l'età di Cesare e quella di Augusto nell'arco alpino orientale. - *Aquileia Nostra* 70, 105-144.

BURNETT, A. M., P. T. CRADDOCK and K. PRESTON 1982, New light on the origins of orichalcum. - In: *Proceedings of the 9th International Congress of Numismatics* 1, 263-268, Louvain-la-Neuve, Luxembourg.

CALLEGHER, B. 1992, Fibule dal territorio opitergino. - *Quaderni Friulani di Archeologia* 2, 29-52.

CRADDOCK, P. T. 1978a, The Composition of the Copper Alloys used by the Greek, Etruscan and Roman Civilizations 3. The Origins and Early Use of brass. - *Journal of Archaeological Science* 5, 1-16.

CRADDOCK, P. T. 1978b, Deliberate Alloying in the Atlantic Bronze Age. - In: M. Ryan (ed.), *The Origins of Metallurgy in Atlantic Europe,* Proceedings of the fifth Atlantic Colloquium, 369-385, Dublin.

CRADDOCK, P. T. 1995, *Early metal Mining and Production*. - Edinburgh.

CRADDOCK, P. T. and A. GIUMLIA-MAIR 1988, Problems and Possibilities for Provenancing Bronzes by Chemical Composition. - In: *Bronzeworking centres of Western Asia c. 1000-539 BC*, 317-326, London, New York.

CRADDOCK, P. and J. LAMBERT 1985, The Composition of the Trappings. - In: I. Jenkins, *A Group of Silvered-Bronze Horse-Trappings from Xanten (Castra Vetera),* Britannia 16, 141-164.

DEMETZ, S. 1999, *Fibeln der spätlatène- und frühen römischen Kaiserzeit in den Alpenländern*. - Frühgeschichtliche und Provinzialrömische Archäologie. Materialien und Forschungen 4, Rahden/Westf.

ERICE LACABE, R. 1995, *Las fíbulas del Nordeste de la Península Ibérica: Siglos I A.E. al IV D.E.* - Zaragoza.

ETTLINGER, E. 1973, *Die römischen Fibeln in der Schweiz*. - Handbuch der Schweiz zur Römer- und Merowingerzeit, Bern.

FEUGÈRE, M. 1985, *Les fibules en Gaule Méridionale de la conquête à la fin du V^e^ s. ap. J.-C.* - Revue Arhéologique de Narbonnaise. Supplément 12.

FINGERLIN, G. 1986, *Dangstetten* 1. - Forschungen und Berichte zur Vor- und Frühgeschichte in Baden-Württemberg 22.

FINGERLIN, G. 1998, *Dangstetten* 2. - Forschungen und Berichte zur Vor- und Frühgeschichte in Baden-Württemberg 69.

GECHTER, M. 1979, Die Anfänge des Niedergermanischen Limes. - *Bonner Jahrbücher* 179, 1-129.

GIUMLIA-MAIR, A. 1996, Roman Copper-based Finds from a Slovenian Settlement. - *Bulletin of the Metals Museum* 25, 48-63.

GIUMLIA-MAIR, A. 1998, Studi metallurgici sui bronzi della necropoli di S. Lucia - Most na Soči. - *Aquileia Nostra* 69, 29-136.

GLEIERSCHER, P., H. NOTHDURFTER and E. SCHUBERT 2002, *Das Rungger Egg*. - Römisch-Germanische Forschungen 61.

GRASSELT, T., W. GALL and G. STOI 1993, Die Ausgrabungen am Klein Gleichberg in den Jahren 1989-1990. - *Alt-Thüringen* 27, 125-152.

GUŠTIN, M. 1986, Fibule tardorepubblicane del Caput Adriae. - *Aquileia Nostra* 36, 677-684.

GUŠTIN, M. 1991a, *Posočje in der jüngeren Eisenzeit*. - Katalogi in monografije 27.

GUŠTIN, M. 1991b, Les fibules du type d'Alésia et leurs variants. - In: A. Duval (ed.), *Les Alpes à l'âge du Fer*. Actes du X^e^ colloque sur l'âge du Fer à Yenna-Chambéry, Revue archéologique de Narbonnaise Supplément 22, 427-434.

GUŠTIN, M. 1992, Scharnierbogenfibeln aus dem Caput Adriae. - In: A. Lippert, K. Spindler (eds.), *Festschrift zum 50jährigen Bestehen des Institutes für Ur- und Frühgeschichte der Leopold-Franzens-Universität Innsbruck,* Universitätsforschungen zur prähistorischen Archäologie 8, 201-205.

HORVAT, J. 1999, Roman provincial archaeology in Slovenia following the year 1965: settlement and small finds. - *Arheološki vestnik* 50, 215-257.

ISTENIČ, J. 2000a, A Roman late-republican gladius from the River Ljubljanica (Slovenia). - *Arheološki vestnik* 51, 171-182.

ISTENIČ, J. 2000b, A late-republican gladius from the River Ljubljanica (Slovenia). - *Journal of Roman Military Equipment Studies* 11, 1-9.

ISTENIČ, J. 2005, Evidence for a very late Republican siege at Grad near Reka in Western Slovenia. - *Carnuntum Jahrbuch* 2005, 77-87.

ISTENIČ, J., Z. MILIĆ and Ž. ŠMIT 2003, Appendix: Spectrometric analyses of the transverse fitment of a gladius and the military belt fitment. - In: J. Istenič, The early Roman "Hoard of Vrhnika": a collection of finds from the River Ljubljanica, *Arheološki vestnik* 54, 271-298.

JABLONKA, P. 2001, *Die Gurina bei Dellach im Gailtal*. - Aus Forschung und Kunst 33.

JACKSON, R. P. J. and P. T. CRADDOCK 1995, The Ribchester Hoard: A Descriptive and Technical Study. - In: B. Raftery (ed.), *Sites and Sights of the Iron Age,* 75-102, Oxford.

JERIN, B. 2001, *Čolničaste fibule v Sloveniji.* - Ljubljana (neobjavljeno diplomsko delo).

KENNER, H. 1961, Die Kleinfunde römischer Art. - In: Die Ausgrabungen auf dem Magdalensberg 1958-1959, *Carinthia* I, 151, 74-212.

KNEZ, T. 1992, *Novo mesto* 2. *Keltsko-rimsko grobišče Beletov vrt*. - Carniola Archaeologica 2.

KÜHLBORN, J.-H. 1992, *Das Römerlager in Oberaden* 3. - Bodenaltertümer Westfalens 27. (Oberaden III)

LUIK, M. 1997, Fibeln vom Typ Alesia aus den römischen Lagern um Numantia. - *Archäologisches Korrespondenzblatt* 27, 463-479.

MACCHIORO MALNATI, S. 1994-1999, La necropoli romana della Menabrea. Scavi a Gropello Cairoli (Pavia), 1978-1979 e 1981. - *Sibrium* 23, 137-237.

METZLER, J. 1995, *Titelberg*. - Dossiers d'archaéologie du Musée National d'histoire et d'art 3, Luxembourg.

MÜLLER, M. 2002, *Die römischen Buntmetallfunde von Haltern*. - Bodenaltümer Westfalens 37.

NIETO, S. 2004, Monnaies arvernes (Vercingétorix, Cas) en orichalque. - *Revue Numismatique* 160, 5-25.

OCHARAN LARRONDO, J. A and M. UNZUETA PORTILLA 2002, Andagoste (Cuartango, Álava): un nuevo escenario de las guerras de conquista en el norte de Hispania. - In: *Arqueología military Romana en Hispania,* Gladius. Anejos 5, 311-325.

OSMUK, N. 1997, Kobarid od prazgodovine do antike. - In: *Kobarid,* 9-16, Kobarid.

OSMUK, N. 1998, Le sanctuaire protohistorique de Kobarid (Slovénie). - *Instrumentum* 7, 13.

OVERBECK, B. 1982, *Geschichte des Alpenrheintales in römischer Zeit auf Grund der archäologischen Zeugnisse* 1. *Topographie, Fundforlage und historische Auswertung.* - Münchner Beiträge zur Vor- und Frühgeschichte 20.

PATEK, E. 1942, *Verbreitung und Herkunft der römischen Fi-*

beltypen in Pannonien. - Dissertationes Pannonicae 2/19, Budapest.

RAGETH, J. 2004, Frührömische Militaria aus dem Oberhalbstein GR - Belege für den Alpenfeldzug? - *Jahrbuch der Schweizerischen Gesellschaft für Ur- und Frühgeschichte* 87, 297-303.

RAGETH, J. 2005, Weitere frührömische Militaria und andere Funde aus dem Oberhalbstein GR - Belege für den Alpenfeldzug. - *Jahrbuch der Schweizerischen Gesellschaft für Ur- und Frühgeschichte* 88, 302-312.

RIECKHOFF, S. 1975, Münzen und Fibeln aus dem Vicus des Kastells Hüffingen (Schwarzwald-Baar-Kreis). - *Saalburg Jahrbuch* 32, 5-104.

RIEDERER, J. 2001, Die Berliner Datenbank von Metallanalysen kulturgeschichtlicher Objekte. III Römische Objekte. - *Berliner Beiträge zur Archäometrie* 18, 139-259.

RIEDERER, J. 2002a, Die Metallanalyse der Funde aus Kupferlegierungen von Haltern. - In: Müller 2002, 109-145.

RIEDERER, J. 2002b, The use of standardised copper alloys in Roman metal technology. - In: A. Giumlia-Mair (ed.), *I bronzi antichi. Produzione e technologia,* Atti del XV Congresso Internazionale sui Bronzi Antichi, organizzato dall'Università di Udine, sede di Gorizia, Grado-Aquileia, 22-26 maggio 2001, Monographies instrumentum 21, 284-291.

ROTH-RUBI, K. 2002, Why Dangstetten? - In: P. Freeman et al. (eds.), *Poceedings of the XVIIIth International Congress of Roman Frontier Studies held in Amman, Jordan, September 2000,* BAR International Series 1084, 509-514.

ROTH-RUBI, K., V. SCHALTENBRAND OBRECHT, M. P. SCHINDLER and B. ZÄCH 2004, Neues zu den "Wallenseetürmen". - *Jahrbuch der Schweizerischen Gesellschaft für Ur- und Frühgeschichte* 87, 33-70.

ŠMIT, Ž., J. ISTENIČ, V. GRDUN, Z. MILIĆ and A. MLADENOVIČ 2005, Arheometrične analize fibul skupine Alesia s slovenskih najdišč. - *Arheološki vestnik* 56, 213-234.

SVOLJŠAK, D. 1983, Kovačevše - naselje idrijske skupine v Vipavski dolini. - *Goriški letnik* 10, 5-28.

SVOLJŠAK, D., P. BITENC, J. ISTENIČ, T. KNIFIC, T. NABERGOJ, V. STARE and N. TRAMPUŽ OREL 1994-1995, Novo gradivo v Arheološkem oddelku Narodnega muzeja v Ljubljani (pridobljeno v letih od 1987 do 1993). - *Varstvo spomenikov* 36, 224-296.

