Brooches of the Alesia group in Slovenia

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1. INTRODUCTION

Brooches of the late La Tène and early Roman periods were usually made of copper alloys, generally referred to as ‘bronze’ in publications (cf. Demetz 1999). Without analyses, which are extremely rare, 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...
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-Gradid) 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 Clodius 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, had 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, Butler 1995, 114, fig. 2; Riederer 2001, 225-226, 228, 231; Riederer 2002a, 114-116; Riederer 2002b, 286, 288; Bayley, Butler 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 ARCHAEOOMETRIC 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). 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-Augustan6 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 21а4 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.
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 those that found on Alesia-group brooches (cf. Feugère 1985, pls. 111-112: 1441-1448). 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). In later Roman military establishments, Alesia-group brooches are absent 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 Illlyrian wars (35-33 BC; Istenič 2005) or perhaps in the early Augustan period at the latest. 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).


Aucissa-type brooches: Fingerlin 1986, 10: 1; 42: 2; 85: 1; 115: 1; 129: 1; 168: 3; 16: 181: 2; 187: 1; 211: 3; 222: 1; 268: 3; 279A: 2; 285: 3; 289: 1; 291: 1; 344: 1; 363: 9; 373: 2; 399: 1; 401: 3; 404: 3; 449: 13; 455-457: 1, 2; 463: 2; 483: 2; 484: 3; 519: 3, 4; 542: 12; 546: 1; 548: 1; 594: 1; 595: 2; 597: 1; Fingerlin 1998, 657: 1-2; 658: 1; 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: 2; 844 A: 1; 876: 2; 880: 1; 895: 2, 3; 902: 1; 910: 2; 920: 1; 925: 3; 957: 2; 966: 1; 981: 1; 1011: 1; 1013: 1; 1048: 1, 2; 1054: 1; 1060: 17; 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 typologically 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 Oberhalbeinstein (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 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, Canton 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 conflated.
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 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 (Solfierino-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.


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.


Demetz, Alesia I, various

A fragmentary brooch from Lokavec-Kovačevo 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.


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).

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.


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.


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

Demetz Alesia IIa
(Feugère Type 21b1; Guštin Group I, variant 213)

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-Kovačevče (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 Optergium (Callegher 1992, 47-49, pl. 6: 314). 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.

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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.

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.


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.


Demetz Alesia IIb
(Guštin group II, variant 6\(^\text{15}\))

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 (Palastine, 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 Aquileia (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.
Brooches of the Alesia group in Slovenia

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 IIe 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 knobbled ends of the hinge, corrosion from the iron axis of the hinge is clear. Length 51 mm, width 15.5 mm.

Demetz, Alesia IIc

(Guštin group I, variant 316)

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. 817), 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 Gradč 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.

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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. 818).

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; 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.

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.

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.


Demetz Alesia IIId
(Guštin group II, variant 7\(^\text{19}\))

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\(^\text{20}\), 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)\(^\text{21}\), 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 IIId variants, is a brooch-variant with three pairs of oval expansions on the bow (Guštin 1986, group II, variant 8\(^\text{22}\)). 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 IIId 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 IIId. 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.

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.


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 Zentral-museum, 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).


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.


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 Ic24, 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.
Brooches of the Alesia group in Slovenia

Brooches of the Alesia group are relatively well represented in Slovenia. They are known from the oldest group of Roman brooches made of brass. 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 Ia3 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 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 Ia3, Ic, IIa, IIb, Iic and IId variants. In connection with the use of brass, Guštin’s hypothesis that variant IId brooches from Lókavec-Kovacevše 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 (Giulmila-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, Giulmila-Mair 1988; 319; Giulmila-Mair 1998, 35-36).

7. CONCLUSIONS

Brooches of the Alesia group are relatively well represented in Slovenia. They are known from the...
including find-spots (listed in order of frequency): Lokavec-Kovačevče (Nos. 3, 9, 15-16), Stari grad above Unec (Nos. 2, 4, 6, 13), Grad near Reka (Nos. 1, 8, 11), Šentiška planota (Nos. 5, 12), Bodrež (2 brooches), Ljubljana (2 brooches; Vičič 1994, 27, pl. 1: 8,9), Novo mesto (Nos. 7, 17), Kobarid-Gradici (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-Gradici, Idrija pri Bači, Bodrež, Loke-Kolenovca near Nova Gorica), the Vipava Valley (Lokavec-Kovačevče) and Šentiško-Cerkljansko hribovje (Grad near Reka, Šentiška 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 manufactured 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 southeastern 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: Šentiška planota - a recently found find-spot; Kobarid-Gradici; Lokavec-Kovačevče; five from burial sites (Bodrež, Idrija pri Bači, Novo mesto); 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 Southeast (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 fittings 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 are known from Locrus (located near the supply of brass were Roman brass objects 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). The Gallic brass coins of 52 BC therefore confirm the results of our own research.
Brooches of the Alesia group in Slovenia

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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Fibule skupine Alesia v Sloveniji

1. UVOD

Fibule pozne latenske oziroma zgodnjerimske dobe so najpogosteje izdelane iz bakrovih zlitin, ki jih v objavah običajno imenujejo "bron" (npr. Demetz 1999). Brez analiz, ki pa so izredno rečne, so takoj opredelitev neumeteljene in pogosto tudi napačne.