TRAMPUŽ OREL, N. 1999, Archaeometallurgic investigations in Slovenia. A history of research on non-ferrous metals. - *Arheološki vestnik* 50, 407-429.

TRAMPUŽ OREL, N. and B. OREL 2004, Inductively coupled plasma-atomic emission spectroscopy analysis of metals in the Late Bronze Age hoard-finds from Ukraine. - *Praehistorische Zeitschrift* 79/1, 36-44.

VIČIČ, B. 1994, Zgodnjerimsko naselje pod Grajskim gričem v Ljubljani. Gornji trg 30, Stari trg 17 in 32 [Die frührömische Siedlung unterhalb des Schloßberges in Ljubljana. Gornji trg 30, Stari trg 17 in 32]. - *Arheološki vestnik* 45, 25-80.

VITRI, S. 1990, Due corredi funerari. - In: *Restauri e Ritrovamenti '87-'90,* Beni culturali 1, 19-31, Udine.

VOSS, H.-U., P. HAMMER and J. LUTZ 1998, Römische und germanische Bunt- und Edelmetallfunde im Vergleich. - *Bericht der Römisch-Germanischen Kommission* 79, 107-381.

ŠAŠEL KOS, M. 2000, Caesar, Illyricum, and the hinterland of Aquileia. - In: G. Urso (ed.), *L'ultimo Cesare.* Atti del convegno internazionale, Cividale del Friuli, 16-18 settembre 1999, 277-304, Roma.

ZANIER, W. 1999, Der Alpenfeldzug 15 v. Chr. und die Eroberung Vindelikiens. - *Bayerische Vorgeschichtsblätter* 64, 99-132.

ŽBONA-TRKMAN, B. 1985, Loke. - *Arheološki pregled* 26, 103-104.

Fibule skupine Alesia v Sloveniji

1. UVOD

Fibule pozne latenske oziroma zgodnjerimske dobe so najpogosteje izdelane iz bakrovih zlitin,[1] ki jih v objavah običajno imenujejo "bron" (npr. Demetz 1999). Brez analiz, ki pa so izredno redke,[2] so take opredelitve neutemeljene in pogosto tudi napačne.

Pravilna opredelitev zlitine, iz katere je predmet izdelan, ni postranskega pomena. To še posebej velja za obdobje pozne latenske oziroma zgodnjerimske dobe, v katerem so se verjetno tudi pri uporabi zlitin mešale stare prakse, ki izhajajo iz prazgodovine, z novimi, rimskimi (cf. Bayley 1990). Med novostmi, ki so jih k nam, tako kot tudi v druge dele Evrope, prinesli Rimljani, je uporaba medenine (*ibid*., 13). Začetki njene uporabe pri Rimljanih v Evropi sodijo najkasneje v začetek druge polovice 1. st. pr. n. št. (Craddock 1978a, 9; Burnett, Craddock, Preston 1982, 264; Istenič 2000a, 178; Istenič 2000b, 3-4).

Z analiziranjem zlitin fibul skupine Alesia smo želeli preveriti, ali so Rimljani v Cezarjevi dobi in obdobju državljanskih vojn po njegovi smrti za izdelavo fibul že uporabljali medenino. Pozitiven rezultat bi namreč pomenil, da je skupina uporabljene bakrove zlitine v obdobju prehoda poznolatenske v rimsko dobo lahko pomemben element za opredelitev kulturnega kroga, iz katerega posamezni tipi fibul izhajajo.

V obravnavo smo zajeli osemnajst fibul skupine Alesia iz Slovenije: trinajst fibul (z raznih najdišč) hrani ali pa je registriral v privatnih zbirkah Narodni muzej Slovenije, tri hrani Goriški muzej (najdišče Lokavec-Kovačevše), po eno pa Zavod za varstvo kulturne dediščine, Območna enota Nova Gorica (najdišče Kobarid-Gradič) in Dolenjski muzej (najdišče Novo mesto-Beletov vrt). Tako so bile v raziskavo pritegnjene vse dosegljive fibule skupine Alesia iz slovenskih muzejev, ki še niso bile analizirane.[3]

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[1] Razmeroma pogoste so tudi železne fibule (npr. Demetz 1999, t. 6; 9: 1; 14: 3,4; 15: 2; 17: 8; 22: 7; 28: 6,7; 32: 3; 40: 7 - cf. *ibid*., 160), redke pa so srebrne (npr. *ibid*., t. 4: 1; 5: 2; 7: 3,7; 16: 1; 17: 1?; 21: 8; Božič 1993, 141-143).

[2] Ob pisanju članka so sta mi bili poznani le XRF analizi (rentgenska fluorescenčna spektrometrija) dveh fibul skupine Alesia, "ki je poleg bakra in kositra pokazala tudi dokajšnjo prisotnost srebra" (Vičič 1994, 27, t. 1: 8,9; rezultati meritev so žal podani le opisno, brez navedbe izmerjenih vrednosti), in analize dveh bronastih fibul tipa Almgren 65 (Grasselt, Gall, Stoi 1993, 135-136, 139, op. 2, sl. 10: 5,7). Dragan Božič me je po branju članka seznanil še z objavo analiz 113 fibul (dve sodita k skupini Alesia) iz Halterna (Riederer 2002a, 109-121).

[3] Dve fibuli iz Bodreža ter eno z Idrije pri Bači hrani Naravoslovni muzej na Dunaju (Guštin 1991a, 11-12, 16, t. 17: 10; 39:

2. IZHODIŠČE

V mlajših obdobjih prazgodovine (železni dobi) so za izdelavo fibul najpogosteje uporabljali bron, tj. zlitino bakra in kositra, ter svinčev bron, tj. zlitino bakra, kositra in svinca (Giumlia-Mair 1998; Jerin 2001).

Uporabo medenine, tj. zlitine bakra in cinka, so v Evropo uvedli Rimljani. Z medenino so se najverjetneje seznanili v Mali Aziji, kjer se je namerna in obsežna izdelava medenine s cementacijskim postopkom začela na začetku 1. st. pr. n. št. Najstarejše poznane medeninaste novce, datirane med pribl. 75-65 pr. n. št., je dal kovati kralj Ponta Mitridat VI. Okoli 50 pr. n. št. so bili medeninasti novci v rimskih provincah *Asia*, *Bithynia et Pontus* ter *Cilicia* že močno razširjeni (Burnett, Craddock, Preston 1982).

Cesar Avgust je okoli leta 23 pr. n. št. s splošno denarno reformo uvedel medeninaste novce (dupondije in sesterce). Vendar pa so Rimljani tudi na zahodu medenino uporabljali že prej. To kaže že od začetka minulega stoletja poznana emisija medeninastih novcev, ki jo je 46 ali 45 pr. n. št., v Cisalpinski Galiji, izdal Cezarjev prefekt *Clovius* (Bahrfeldt 1909, 79-80; Burnett, Craddock, Preston 1982, 263-268). Raziskave zadnjih let kažejo, da so najkasneje na začetku druge polovice 1. stoletja pr. n. št. medenino uporabljali tudi pri izdelavi rimske vojaške opreme (Istenič 2000a; Istenič 2000b). Ali so v tem času iz medenine izdelovali tudi že fibule?

Fibule skupine Alesia, najstarejše fibule s tečajem, sodijo med vodilne predmete rimske materialne kulture poznorepublikanske dobe. Nosili so jih na primer Cezarjevi vojaki v Alesii (Brouquier-Reddé, Deyber 2001, 295, 298, t. 91: 48), rimski vojaki obdobja državljanskih vojn po Cezarjevi smrti (Ocharan Larrondo, Unzueta Portilla 2002, sl. 2: 10; morda tudi Istenič 2005) ter zelo redko še na začetku srednjeavgustejske dobe (prim. pogl. 4). Zlitine, iz katerih so te fibule izdelane, doslej (po naši vednosti) še niso bile predmet raziskav.[4]

Analize rimskih tipov fibul avgustejske dobe in 1. st. n. št. kažejo, da so bile najpogosteje medeninaste (Bayley 1990, 14-20; Riederer 2001, 225-235; Riederer 2002a, 109-120; Riederer 2002b, 286-290). Fibule skupine Aucissa, za katere velja, da izhajajo iz fibul skupine Alesia in sodijo v avgustejski čas ter prvo polovico 1. stoletja n.št. (Demetz 1999, 164), so glede na razmeroma številne objavljene analizirane primerke praviloma medeninaste (Bayley 1990, 15, 20, sl. 3; t. 1; Bayley, Butcher 1995, 114, sl. 2; Riederer 2001, 225-226, 228, 231; Riederer 2002a, 114-116; Riederer 2002b, 286, 288; Bayley, Butcher 2004, 66-69).

Navedene ugotovitve so nas navedle na sklep, da bi raziskava materiala fibul skupine Alesia lahko pomembno osvetlila vprašanje uveljavljenosti medenine pri Rimljanih v predavgustejski dobi. Morebitna ugotovitev, da so za fibule te skupine že uporabljali medenino bi bila dragocena tudi za proučevanje izvora drugih tipov fibul poznolatenske oz. zgodnjerimske (poznorepublikanske) dobe. Ne pričakujemo namreč, da so nerimska ljudstva na obravnavanem območju v predrimski dobi obvladala pridobivanje te zlitine. Morda pa so pretapljala uvožene rimske medeninaste predmete ali jih stapljala z bronom, kar pa bi se nujno odražalo v vsebnosti cinka v zlitini.

3. UPORABLJENE TEHNIKE ARHEOMETRIČNIH RAZISKAV

Za določitev materialov, iz katerih so fibule izdelane, in opredelitev morebitnih nanosov na površini (npr. pokositrenje), smo uporabili rentgensko fluorescenčno spektrometrijo in protonsko vzbujeno rentgensko spektrometrijo. Dve fibuli smo opazovali in analizirali tudi s pomočjo vrstičnega elektronskega mikroskopa.

Tehniko rentgenske fluorescenčne spektrometrije (EDS XRF) smo uporabili za grobo določitev zlitine oziroma predvsem za ugotavljanje prisotnosti/odsotnosti cinka. Merjene so bile površine fibul, ki jih sestavljajo korozijski produkti osnovnega materiala, tj. zlitine, iz katere je bil predmet izdelan. Rezultati teh meritev zato dovoljujejo le približno predstavo o osnovnem materialu (glej Šmit et al. 2005).

Meritve s tehniko protonsko vzbujene rentgenske spektrometrije (PIXE) so omogočile določanje sestave majhnih delov površine (površina krogca premera 2 mm). Zato smo pri vsaki fibuli na enem ali dveh mestih velikosti pribl. 3 mm^2 odstranili površinsko korozijo. Tako smo lahko merili osnovni material ob razmeroma omejenem posegu v predmet. Posege na površini je bilo po opravljenih analizah mogoče zelo dobro zakriti. Podrobni rezultati meritev so zajeti v Šmit et al. 2005.

Vrstični elektronski mikroskop (SEM) omogoča preiskovanje površine vzorcev, v povezavi z energijsko disperzijsko spektroskopijo rentgenskih žarkov (SEM/EDX) pa tudi semikvantitativno analiziranje izredno majhnih površin (zadostuje desetinka mm^2). Obe metodi smo uporabili pri fibuli št. 7, da bi ugotovili, ali je visoka vsebnost kositra na površini posledica pokositrenja ali drugih dejavnikov. Za primerjavo smo pod vrstičnim elektronskim mikroskopom pregledali tudi nedvomno pokositreno fibulo št. 11 (cf. *ibid.*). Pokositrenja na čisti medeni namreč ni težko ugotoviti, saj je kositra v medenini izredno malo.

4. FIBULE SKUPINE ALESIA: OPIS, OPREDELITEV

Klasična definicija fibul tipa Alesia opredeljuje njihove sledeče značilnosti: navznoter zavit (tulast) tečaj (*Hülsenscharnier*), pločevinast lok trikotne oblike (lahko z rahlo izbočenima stranicama), ki je širok pri glavi in se proti nogi močno zoži, ter visoka pravokotna ali trapezasta noga s preluknjanim dvignjenim zaključkom, na katerega sta z železnim zatičem pritrjena dva stranska gumba (Feugère 1985, 299; Luik 1997, 463). Mitja Guštin (1986; 1991a; 1991b; 1992) je opozoril na različice, pri katerih lok ni pločevinast in trikotne oblike temveč je na različne načine razčlenjen. Romana Erice Lacabe je opozorila, da so tečaji lahko trakasti (z zavojem navznoter ali redko navzven) ali cevasti (torej uliti - opomba J. Istenič).[5] Namesto dveh stranskih gumbov je na zaključku noge lahko pravokotno (in ne lateralno) postavljen gumb (Erice Lacabe 1995, 91-92, sl. 8).

Velika raznolikost fibul z omenjenimi lastnostmi, npr. zelo različne oblike loka in noge, so navedle Stefana Demetza (1999, 156-157), da je zanje predlagal poimenovanje "skupina" Alesia, znotraj katere razlikuje posamezne tipe. V članku sem prevzela Demetzovo poimenovanje "skupina" Alesia in njegovo opredelitev posameznih različic znotraj te skupine (*ibid.*, 157-162).

Fibule skupine Alesia so najstarejše fibule na tečaj. Veljajo za izrazito rimske in so široko razširjene s težiščema v severni Italiji in Franciji (Feugère 1985, 301, sl. 38, 307-311; dopolnitve: Demetz 1999, 163, op. 1019 in Luik 1997, sl. 5; 6; 474-476). Nekateri pred kratkim objavljeni najdiščni konteksti teh fibul (npr. Brouquier-Reddé, Deyber 2001, 295, 298, t. 91: 48; Istenič 2005; Ocharan Larrondo, Unzueta Portilla 2002, sl. 2: 10) potrjujejo domnevo o njihovi ozki povezavi z rimsko vojsko (Guštin 1986, 684; 1991b, 434; 1992, 202-203; Luik 1997, 467, op. 29).

14; 40: 3), fibula z najdšča Loke-Kolenovca pri Novi Gorici (*ibid.*, 43, op. 87) je bila v času raziskav nedosegljiva, fibuli iz Ljubljane (Vičič 1994, 27-29, 37, t. 1: 8,9) pa sta že bili analizirani.

[4] Prim. op. 2!

[5] Feugère (1985, 302, sl. 38; 40) je cevasti tečaj omenil kot značilnost različice 21a4.

Fibula iz zanesljivo datiranega konteksta v Alesii ne dopušča dvoma o tem, da so jih rimski vojaki nosili že v času Cezarjevih galskih vojn (Brouquier-Reddé, Deyber, 2001, 295, 298, t. 91: 48). V Andagoste (severna Španija) je bila fibula skupine Alesia najdena v vojaškem kontekstu 4. desetletja pr. n. št. (Ocharan Larrondo, Unzueta Portilla 2002, sl. 2: 10). Zdi se, da so jih vojaki nosili še v zgodnjeavgustejski dobi. V Dangstettnu, srednjeavgustejskem ali morda malo starejšem[6] legijskem taboru ob zgornjem Renu, razmerje med številom fibul skupine Alesia in Aucissa namreč znaša 11:101.[7] Kaže torej, da so se v zgodnjeavgustejski dobi ali najkasneje na začetku srednjeavgustejske dobe močno uveljavile fibule skupine Aucissa, tipološko starejše fibule skupine Alesia (njihove mlajše različice), ki jih v tem času verjetno niso več izdelovali, pa so nosili le še redki posamezniki. Nekatere fibule vrste Aucissa iz Dangstettna pa kažejo ozko tipološko povezavo s fibulami skupine Alesia. Fibulo Fingerlin 1998, 1038: 1 npr. zaradi značilne noge uvrščamo v skupino Aucissa, njen lok pa še povsem ustreza fibulam skupine Alesia (cf. Feugère 1985, t. 111-112: 1441-1448).[8] Med razmeroma redkimi najdbami fibul iz Oberadna, tabora za dve legiji ob reki Lippe, ki je datiran med 11/10 in 8/7 pr. n. št. (Kühlborn 1992, 123, 133), je po objavah le trinajst fibul, od katerih jih tipu Aucissa pripada deset, skupini Alesia pa nobena.[9] V mlajših rimskih vojaških taborih fibule skupine Alesia niso zastopane[10] ali pa zgolj izjemoma. Iz Halterna sta npr. poznani dve fibuli skupine Alesia in 290 fibul skupine Aucissa (Müller 2002, 18-29).

Demetz (1999, 164) meni, da so fibule skupine Alesia s členjenim lokom (tj. njegova skupina II) mlajše od "klasičnih" fibul skupine Alesia s trikotnim lokom (skupina Alesia I po Demetzu). V eponimnem najdišču *Alesia*, kjer pa ne smemo vseh fibul povezovati s Cezarjevim obleganjem leta 52 pr. n. št., ima glavnina fibul skupine Alesia res trikoten lok. Vendar ima edina v leto 52 pr. n. št. zanesljivo datirana fibula skupine Alesia razčlenjen lok (Brouquier-Reddé, Deyber 2001, 295, 298, t. 91: 48) in torej sodi v skupino Alesia II. Poleg tega so med fibulami iz Dangstettna zastopani primerki skupin Alesia I in II. Fibule skupine Alesia z razčlenjenim lokom (Alesia II) so torej tipološko morda res mlajše kot fibule skupine Alesia s trikotnim lokom, vendar so bile v rabi že ob koncu Cezarjevih galskih vojn. Fibule skupine Alesia s trikotnim lokom (Alesia I), ki so verjetno tipološko starejše, pa so bile v rabi še v (sredini) četrtega desetletja pr. n. št. (Ocharan Larrondo, Unzueta Portilla 2002, sl. 2: 10) in, kot različica s predrtim trikotnim lokom, še ob koncu zgodnjeavgustejske oz. začetku srednjeavgustejske dobe (cf. Fingerlin 1986, 257: 1; 404: 4).

Za datacijo fibul skupine Alesia je pomembna njihova prisotnost na najdišču Grad pri Reki. Domnevamo namreč, da je bilo tu oporišče predrimskih prebivalcev (verjetno Karnov), ki ga je, morda na začetku Oktavijanovih ilirskih vojn (35-33 pr. n. št.) ali najkasneje v zgodnjeavgustejskem času, oblegala rimska vojska (Istenič 2005).[11] Na Gradu so bile najdene tri fibule skupine Alesia, ena s trikotnim (skupina Alesia I - št. 1) in dve z razčlenjenim lokom (skupina Alesia II - št. 8, 11). Ostale fibule skupine Alesia s slovenskih najdišč so bile žal najdene v široko datiranih (npr. št. 3, 9, 14-17) ali nepoznanih kontekstih (št. 2, 4-7, 10, 12-13, 18).

5. FIBULE SKUPINE ALESIA Z OZEMLJA SLOVENIJE

5.1 Fibule skupina Alesia s trikotnim lokom (Demetz Alesia I)

Demetz Alesia Ia3

Fibule s trikotnim lokom, ki je v tehniki punciranja okrašena z mrežasto postavljenimi trikotniki ("Waffelmuster"), je Demetz združil v različico Ia3 (Demetz 1999, 157-158, 274, seznam 29: 1.1.3, t. 40: 3, karta 53).

Iz Slovenije sta poznani dve fibuli te različice: z Gradu pri Reki (št. 1) in s Starega gradu nad Uncem (št. 2). Obe sta izdelani s kovanjem, okras pa je punciran. Tečaj je narejen z zavojem okoli železne osi navzdol in navznoter. Obe fibuli sta medeninasti.

Poznanih je še 15 ali 16 primerkov te različice fibul, za katero je značilna enotnost oblike in okrasa. Njihova najdišča se koncentrirajo v Aquilei in njeni okolici (sedem ali osem primerkov: Demetz 1999, 274, seznam 29: 1.1.3, karta 53; Buora 1999, 110, t. 2: 4,7,8; 3: 1-4), po dve fibuli sta bili najdeni na Gurini (Jablonka 2001, 119, t. 83: 5,11) in na Štalenski gori,

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[6] Točna datacija tega tabora ni znana. Proti splošno sprejeti dataciji med 15 in 9/7 pr. n. št. je pred kratkim Roth-Rubi (2002) podala tehtne argumente, ki izhajajo iz proučevanja fine namizne keramike. Po njenem mnenju je tabor v Dangstettnu zgodnjeavgustejski in je bil ustanovljen okoli 20 pr. n. št.

[7] Fibule skupine Alesia: Fingerlin 1986, 29: 3 (železna, lokalni izdelek?); 257: 1; 297: 2; 360: 3; 404: 4; 450: 4; Fingerlin 1998, 819: 1; 834: 1; 1038: 1; 1143: 2; 1295: 2; 1309: 1. Prim. Metzler 1995, 231, sl. 119: 1-6,11. Fibule tipa Aucissa: Fingerlin 1986, 10: 1; 42: 2; 85: 1; 115: 1; 129: 1; 164: 3; 176: 4; 181: 2; 187: 1; 211: 3; 222: 1; 268: 3,4; 279A: 2; 285: 3; 289: 1; 291: 1; 344: 1; 363: 9; 373: 2; 399: 1; 401: 3; 404: 3; 449: 9,13; 455-457: 1,2; 463: 2; 483: 2; 484: 3; 519: 3,4; 544: 12?; 545: 6; 548: 1; 594: 1; 595: 2; 597: 1; Fingerlin 1998, 657: 1,2; 660: 1; 685: 2; 697: 1; 698: 1; 699: 1,2; 700: 1; 748: 5; 753: 1; 754: 1; 788: 2,3; 793: 1; 819: 2; 833: 1; 834: 1; 841: 1,2; 843: 1; 844 A: 1; 876: 2; 880: 1; 895: 2,3; 902: 1; 910: 2; 920: 1; 925: 3; 957: 2; 966: 1; 978: 1; 981: 1; 1011: 1; 1013: 1; 1048: 1,2; 1054: 1; 1060: 1?; 1093: 1; 1101: 1; 1107: 1; 1124: 1; 1142: 1; 1155: 1; 1181: 1; 1220: 4,9; 1221: 2; 1223: 2; 1234: 1; 1246: 2; 1291: 2; 1292: 1; 1295: 1; 1298: 1; 1307: 1; 1310: 5; 1350: 6; 1351: 1; 1357: 1-3.