Pravilna opredelitev zlitine, iz katere je predmet izdelan, je pomembna za obdobje poznejših latenskih in zgodnjerimskih zbir. Vendar je ta problem še posebej veljaven v obdobju prehoda poznolatenske v novolatensko dobo.

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., rečne pa so srebrne (npr. ibid., t. 4; 1: 1; 5: 2; 7: 3; 16: 1; 17: 17; 21: 8; Božič 1993, 141-143).

2 Ob objavi članka so sta mi bili poznani le XRF analizi (rentgenska fluorescenčna spektrometrija) dveh fibul skupine Alesia, ki "je poleg bakra in kostira pokazala tudi dokajšnjo prisotnost srebra" (Vičič 1994, 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, Sto 1993, 135-136, 139, op. 2, sl. 10: 5.7). Dragan Božič je po bronasti članki segenal srebrne bil iz objave analiz 113 fibul (dve sodita k skupini Alesia) iz Halterna (Riederer 2002a, 109-121).

IZHODIŠČE

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

Uporabo medenino, tj. zlitine bakra in cinka, so v Evropo uvedli Rimljani. Z medenino so se najverjetneje seznanili v Mali Aziji, kjer je se namepra ve obsežna izdelava medenine s cementacijskim postopkom začela na začetku 1. pr. n. št. (Craddock, Preston 1982).

Ali so v tem času iz medenine medenino uporabljali tudi pri izdelavi rimske vojaške opreme (po naši vednosti) še niso bile predmet raziskav.4 Za določitev materialov, iz katerih so fibule izdelane, in opredelitev posameznih nanosov na površini (npr. pokosištrenje) ali drugih dejavnikov. Za primerjavo smo pod vrstičnim elektronskim mikroskopom pregledali tudi nedvomno pokosistine (ibid., 157-162).


5. FIBULE SKUPINE ALESIA Z OZEMLJA SLOVENIJE

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

Demetz Alesia Ia3


6 Točna datacija tega tabora ni znana. Po 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 njemnemu je tabor v Dangstettnu zgodnjeavgustejsko in bi bil ustanovljen okoli 20 pr. n. št. 2 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; 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; 349: 1; 373: 2; 401: 3; 404: 4; 450: 4; Fingerlin 1998, 373: 1; 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; 623: 3; 640: 1; 641: 1; 647: 1; 654: 1; 660: 1; 685: 2; 697: 1; 698: 1; 699: 1; 700: 1; 702: 1; 705: 3,4; 744: 1; 745: 3,4; 748: 1; 753: 1; 754: 1; 778: 2,3; 793: 1; 819: 2; 833: 1; 834: 1; 841: 1,2; 843: 1; 844: 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: 17; 1093: 1; 1101: 1; 1107: 1; 1124: 1; 1142: 1; 1155: 1; 1181: 1; 1220: 4,9; 1221: 2; 1223: 2; 1246: 1; 1291: 1; 1292: 1; 1298: 1; 1307: 1; 1310: 5; 1350: 6; 1351: 1; 1357: 1-3.


10 Albrecht 1942, t. 4: 1-3 (tri fibula, od tega dve tipa Aucissa); Kühlborn 1992, t. 33: 45-53 (deset fibula, od tega osem tipa Alesia).


Opis (t. 1: 1-2; sl. 1)
1. Lok in tečaj fibule (noga in igla nista ohranjeni). Medenina, os železna. Sedanja, zelo tenka temnobrajna korozijska plast je verjetno sulfidna in ni nastala na prvotni površini temveč potem, ko je bila prvotna korozijska plast odstranjena (nестрооков гузен нdbhjel). Fibula je kovana, okras trikotnikov punciran. Tečaj, ki na levi strani rahlo presega širinjo loka, je narejen z zavojem pločevine loka navznoter, ob straneh pa je stisnjen, verjetno zaradi pritožitve osi v tečaju; v podrobnosti ni nesimetričen. Dolžina 46 mm, širina 11 mm.


2. Fibula, manjkajo del noge, del tečaja in igla. Medenina. Prvotna površina je dobro ohranjena v deninjeni temnijsi plasti korozije; na izpostavljenih mestih, kjer je odrgnjena, 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 presega pravokotno razširjeni širinjo loka. Narejen je z zavojem navznoter in lepo izdelan; na levi strani železna os pribl. 1 mm presega celotno tečaj. Lok je zvito iz podolžne osi (glava noga), temveč potem oblikovali s kovanjem. Tečaji so izdelani z zavojem okoli železne osi navzdol in navznoter.