[8] Na prehodne oblike med fibulami skupine Alesia in Aucissa iz Dangstettna je opozoril že Metzler (1995, 232, sl. 119: 7).

[9] Albrecht 1942, t. 44: 1-3 (tri fibule, od tega dve tipa Aucissa); Kühlborn 1992, t. 33: 45-53 (deset fibul, od tega osem tipa Aucissa).

[10] Gechter 1979, 78, tab. 10.

[11] Po oddaji članka Istenič 2005 je izšel članek Rageth 2005, v katerem so objavljene rimske vojaške najdbe iz tesni Crap-Ses v območju Oberhalbstein (Švica, kanton Graubünden), ki jih je našel nepooblaščeni iskalec s pomočjo detektorja kovin. Vključujejo piramidalno konico s trnastim nastavkom (za slabše ohranjene konice iste vrste prim. tudi Rageth 2004, 299, sl. 4) in železne žebljičke, ki predstavljajo dobre analogije primerkom z Gradu (Rageth 2005, 304, sl. 2: 6,16; 3: 2-14). Med najdbami so tudi svinčeni želodi s pečati 3., 12. in 10. legije (*ibid*., 302-303, sl. 2: 9-13; 4-6) in fibula skupine Alesia IIc (glej dalje, str. 208). Rageth (2005, 306) meni, da so te najdbe odraz spopadov Rimljanov z domačini ob vojaškem pohodu čaz Alpe 16/15 pr. n. št. Tudi najdbe z rimskih stolpov ob Walensee (Švica, kantona St. Gallen in Glarus), med katerimi so asimetrične pilumi, ki smo jih navajali kot približne analogije primerkoma z Gradu v zadnji objavi povezujejo z rimskim vojaškim pohodom čez Alpe 15 pr. n. št. oziroma z njim povezanimi pripravami (Roth-Rubi et al. 2004, t. 4: F 64,65; 7: B 38). Datacija zgodnjerimskih vojaških najdb z Gradu v začetek Oktavijanovih ilirskih vojn se zdi torej sedaj manj zanesljiva, ni pa ovržena.

po ena pa v Padski nižini (Solferino-Staffolo severozahodno od Mantove), Karlsteinu, Ribiću in Sisku (Demetz 1999, 274, seznam 29: 1.1.3, karta 53). Verjetno so jih izdelovali v ozkem delavniškem krogu ali celo eni delavnici na območju njihove najgostejše razširjenosti, morda v Aquilei (Demetz 1999, 158; Buora 1999, 109-110).

Ker gre za oblikovno homogeno skupino, domnevamo, da jih niso dolgo izdelovali. Fibula z Gradu pri Reki morda nakazuje njihovo uporabo v sredini 4. desetletja pr. n. št. (Istenič 2005).

Opis (*t. 1:* 1,2; *sl. 1*)

1. Lok in tečaj fibule (noga in igla nista ohranjeni). Medenina, os železna. Sedanja, zelo tenka temnorjava korozijska plast je verjetno sulfidna in ni nastala na prvotni površini temveč potem, ko je bila prvotna korozijska plast odstranjena (nestrokoven poseg najditelja). Fibula je kovana, okras trikotnikov punciran. Tečaj, ki na levi strani rahlo presega širino loka, je narejen z zavojem pločevine loka navznoter, ob straneh pa je stisnjen, verjetno zaradi pritrditve osi v tečaj; v podrobnostih je nesimetričen. Dolžina 46 mm, širina 19 mm.

Grad pri Reki; nestrokovno, s pomočjo iskalca kovin izkopana najdba; Narodni muzej Slovenije, inv. št. R 17393. Objave: Svoljšak et al. 1994-1995, 252-253, t. 4: 25; Božič 1999, 72, sl. 2: 10; Buora 1999, 110, t. 2: 6; Istenič 2005, 81, sl. 5: 15. Analize: EDS XRF, PIXE.

2. Fibula, manjkajo del noge, del tečaja in igla. Medenina. Prvotna površina je dobro ohranjena v tenki temnosivozeleni plasti korozije; na izpostavljenih mestih, kjer je odrgnjena, je vidna svetlo zelena uprašena korozijska plast. Fibula je kovana. Tečaj je narejen z zavojem pločevine loka navznoter; od železne osi je ohranjen le majhen del. Okras podolgovatih trikotnikov, v katerih je različno dobro ohranjen mrežast okras, je bil izdelan s punciranjem. Ohr. dolžina 76 mm, največja širina 17 mm.

Stari grad nad Uncem. Nestrokovno, s pomočjo iskalca kovin izkopana najdba. Narodni muzej Slovenije, inv. št. P 19282. Neobjavljeno. Analize: EDS XRF, PIXE.

Demetz Alesia I, razno

Odlomek fibule z najdišča Lokavec-Kovačevše sodi med posamezne primerke skupine Alesia I. Podoben okras ima fibula z Gurine (Demetz 1999, 159-160; Jablonka 2001, 119, t. 83: 6). Demetz (*loc. cit.*) se ni opredelil, ali so te fibule lokalni izdelki. Analiza fibule z najdišča Lokavec-Kovačevše je pokazala, da ni izdelana iz medenine, temveč iz zlitine bakra, kositra in cinka, kar nakazuje lokalno izdelavo.

Opis (*t. 1:* 3; *sl. 1*)

3. Sprednji del loka in tečaj ter del igle fibule; lok je rahlo zvit. Zlitina bakra, kositra in cinka, os železna. Prvotna površina je delno ohranjena v sivozeleni plasti korozijskih produktov. Fibula je kovana, okras punciran. Tečaj je bil narejen z zavojem pločevine loka navznoter. Na obeh stranicah tečaj zaključujeta gumba, ki sta ob straneh odprta, tako da je vidna železna os. Izrez za pritrditev igle na os ne leži v sredini tečaja, temveč je rahlo pomaknjen proti levi.[12] Ohranjena dolžina 28 mm, širina 29 mm.

Lokavec-Kovačevše. Nestrokovno pridobljeno. Goriški muzej, inv. št. 7. Objave: Svoljšak 1983, 5, 18, št. 1, t. 1: 17; Guštin 1991a, 22-23, 43, t. 41: 16; Buora 1999, 109-110, t. 1: 5; Demetz 1999, 159. Analize: EDS XRF, PIXE.

Demetz Alesia Ic

Fibule z gladkim, neokrašenim trikotnim lokom, ki imajo lahko različno oblikovane noge in tečaje, je Demetz opredelil kot različico Ic. Ta ne tvori oblikovno enotne skupine (Demetz 1999, 158).

Vse štiri tu obravnavane fibule (št. 4-7) so oblikovno precej enotne. Domnevamo, da so osnovno obliko fibul izrezali iz pločevine, nogo pa so potem oblikovali s kovanjem. Tečaji so narejeni z zavojem okoli železne osi navzdol in navznoter.

Le ena fibula (št. 4) je izdelana iz medenine, ostale pa so bronaste. Fibula iz Novega mesta (št. 7) je bila pokositrena.

Fibulam št. 4-7 sta podobni npr. fibula s Štalenske gore (Demetz 1999, 158) in fibula iz Alesie (Brouquier-Reddé, Deyber 2001, 299, t. 92: 62: nad zgornjim zasutjem jarka tabora C - nevarnost mešanja plasti). Blizu sta jim tudi fibuli iz Ljubljane, ki sta po stratigrafskih podatkih datirani med pribl. 50 in 25 pr. n. št. (Vičič 1994, 27, 30, t. 1: 8,9).

Opis (*t. 1:* 4-7; *sl. 2*)

4. Fibula, dobro ohranjena. Medenina, os železna. Prvotna površina je delno ohranjena v tenki plasti korozije, ki ima neobičajno enakomerno rjavočrno barvo. Lok se na prehodu v tečaj pravokotno razširi (pribl. 3 mm na vsako stran), zato tečaj presega največjo širino loka. Narejen je z zavojem navznoter in lepo izdelan; na levi strani železna os pribl. 1 mm presega cev tečaja. Fibula je zvita iz podolžne osi (glava-noga) v desno, zato tečaj ne leži pravokotno na lok in igla ne sede v ležišče. Dolžina 54 mm, širina 20 mm.

Stari grad nad Uncem. Nestrokovno, verjetno s pomočjo iskalca kovin izkopana najdba. Narodni muzej Slovenije, inv. št. R 17281. Objave: Svoljšak et al. 1994-1995, 254, t. 6: 7. Analize: EDS XRF, PIXE.

5. Fibula, noga manjka. Bron, os tečaja železna. Prvotna površina je dobro ohranjena v temnosivi gladki korozijski plasti, ki prekriva večino fibule, na majhni površini pa je odpadla. Tečaj je narejen z zavojem navznoter in lepo izdelan. Dolžina 51 mm, širina 19 mm.

Šentviška planota. Nestrokovno, s pomočjo iskalca kovin izkopana najdba. Narodni muzej Slovenije, inv. št. R 19080. Neobjavljeno. Analize: EDS XRF, PIXE, SEM/EDX.

6. Fibula, dobro ohranjena, igla manjka. Bron, os železna. Prvotna površina je dobro ohranjena v temnosivozeleni korozijski plasti. Korozija železne osi se je razširila tudi izven tečaja na spodnjo stran fibule. Lok se na prehodu v tečaj poševno razširi, zato tečaj presega največjo širino loka, pribl. 3 mm na vsaki strani. Tečaj je narejen z zavojem navznoter in lepo izdelan. Izrez za pritrditev igle na os ni v sredini tečaja, kot je običajno, temveč pomaknjen proti desni, zato je en krak tečaja širši od drugega (9 mm : 13 mm). Dolžina 68 mm, širina 25 mm.

Stari grad nad Uncem. Nestrokovno, s pomočjo iskalca kovin izkopana najdba. Narodni muzej Slovenije, inv. št. P 19283. Neobjavljeno. Analize: EDS XRF, PIXE.

7. Fibula, dobro ohranjena; od igle je ohranjen le začetni razširjeni del; noga je v zgornjem delu zvita (med ali po odkritju). Svinčev bron; os tečaja železna. Prvotna površina je na zgornji strani dobro ohranjena v gladki srebrno svetleči plasti (pokositrenje). Na mestih poškodb te površine je vidna svetlo zelena, uprašena korozijska plast pod njo. Lok se na prehodu v tečaj razširi (pribl. 1,5 mm na vsako stran), zato tečaj izrazito presega največjo širino loka. Tečaj je narejen z zavojem navznoter in lepo izdelan. Na desni strani je na tečaju nastala izrazita korozija železne osi. Dolžina 70 mm, širina 26 mm.

[12] Oznake desna, leva pri opisu fibul se nanašajo na fibulo, ki leži tako, da je glava zgoraj in noga spodaj, lok pa izbočen navzgor.

Novo mesto-Ljubljanska cesta. Izkopavanja 1890. Narodni muzej Slovenije, inv. št. R 1464. Patek 1942, 108, 194, t. 5: 11. Analize: EDS XRF, PIXE.

5.2 **Fibule skupine Alesia z razčlenjenim lokom (Demetz Alesia II)**

Demetz Alesia IIa
(Feugère tip 21b1; Guštin skupina I, različica 2[13])

Fibule, pri katerih sta tečaj in noga enaka kot pri klasičnih fibulah tipa Alesia, lok pa je pravokoten ali trikoten in ima prečne pravokotne razširitve, je Demetz uvrstil v skupino Alesia IIa. Težišče razširjenosti teh fibul je v južni Galiji (Feugère 1985, 304, 311, sl. 42; Demetz 1999, 160).

Z območja vzhodnih Alp so zaenkrat poznane tri take fibule (št. 8-10). Fibuli z Gradu pri Reki (št. 8) in z najdišča Lokavec-Kovačevše (št. 9) sta si po obliki in okrasu tako podobni, da domnevamo njun izvor v isti delavnici. Iz iste delavnice verjetno izvirajo tudi fibula iz Lovarie v okolici Vidma (Udine, Italija), fibula z neznanega najdišča (cf. Demetz 1999, 160) ter fibula iz Oderza/ant. Opitergium (severovzhodna Italija; Callegher 1992,47-49, t. 6: 3[14]). Glede na njihovo razširjenost torej lahko domnevamo, da so jih izdelovali v severovzhodni Italiji, verjetno Aquilei ali njeni okolici.

Tečaji fibul št. 8-10 ne kažejo okoli osi zavite konstrukcije, kakršno smo opazili pri fibulah skupine Alesia I. Tečaj se v stranskem pogledu na koncu loka približno simetrično razširi v tenko cevko, kar kaže na ulivanje. Fibule so bile torej najprej ulite (lok, tečaj) in nato dokončno oblikovane s kovanjem in piljenjem (npr. noga, ležišče za iglo) ter okrašene s punciranjem. Doslej je na take tečaje pri fibulah skupine Alesia opozorila le Romana Erice Lacabe (1995, 91-92, 96, sl. 8: 19.1). Fibule št. 8-10 imajo tudi izrazite gumbe, ki so na straneh nataknjeni na železno os tečaja. Gumba sta ob straneh odprta, tako da je vidna železna os.

Za datacijo te različice sta pomembni fibula iz Alesie, ki izvira iz konteksta datiranega v 52 pr. n. št. (Brouquier-Reddé, Deyber 2001, 298, št. 48, t. 91: 48), in primerek z Gradu pri Reki (glede datacije glej zgoraj).

Vse tri fibule te različice so medeninaste.

Opis (*t. 1:* 8-10; *sl. 3*)

8. Fibula. Dobro ohranjena, manjka le konica igle. Medenina; os tečaja železna. Prvotna površina je razmeroma dobro ohranjena v gladki temnosivi korozijski plasti, ki je na več mestih okrušena do svetlozelene uprašene korozijske plasti, ki leži pod njo. Fibula je vlita in kovana, okras na loku je punciran. Ob straneh cevastega tečaja sta na železno os nataknjena gumba, ki sta ob straneh odprta, tako da je vidna železna os. Dolžina 46 mm, širina 21 mm.

Grad pri Reki. Nestrokovno, s pomočjo iskalca kovin izkopana najdba. Narodni muzej Slovenije, inv. št. R 18974.

Objave: Istenič 2005, 81, sl. 5: 14. Analize: EDS XRF, PIXE.

9. Fibula. Medenina, os tečaja železna. Prvotna površina je odlično ohranjena v gladki temnosivi korozijski plasti, ki je na nekaj mestih (najbolj na igli) razjedena. Fibula je bila ulita in kovana, okras na loku je punciran. Ob straneh cevastega tečaja sta na železno os nataknjena gumba, ki sta ob straneh odprta, tako da je vidna železna os. Na zunanji strani noge je viden valovit žleb, ki je nastal pri kovanju (sl. 4). Kaže, da je mojster najprej skoval daljšo nogo, ki jo je potem zavihal nazaj in zakoval. Tako je nogo utrdil. Dolžina 53 mm, širina 23 mm.

Lokavec-Kovačevše. Nestrokovno pridobljeno, Goriški muzej, inv. št. 10. Objava: Svoljšak 1983, 18, št. 4, t.1: 24; Guštin 1991a, 23, t. 41: 23. Analize: EDS XRF, PIXE.

10. Fibula, delno ohranjena: manjkajo del glave, del noge in igla. Medenina, os tečaja železna. Rjavi deli današnje površine fibule predstavljajo tenko korozijo na kovinskem jedru, nad njo ležeči svetlozeleni deli pa uprašeno korozijo. Borni ostanki trše sivozelene korozije so verjetno zadnji ostanek korodirane prvotne površine fibule. Fibula je bila vlita (glava in lok z okrasnimi rebri na loku, tečaj) in verjetno tudi kovana (noga). Na desni strani cevastega tečaja je ohranjen stranski gumb, iz katerega ob strani gleda železna os. Dolžina 53 mm, širina 23 mm.

Ulaka nad Starim trgom pri Ložu. Nestrokovno, s pomočjo iskalca kovin izkopana najdba. Narodni muzej Slovenije, inv. št. R 17319. Neobjavljeno. Analize: EDS XRF, PIXE.

Demetz Alesia IIb
(Guštin skupina II, različica 6[15])

Fibule z razčlenjenim lokom s konkavno okroglo razširitvijo v sredini je Demetz opredelil kot različico IIb. Navaja pet primerkov z najdišč Aquileia, Wartau-Oberschan v dolini Rena v Alpah (Švica, kanton St. Gallen), Štalenska gora, Samaria (Palestina, Z breg-Izrael) in Bayard-sur-Marne (Francija; Demetz 1999, 161, 275, seznam 2.1).

Primerek z Gradu ima odlično analogijo v akvilejski fibuli (Guštin 1986, 679, sl. 1; Guštin 1991b, sl. 3: 8), fibuli iz Wartaua (Ettlinger 1973, 147, t. 17: 3; Overbeck 1982, 94, t. 35: 13; Guštin 1991b, sl. 3: 12) in fibuli s Štalenske gore (Kenner 1961, 135, sl. 75: 6; Demetz 1999, 275 - navaja kot neobjavljeno). Ostanki posrebritve, ki jih omenjata Gušin in Ettlingerjeva, so najverjetneje ostanki pokositrenja, ki ga je opazil že Overbeck (1982, 94, t. 35: 13) na fibuli iz Wartaua ter je na fibuli z Gradu dobro ohranjeno in je bilo ustrezno analizirano. Pri tej fibuli je odlično ohranjena tudi površina osrednje konkavne razširitve, ki je bila prav tako pokositrena. Domneve, da je bil ta konkavni prostor zapolnjen s poldragim kamnom ali emajlom (cf. Kenner 1961, 135; Ettlinger 1973, 147; Overbeck 1982, 94; Guštin 1986, 680; Demetz 1999, 161), so torej napačne. Fibula z Gradu je medeninasta.

Podobnost fibul z Gradu pri Reki, iz Aquileie, Wartaua in s Štalenske gore je tako velika (oblika, okras, mere, pokositrenje), da kaže na izdelavo v isti delavnici. Razširjenost fibul različice Demetz IIb na širokem območju od Francije do Izraela nakazuje njihovo izdelavo v Italiji.

Fibule te različice so bile izdelane podobno kot različica IIa: najprej vlite (lok, tečaj), nato pa dokončno oblikovane s kovanjem in piljenjem (npr. noga, ležišče za iglo). Tečaj fibul na obeh straneh zaključuje gumb, ki je na železno os nataknjen tako, da je v stranskem pogledu os vidna.

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[13] Guštin je fibule skupine Alesia obravnaval v štirih publikacijah (1986; 1991a; 1991b; 1992). Oznake nekaterih skupin in podrobnosti se med objavo iz leta 1986 in objavami v letih 1991 in 1992 razlikujejo. V tem članku sem, če ni drugače navedeno, upoštevala njegovo razdelitev iz leta 1986.

[14] Na to fibulo me je opozoril Dragan Božič.

[15] Guštin (1986, 679-680) je fibulo iz Aquileije *(loc. cit.*, sl. 1) uvrstil v svojo različico I 3, fibulo iz Wartaua pa v različico II 6. V različico I 3 je med drugimi uvrstil fibuli iz južne Francije (Feugère 1985, št. 1452, 1453) in fibulo iz Perugie (Rieckhoff 1975, sl. 6: 5), ki sodijo v skupino IIc po Demetzu (glej dalje!). Demetz (1999, 161) navaja, da je njegovi različici IIb vzporedna Guštinova različica II 6.

Opis (*t. 1:* 11; *sl. 5*)

11. Fibula, cela. Medenina, zgornji del loka pokositren; os železna. Prvotna površina je razmeroma dobro ohranjena na pokositrenih delih in v svetlozeleni uprašeni koroziji (na spodnji strani loka jo prekriva tenka plast zemlje), ki je na nekaterih mestih (del noge, igla, majhen del spodnje površine loka) odrgnjena do rjave korozije na kovinskem jedru. Vlita in kovana. Na loku so ohranjeni sledovi okrasa, ki je bil verjetno punciran. Na zunanji strani stranskih gumbov tečaja je izrazita korozija železne osi tečaja. Dolžina 51 mm, širina 15,5 mm.

Grad pri Reki. Nestrokovno, s pomočjo iskalca kovin izkopana najdba. Narodni muzej Slovenije, Zn 198/49. Neobjavljeno. Analize: EDS XRF, PIXE, SEM/EDX.

Demetz Alesia IIc
(Guštin skupina I, različica 3[16])

Fibule z izrazito ovalno in ravno razširitvijo na vrhu loka sestavljajo oblikovno izrazito homogeno skupino Alesia IIc. Demetzovemu seznamu dvanajstih fibul (Demetz 1999, 161, 275, seznam 2.2) lahko dodamo še po en primerek iz Dangstettna (Fingerlin 1998, 150, 1143: 2), z grobišča Gropello Cairoli-Cascina Menabrea v okolici Pavie (Macchioro Malnati 1994-1999, 151, 189-191, sl. 8[17]) in iz tesni Crap-Ses (Švica, kanton Graubünden; Rageth 2005, sl. 2: 14) ter tri primerke iz Slovenije: s Šentviške planote (št. 12), Starega gradu nad Uncem (št. 13) in Gradiča v Kobaridu (št. 14). Največ fibul te različice je bilo torej najdenih v Italiji (sedem), tri v Franciji, dve v Dangstettnu ob zgornjem toku Rena in tri v zahodni in osrednji Sloveniji.

Analize in natančen pregled fibul št. 12, 13 in 14 je pokazal, da so medeninaste in da je bila na ovalno razširitev prispajkana srebrna ploščica. Podobno je bilo verjetno tudi pri fibuli iste različice iz Ensérune (v južni Franciji). Risba (Feugère 1985, t. 112: 1452) daje namreč slutiti, da je imela tudi ta fibula na ovalnem delu lot; opisa, ki bi to potrdil, v objavi ni. Ostanki lota na ovalni razširitvi pa so omenjeni pri opisu ene od fibul iz Dangstettna (Fingerlin 1998, 150, 1143: 2). Zdi se, da je okras na ovalni razširitvi najbolje ohranjen pri fibuli z grobišča Gropello Cairoli-Cascina Menabrea (Macchioro Malnati 1994-1999, 151, 189-190, sl. 8[18]).

Podobno kot fibule različic IIa in IIb so bile tudi te zelo verjetno najprej ulite (sprednji del loka, tečaj), nato pa dokončno oblikovane s kovanjem in piljenjem (npr. noga, ležišče za iglo, ovalna razširitev). Tečaj fibul na obeh straneh zaključuje gumb, ki je na železno os nataknjen tako, da je v stranskem pogledu os vidna. Okrasni žlebiči na sprednjem delu loka in prečnih razširitvah ob ovalni plošči so najbolje ohranjeni na fibuli št. 14. Narejeni so bili s punciranjem.

Prisotnost fibul te različice v Dangstettnu in med najdbami iz tesni Crap-Ses na območju Oberhalbsteina (najdbe so verjetno povezane z bitko ob rimskem pohodu čez Alpe v letih 16/15 pr. n. št.; Rageth 2005, 302-306; cf. op. 11) ter v grobu 1 iz San Martina di Aviano (Vitri 1990) nakazuje, da sodijo med mlajše različice skupine Alesia, ki so bile v uporabi še v zgodnjeavgustejskem času ali celo malo kasneje.

Opis (*t. 1:* 12-14; *sl. 6*)

12. Fibula, del noge in igle manjka. Medenina; os tečaja železna. Prvotna površina ni ohranjena. Sedanja površina, ki je nastala na površini kovinskega jedra, je na zgornji strani fibule rjava, na spodnji pa so še ostanki svetlozelene uprašene korozije. Na zgornji strani osrednje ovalne plošče je svinčevo-kositrni lot in na njem delček tenke srebrne ploščice, ki je prvotno najverjetneje prekrivala celo ovalno razširitev. Zaradi slabe ohranjenosti fibule sta prečni razširitvi loka ob ovalni plošči slabo izraženi, žlebove na sprednji strani loka pa lahko le slutimo. Tečaj je na obeh straneh zaključen z gumboma, iz katerih ob strani gleda železna os. Korozijski produkti te osi so delno prekrili levo polovico tečaja. Vlita in kovana. Ohr. dolžina 96 mm, širina 20 mm.

Šentviška planota. Nestrokovno, s pomočjo iskalca kovin izkopana najdba. Narodni muzej Slovenije, inv. št. R 19078. Neobjavljeno. Analize: EDS XRF, PIXE.

13. Fibula. Noga in del loka manjkata. Prvotna površina je na glavi in sprednjem delu loka odlično ohranjena v gladki temnosivi korozijski plasti; drugje je ta plast pretežno okrušena in odkriva svetlozeleno uprašeno korozijo, ki je nastala pod nivojem prvotne površine. Medenina; os tečaja železna. Lok se na vrhu razširi v okroglo/rahlo ovalno ploščo, na kateri so ostanki lota in tenke srebrne ploščice. Prečna razširitev loka ob ovalni plošči je izrazita. Sprednji del loka in glava sta okrašena z žlebiči. Tečaj je na obeh straneh zaključen z gumboma, iz katerih ob strani gleda železna os. Fibula je bila vlita (tečaj, sprednji del loka) in kovana (ovalna razširitev na loku). Ohr. dolžina 39 mm, širina ovalne plošče na loku 16 mm.

Stari grad nad Uncem. Nestrokovno, s pomočjo iskalca kovin izkopana najdba. Narodni muzej Slovenije, inv. št. P 19946. Neobjavljeno. Analize: EDS XRF, PIXE.

14. Fibula, dobro ohranjena; zlepljena iz dveh delov (stik na ovalni razširitvi). Medenina; os tečaja železna. Prvotna površina je v glavnem dobro ohranjena v rjavozeleni korozijski plasti; na nogi in delu igle je ta plast precej slabše ohranjena in se kruši do kovinskega jedra oziroma svetlozelene uprašene korozijske plasti, ki je nastala pod nivojem prvotne površine. Korozijski produkti železne osi tečaja prekrivajo velik del tečaja, še posebej na spodnji strani. Lok fibule se na vrhu razširi v rahlo ovalno ploščo, na kateri so ostanki svinčevo-kositrnega lota. Prečni razširitvi loka ob ovalni plošči sta izraziti in okrašeni z žlebičema. Sprednji del loka in glava sta prav tako okrašena z žlebiči. Tečaj je na obeh straneh zaključen z gumboma, iz katerih ob strani gleda železna os. Dolžina 52 mm, širina ovalne plošče na loku 19 mm.

Kobarid-Gradič. Izkopavanja 1993. Zavod za varstvo kulturne dediščine Slovenije, Območna enota Nova Gorica, inv. št. K 1874. Neobjavljeno. Analize: EDS XRF, PIXE.

Demetz Alesia IId
(Guštin skupina II, različica 7[19])

Posebno različico fibul družine Alesia tvorijo primerki s parom preluknjanih ovalnih razširitev na loku. Na dobro ohranjenih primerkih je še viden punciran okras. Demetz (1999, 161, 275, seznam 2.3) navaja sedem primerkov: eno fibulo iz Chura (Švica), dve iz severne Italije, eno z neznanega najdišča v Romuniji[20] in tri iz Slovenije. Guštin (1986, 682-683; 1991a, 44) je za primerke z najdišč Bodrež in Lokavec-Kovačevše menil, da so lokalni izdelki iz Soške doline.

[16] Glede nejasnosti Guštinove tipologije pri razlikovanju njegovih različic I 3 in II 6 glej op. 15.

[17] Draganu Božiču se zahvaljujem, da me je opozoril na to objavo.

[18] V opisu je omenjen okrogel medaljon z granuliranim robom, ki je viden tudi na objavljeni fotografiji. Presenetljivo pa je kot material omenjen le bron (pričakovala bi namreč tudi ostanke srebra).

[19] Guštin je fibule te različice večkrat obravnaval (Guštin 1986; 1991a; 1991b in 1992). Citirana je razdelitev, ki je podana v prvi objavi.

[20] Pregled pri Guštin 1991a, 44, op. 94 citirane literature pokaže, da ta fibula (njeno najdišče je Sprîncenata) ne sodi v različico IId. Za podatek se zahvaljujem Draganu Božiču.

Ker sta bili v Lokavcu najdeni dve taki fibuli, je skupno število fibul te različice iz Slovenije štiri: Lokavec-Kovačevše (št. 15-16)[21], Bodrež (Guštin 1991a, t. 39: 14) in Novo mesto-Beletov vrt, grob 187 (št. 17). Analize fibul št. 15, 16 in 17 kažejo, da so izdelane iz medenine. Na površini ni ostankov pokositrenja ali druge prevleke (prim. opis fibule iz Chura, ki naj bi bila posrebrena: Guštin 1991a, 44).

Fibule te skupine so verjetno izdelovali podobno kot fibule različic IIa, IIb in IIc, tj. z ulivanjem in kovanjem, okras pa je punciran.

Fibulam različice Alesia IId je ozko sorodna različica s tremi pari ovalnih razširitev na loku (Guštin 1986, skupina II, različica 8[22]), ki je z enim primerkom zastopana v Dangstettnu (Fingerlin 1998, 819: 1). To nakazuje razmeroma pozno datiranje fibul te različice.

Opis (*t. 1:* 15-17; *sl. 7*)

15. Fibula, manjka le majhen del sprednje ovalne razširitve; namerno zvita: prepognjena v sredini loka, tako da se noga in tečaj stikata. Na iglo je nataknjena verižica iz štirih različno velikih okroglih členov. Medenina; os tečaja železna. Prvotna površina je dobro ohranjena v gladki in kompaktni sivozeleni korozijski plasti, ki je na izpostavljenih mestih okrušena. Na ovalnih razširitvah so sledovi okrasa. Tečaj je na obeh straneh zaključen z gumboma, iz katerih ob strani gleda železna os. Dolžina zvite fibule 31 mm, širina 26 mm.

Lokavec-Kovačevše. Izkopavanja Narodnega muzeja Slovenije 1949. Narodni muzej Slovenije, inv. št. P 12982. Objava: Svoljšak 1983, 14, t.1: 25; Guštin 1991a, 23, t. 41: 20. Analize: EDS XRF, PIXE.

16. Fibula, manjkajo velik del loka, cela noga in del tečaja; namerno zvita: upognjena v sprednjem delu loka. Medenina; os tečaja železna. Prvotna površina je slabo ohranjena v temnosivozeleni korozijski plasti, ki je močno poškodovana zaradi številnih in globokih korozijskih razjed, v katerih so svetlozeleni uprašeni korozijski produkti. Na tečaju je ohranjen le desni zaključni gumb, iz katerega ob strani gleda železna os. Ohranjena dolžina zvite fibule 16 mm, širina 23 mm.

Lokavec-Kovačevše. Nestrokovno pridobljeno. Goriški muzej inv. št. 8. Objava: Svoljšak 1983, 14, t. 1: 12; Guštin 1991a, 23, t. 41: 21. Analize: EDS XRF, PIXE.

17. Fibula, močno dopolnjena (večji del noge, ovalni razširitvi) z umetno smolo, zaključek noge (gumb) in en gumb na tečaju manjkata. Medenina; os tečaja železna. Prvotne površine je zelo malo ali nič. Korozijske razjede segajo globoko pod nivo prvotne površine. Površina cele fibule je prebarvana (posledica restavriranja v Römisch-Germanisches Zentralmuseum, Mainz). Tečaj je bil na obeh straneh zaključen z gumboma: eden ni ohranjen, drugi je prekrit s korozijskimi produkti železne osi. Ohranjena dolžina 48 mm, širina 26 mm (rekonstruirana).

Novo mesto-Beletov vrt, grob 187. Arheološka izkopavanja leta 1976. Dolenjski muzej, inv. št. 1256. Objava: Knez 1992, 63, t. 66: 8. Analize: EDS XRF, PIXE.

Alesia, neopredeljeno

Odlomek fibule št. 18 kaže, da gre za zgodnjerimsko fibulo na tečaj skupine Alesia. Natančneje je ni mogoče uvrstiti.

Opis (*t. 1:* 18)

18. Del loka in tečaja fibule. Medenina, os železna. Svetlozelena korozijska plast, ki tvori današnjo površino fibule, je tako močno razjedena, da prvotna površina ni več ohranjena. Korozijski produkti železne osi prekrivajo del spodnje strani fibule. Tečaj vlit. Ohranjena dolžina 29 mm, ohranjena širina 12 mm.

Mihovo. Nestrokovno, s pomočjo iskalca kovin izkopana najdba. Narodni muzej Slovenije, inv. št. R 24045. Neobjavljeno. Analize: EDS XRF, PIXE.

6. **DISKUSIJA**

Zajete fibule predstavljajo skoraj štiri petine poznanih fibul skupine Alesia iz Slovenije. Po razpoložljivih podatkih je bilo poleg fibul št. 1-18 v Sloveniji najdenih le še šest primerkov: po dve v Ljubljani (Vičič 1994, 27-29, 37, t. 1: 8,9) in Bodrežu (Guštin 1991a, 43, t. 39: 14; 40: 3) ter po ena na Idriji pri Bači (Guštin 1991a, t. 17: 10; različica Demetz Id[23] - cf. Demetz 1999, 36, 124, 125) in na najdišču Loke-Kolenovca pri Novi Gorici (različica Alesia Ic[24]; Guštin 1991a, 43, op. 87).

V zadnjih dveh desetletjih se je število fibul skupine Alesia iz Slovenije več kot podvojilo (poleg dveh fibul iz Ljubljane še 12 primerkov: št. 1, 2, 4-6, 8, 10-14, 18). Žal so bile vse razen dveh nestrokovno izkopane in iztrgane iz najdiščnega konteksta. Število tako izkopanih fibul je gotovo še bistveno večje, saj so muzeji uspeli pridobiti ali registrirati le del najdb.

Rezultati analiz nedvomno kažejo, da so za izdelavo fibul skupine Alesia uporabljali predvsem medenino. Od 18 analiziranih fibul je namreč 14 medeninastih, tri bronaste (zlitina bakra in kositra), ena pa je izdelana iz t. i. rdeče litine, tj. zlitine bakra, kositra in cinka. Pri vseh obravnavanih fibulah so osi tečaja železne. Za to je verjetno povsem praktičen razlog: bakrova zlitina bi bila za os premehka.

Pri medeninastih fibulah so analize pokazale visok delež cinka, ki niha med najmanj 15 in 22 %. Pomemben vzrok teh nihanj so nedvomno različna temeljitost pri odstranjevanju korozije z mest, predvidenih za merjenje, in njihova velikost (pri majhnih mestih je namreč težko doseči, da merilni žarek ne zajame tudi korozije ob robu za meritev pripravljenega mesta - glej Šmit et al. 2005). Pri večini fibul (9 primerkov) znaša najvišja izmerjena vrednost cinka okoli 20 % (19-22 %). Dejanski delež cinka se zelo verjetno giblje okoli te vrednosti tudi pri ostalih medeninastih fibulah, vendar zaradi zgoraj omenjenih vzrokov ni bil izmerjen. Fibule so torej narejene iz rimske čiste medenine. To je medenina, ki so jo pridobili s t. i. cementacijskim postopkom (Craddock 1978a, 9-11; Bayley 1990, 9-11; Craddock 1995, 296). Vsebovala je okoli 20 % cinka ter zelo malo svinca in kositra (cf. Craddock, Lambert 1985, 164; Jackson, Craddock 1995, 93).

Medenina je primerna za ulivanje in kovanje (cf. Voß, Hammer, Lutz 1998, 279, 281), torej postopke, ki so jih uporabili pri izdelavi obravnavanih fibul. Uporaba čiste medenine za fibule skupine Alesia potrjuje tudi sicer uveljavljeno mnenje, da so te fibule rimske, tj. izdelane v delavnicah na območju rimske države.

Naša raziskava je pokazala, da je to zaenkrat najstarejša skupina rimskih fibul, ki so jih izdelovali iz medenine. Z analizami je dokazana uporaba medenine za fibule različic Alesia

[21] Dragan Božič je ob branju rokopisa tega članka opazil, da se fibula št. 16 razlikuje od ostalih te različice. Ponoven pregled te slabo ohranjene fibule je pokazal, da je imela na loku zelo verjetno le eno ovalno razširitev. Sicer pa je izrazito podobna fibuli št. 15. Menimo, da bo v bodoče smiselno primerke z enim, dvema ali tremi perforiranimi ovalnimi razširitvami obravnavati skupaj, kot eno različico.

[22] V objavah Guštin 1991a, b in 1992 skupina 2, različica 7.

[23] Odlomek noge ne sodi k isti fibuli kot sprednji del loka in tečaj fibule na risbi Guštin 1991a, t. 17: 10. Draganu Božiču se zahvaljujem za te podatke kot tudi, da me je opozoril na to fibulo.

[24] Za podatek se zahvaljujem Draganu Božiču.

Ia3, Ic, IIa, IIb, IIc in IId. V različicah Ia3, IIa, IIb, IIc in IId so vse analizirane fibule medeninaste. V skupini Alesia Ic je le ena fibula medeninasta (št. 4), tri pa so bronaste (št. 5-7). Iz rdeče litine, ki je najverjetneje nastala tako, da so skupaj stalili bron in medenino, je fibula št. 3.

Uporaba medenine za fibule posameznih različic je pomemben element za opredelitev njihovega izvora. Ta je bil nakazan že z ugotavljanjem njihove razširjenosti (glej pogl. 4). Tako so fibule Alesia Ia3 najverjetneje izdelovali v Italiji, verjetno v Aquilei ali njeni okolici. Enako velja tudi za vsaj del fibul različice IIa, tj. skupinico, ki ji med drugim pripadajo fibule s slovenskih najdišč. Razširjenost fibul in uporaba medenine prav tako kažeta na (severno)italski izvor fibul različic Alesia IIb, IIc in IId. Guštinova domneva o izdelavi fibul različice IId z najdišč Lokavec-Kovačevše in Bodrež v Soški dolini (glej pogl. 4), ki je v obravnavanem času komaj postala del rimske države (Šašel Kos 2000, 282-283; Istenič 2005), se zdi glede na uporabo medenine malo verjetna. Visoka vsebnost cinka pri edini medeninasti fibuli skupine Ic (št. 4) kaže na čisto medenino in torej izvor v "rimskih" delavnicah.

Štiri analizirane fibule niso medeninaste. Sodijo v različice Alesia I razno (št. 3) in Ic (št. 5-7) ter kažejo na izdelavo fibul teh različic v manjših, "lokalnih" delavnicah, morda (vendar ne nujno) na širšem območju njihovih najdišč. Ena je izdelana iz zlitine bakra, kositra in cinka (okoli 3 % cinka; št. 3), tri pa so bronaste (št. 5-7). "Lokalne" delavnice so torej posnemale obliko fibul različic Alesia Ia3 in Ic. Vendar za njihovo izdelavo niso uporabile medenine, temveč zlitino bakra in kositra ali zlitino bakra, kositra in svinca - torej zlitine z dolgo prazgodovinsko tradicijo (Giumlia-Mair 1998, 47-48; Trampuž Orel 1999, 415-417; Jerin 2001; Trampuž Orel, Orel 2004, 42-43), ali pa rdečo litino. Ta je najverjetneje nastala tako, da so bronasti zlitini dodali medenino, katere vir so bili predmeti rimskega izvora (cf. Craddock 1978a, 12).

Vse bronaste fibule sodijo v različico Alesia Ic. Fibula št. 5 je bila izdelana iz zlitine bakra in kositra. Ker je delež kositra v koroziji zelo velik in je ponavljanje meritev pokazalo, da se vsebnost kositra zmanjša, po dodatnem "čiščenju" merjene točke sklepamo, da znaša vsebnost kositra v jedru fibule manj kot 13 %. Največ 13,2 % kositra pa je tudi vrednost, ki jo lahko pričakujemo pri kovanih bronastih predmetih (Brown 1976, 25). Raziskave s pomočjo vrstičnega mikroskopa so pokazale, da ta fibula kljub visokemu deležu kositra, ki so ga pokazale meritve na površini fibule, verjetno ni bila pokostrena (Šmit et al. 2005).

Pri fibuli s Starega gradu nad Uncem (št. 6) so meritve pokazale bron z majhnim, a zanesljivim deležem cinka okoli 1 % (cf. Šmit et al. 2005). Prisotnost cinka nakazuje, da so v zlitino med drugim stalili medeninast predmet ali odlomek. Preseneča izmerjena vrednost svinca (okoli 2 %), saj po podatkih v literaturi ni združljiva z načinom izdelave te fibule (glej spodaj).

Novomeška fibula (št. 7) je bila izdelana iz svinčevega brona. Analize v dveh točkah, s katerih je bila odstranjena korozijska plast, so pokazale razmeroma visoko vsebnost svinca (okoli 4-5 %; Šmit et al. 2005), ki je pri kovanih predmetih skrajno redka, predmeti iz kovane bronaste pločevine pa naj bi sploh ne vsebovali nič svinca (cf. Craddock 1978b, 381; Craddock, Giumlia-Mair 1988, 319; Giumlia-Mair 1998, 35-36).

7. SKLEP

Zajeti podatki kažejo, da so fibule skupine Alesia v Sloveniji razmeroma dobro zastopane. Poznane so s sledečih najdišč (vrstni red glede na število primerkov): Lokavec-Kovačevše (št. 3, 9, 15-16), Stari grad nad Uncem (št. 2, 4, 6, 13), Grad pri Reki (št. 1, 8, 11), Šentviška planota (št. 5, 12), Bodrež (2 fibuli), Ljubljana (2 fibuli; Vičič 1994, 27, t. 1: 8,9), Novo mesto (št. 7, 17), Kobarid - Gradič (št. 14), Ulaka nad Starim trgom pri Ložu (št. 10), Mihovo (št. 18), Idrija pri Bači (ena fibula; Guštin 1991a, t. 17: 10) in Loke-Kolenovca pri Novi Gorici (ena fibula).[25]

Največ, tj. 14 fibul skupine Alesia izvira z najdišč zahodne Slovenije (*sl. 8*), natančneje iz Posočja (Kobarid-Gradič, Idrija pri Bači, Bodrež, Loke-Kolenovca pri Novi Gorici), Vipavske doline (Lokavec-Kovačevše) in Šentviško-Cerkljanskega hribovja (Grad pri Reki, Šentviška planota). Druga, manjša skupina teh fibul izvira iz Notranjske (Stari grad nad Uncem, Ulaka). Dve fibuli sta poznani iz Ljubljane (Vičič 1994, 27, t. 1: 8,9) in tri iz Dolenjske (Novo Mesto-Beletov vrt, Mihovo pod Gorjanci).

Domnevni lokalni izdelki, tj. fibule, ki niso medeninaste, so enakomerno porazdeljeni: dve v zahodni Sloveniji (št. 3, 5), dve v Ljubljani (Vičič 1994, 27, t. 1: 8,9) in po ena na Notranjskem in Dolenjskem (št. 6-7). Ob upoštevanju skupnega števila fibul te skupine na posameznih območjih pa se pokaže, da so nemedeninaste fibule pogoste v Ljubljani (Vičič, *loc. cit.*) in na Dolenjskem (ena nemedeninasta: št. 7; dve medeninasti: št. 17, 18), zelo redke pa so v zahodni Sloveniji (dve nemedeninasti fibuli: št. 3, 5; osem medeninastih: št. 1, 2, 8, 9, 11, 12, 14-16) in na Notranjskem (ena nemedeninasta - št. 6; štiri medeninaste - št. 2, 4, 10, 13).

Največ fibul izvira z najdišč, ki so bila verjetno namenjena kultnemu darovanju predmetov (sedem fibul: Šentviška planota - pred kratkim odkrito najdišče,[26] Kobarid - Gradič,[27] Lokavec-Kovačevše?[28]), pet z grobišč (Bodrež, Idrija pri Bači, Novo mesto[29]), tri z naselbin (Loke-Kolenovca pri Novi Gorici, Ljubljana) in tri z Gradu pri Reki, domnevnega oporišča Karnov, ki ga je oblegala rimska vojska (Istenič 2005). Najdiščni kontekst štirih fibul s Starega gradu nad Uncem in po ene fibule z Ulake in Mihovega zaradi nejasnih najdiščnih podatkov ni znan.

Geografska razširjenost fibul skupine Alesia v Sloveniji z izrazito prisotnostjo na zahodu, precejšnjo na Notranjskem ter simbolično na Dolenjskem, povsem ustreza sliki postopnega širjenja rimskega nadzora proti vzhodu in jugovzhodu (Horvat 1999, 218-219, 248).

Rezultati arheometričnih analiz fibul skupine Alesia iz Slovenije kažejo, da je to zaenkrat najstarejša skupina rimskih fibul, ki so jih praviloma izdelovali iz medenine. Maloštevilne fibule skupine Alesia iz nemedeninastih bakrovih zlitin kažejo, da so redke različice fibul te skupine posnemale (kopirale) delavnice, ki z medenino niso razpolagale oz. jim je bila dostopna le kot odpadni predmeti za ponovno uporabo.

Medeninaste fibule skupine Alesia z Gradu nad Reko (št. 1, 8, 11), nakazujejo, da so medeninaste fibule skupine Alesia izdelovali že najkasneje v 4. desetletju pr. n. št. Glede na začetek fibul skupine Alesia najkasneje v Cezarjevem in na nožnico meča z medeninastimi okovi iz verjetno istega časa (cf. Istenič 2000a; 2000b) domnevamo, da so Rimljani zače-

[25] Našel Dragan Božič, neobjavljeno. O najdišču Žbona Trkman 1985.

[26] Objava je v pripravi.

[27] Osmuk 1997; Osmuk 1998.

[28] Primerjaj npr. Gleirscher, Nothdurfter, Schubert 2002 s citirano literaturo; Zanier 1999, 103-104.

[29] Fibuli št. 7 in 17 izvirata iz istega keltsko-rimskega grobišča v Novem mestu. Večji del tega grobišča, na katerem so pokopavali od 1. st. pr. n. št. do konca 2. st. n. št., je znan pod imenom Beletov vrt (cf. Knez 1992, 7-23).

li uporabljati medenino še pred koncem prve polovice 1. st. pr. n. št., najkasneje v času Cezarjevih galskih vojn (59-52 pr. n. št.).

Nepričakovan in zelo dragocen prispevek k našemu razumevanju zgodnje uporabe medenine so dali izsledki raziskav keltskih novcev v Galiji. Analize so namreč med novci Arvernov izsledile šest medeninastih primerkov (10-15 % cinka). Vsi so bili najdeni v Alesii. Na dveh med njimi je ime Vercingetorixa, voditelja galskega upora 53/52 pr. n. št. Medeninasti novci pripadajo istim tipom kot zlati staterji, katere so posnemali. Najverjetneje so jih torej skovali v Alesii leta 52 pr. n. št., tj. v času, ko so bili oblegani. Medenino so uporabili zaradi pomanjkanja zlata, vir medenine pa so bili rimski medeninasti predmeti (Nieto 2004).[30] Galski medeninasti novci, kovani leta 52 pr. n. št. v oblegani Alesii, torej potrjujejo našo ugotovitev, da so Rimljani medenino uporabljali že v času Cezarjevih galskih vojn.

Zahvale

Dr. Dragan Božič (Inštitut za arheologijo, ZRC SAZU) mi je bil veliko pomoč z dragocenimi podatki in pogovori ter s pripombami ob branju članka. Pri arheometričnih vprašanjih mi je prijazno svetovala dr. Neva Trampuž Orel (Narodni muzej Slovenije). Igor Ravbar je pomembno prispeval k opisu načina izdelave obravnavanih fibul, Irma Langus k opisu njihove ohranjenosti, Sonja Perovšek pa za pripravo fibul za PIXE analize (vsi Narodni muzej Slovenije). Nada Osmuk, Beatriče Trkman Žbona in Borut Križ so mi prijazno posodili fibule, ki jih hranijo Zavod za varstvo kulturne dediščine, Območna enota Nova Gorica, Goriški muzej in Dolenjski muzej, ter dovolili izvedbo analiz s tehniko PIXE.

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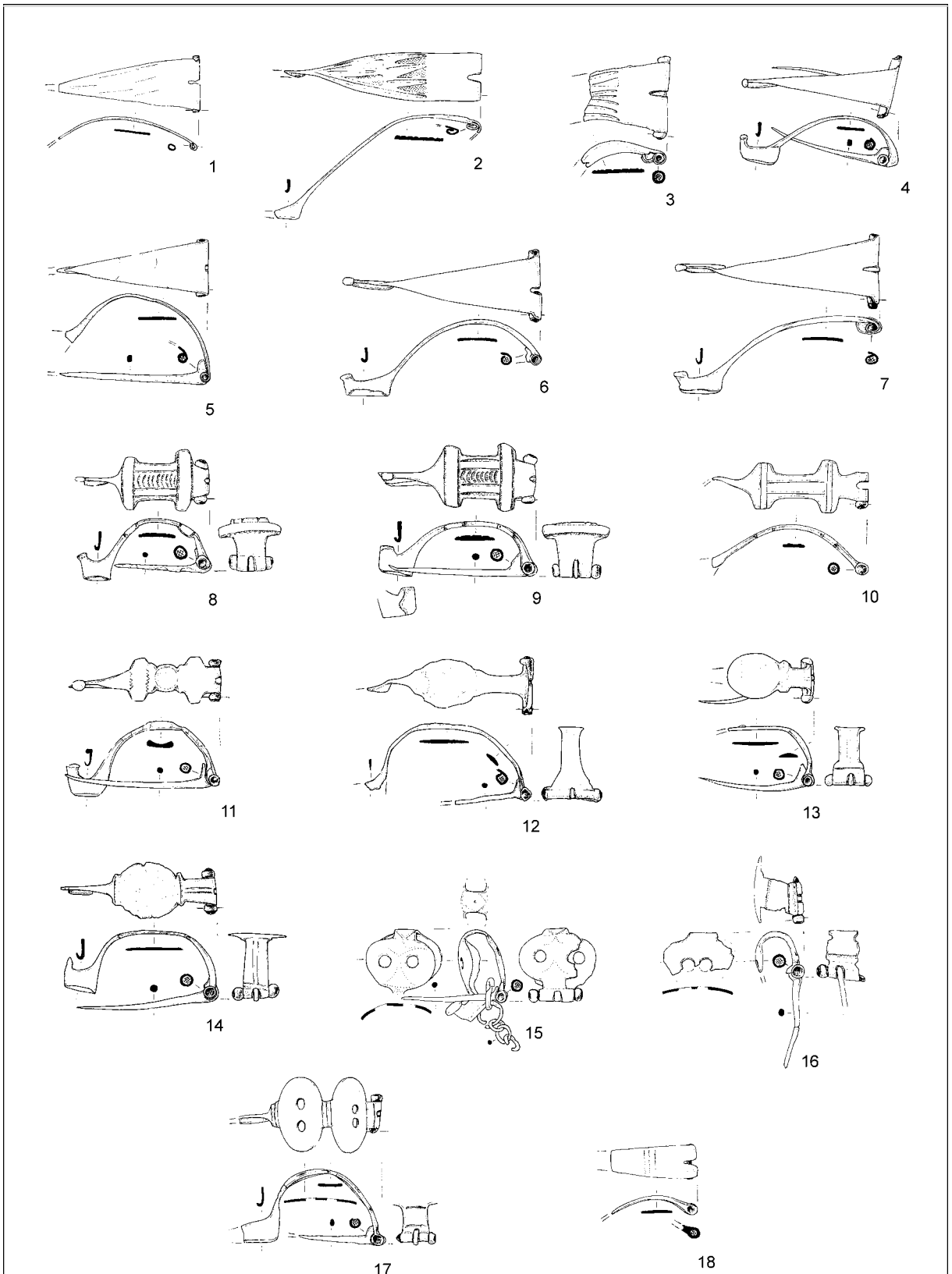
[30] Objava Nieto 2004 je izšla tik pred oddajo tega članka.



Pl. 1: Brooches Nos. 1-18. 1,8,11 Grad near Reka; 2,4,6,13 Stari grad above Unec; 3,9,15,16 Lokavec-Kovačevše; 5,12 Šentviška planota; 7 Novo mesto-Ljubljanska cesta; 10 Ulaka above Stari trg pri Ložu; 14 Kobarid-Gradič; 17 Novo mesto-Beletov vrt; 18 Mihovo. Scale = 1:2 (drawing by Ida Murgelj, National Museum of Slovenia).

T. 1: Fibule št. 1-18. 1,8,11 Grad pri Reki; 2,4,6,13 Stari grad nad Uncem; 3,9,15,16 Lokavec-Kovačevše; 5,12 Šentviška planota; 7 Novo mesto-Ljubljanska cesta; 10 Ulaka nad Starim trgom pri Ložu; 14 Kobarid-Gradič; 17 Novo mesto-Beletov vrt; 18 Mihovo. M. = 1:2 (risala: Ida Murgelj, Narodni muzej Slovenije).