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

Demetz Alesia I, razno


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


Demetz Alesia Ic

Fibule z gladkim, neokrašenim trikotnim lokom, ki imajo lahko različno oblikovane noge in tečaje. Tečaje se izdelujejo z zavojem pločevine loka navznoter in podolžno, na majhni površini pa je odpadla. Tečaj je na tečaju nastala izrazita korozija železne osi. Dolžina 70 mm, širina 13 mm.


Fibula, naga manjka. Bron, os tečaja železna. Prvotna površina je dobro ohranjena v temnosi gladi korozija, ki leži rahlo zavito in zavito. Loc. cit. je razlikoval v temnem osečaju, temveč prepoznavati lahko preprosto razširjeni trikotnik, ki je oblikovno enotne. Domnevamo, da so osnovno obliko fibule izdelali z zavojem pločevine loka. Tečaji so izdelani z zavojem okoli železne osi navznoter, na levi strani od tečaja rahlo presega lepo izdelan. Lok je prehodni tečaj; v podrobnosti je nesimetričen. Dolžina 46 mm, širina 11 mm.


Demetz Alesia I, razno


Fibula, dobro ohranjena, igla manjka. Bron, os železna. Prvotna površina je dobro ohranjena v temnosi gladi korozija, ki leži rahlo zavito in zavito. Lok je izdelan z zavojem pločevine loka navznoter, ob straneh pa je stisnjen, verjetno zaradi pritožitve osi v tečaju; v podrobnosti je nesimetričen. Dolžina 46 mm, širina 11 mm.


Fibula, dobro ohranjena, igla manjka. Bron, os železna. Prvotna površina je dobro ohranjena v temnosi gladi korozija, ki leži rahlo zavito in zavito. Lok je izdelan z zavojem pločevine loka navznoter, ob straneh pa je stisnjen, verjetno zaradi pritožitve osi v tečaju; v podrobnosti je nesimetričen. Dolžina 46 mm, širina 11 mm.


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

Demetz Alesia Ila
(Feugère tip 21b1; Guštin skupina I, različica 213)

Fibule, pri katerih sta tečaj in noga enaka kot pri klasičnih fibulah tipa Alesia, lok pa je pravokoten ali trikoten in ima prčne 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). Fibula z Gradu pri Reki (št. 8) in iz najdišča Lokevca-Kovačevo prištevamo (št. 9) sta si po obliki in okrasu tako podobna, da domnevamo njen izvor v isti delavnici. Iz iste delavnice verjetno izvirajo tudi št. 48, t. 91: 48), in primerek z Gradu pri Reki izvira iz konteksta datiranega v 52 pr. n. št. (Brouquier-Reddé, 1995, 91-92, št. 8-10 imajo tudi izrazite gumbi, ki so na straneh nataknjeni kovanjem in piljenjem (npr. noga, ležišče za iglo). Tečaj fibul je enak leżu, ki je pod obema nogama oblikovan s punciranjem (npr. noga, ležišče za iglo) ter okrašen s punciranjem (npr. noga, ležišče za iglo). Tečaj fibul je enak ležu, ki je pod obema nogama oblikovan s punciranjem in piljenjem (npr. noga, ležišče za iglo) ter okrašen s punciranjem. Na zunanji strani noge je vidna železna os. Narodni muzej Slovenije, inv. št. R 18974. 46 mm, širina 21 mm.

Tako je nogo utrdil. Dolžina 53 mm, širina 23 mm.

Fibula z Gradu je medeninasta. Neobjavljeno. Analize: EDS XRF, PIXE.

Demetz Alesia IIb
(Guštin skupina II, različica 613)


Fibule te različice so bile izdelane podobno kot različica IIa: najprej višje (lok, tečaj), nato pa dokončno oblikovane s kovanjem in piljenjem (npr. noga, ležišče), končno najprej skovali določno nogo, ki ji je potem zavival nazaj zakočeno (npr. noga, ležišče za iglo) ter okrašene s punciranjem (npr. noga, ležišče za iglo) ter okrašene s punciranjem. Na zunanji strani noge je vidna železna os. Narodni muzej Slovenije, inv. št. R 18974. 46 mm, širina 21 mm.

Tako je nogo utrdil. Dolžina 53 mm, širina 23 mm.


14 Na to fibulo je pozoril Dragi Božič.


Demetz Alesia Iic
(Guštin skupina I, različica 3 39)


Demetz Alesia IId
(Guštin skupina II, različica 7 215)


16 Glede nejasnosti Guštineve tipologije pri razlikovanju njihovih 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, da je matrikla omenjeni le bron (pričakovala bi namreč tudi ostanke srebra).
20 Pregled pri Guštin 1991a, 44, op. 94 citirane literaturi pokaže, da ta fibula (njeno najdišče je Sprincenata) ne sodi v različico IId. Za podatek se zahvaljujem Dragunu Božiču.
št. 15. Menimo, da bo v bodoče smiselno primerke z enim, dvema ali tremi perforiranimi ovalnimi razširitvami obravnavati te slabo ohranjene fibule je pokazal, da je imela na loku zelo verjetno le eno ovalno razširitev. Sicer pa je izrazito podobna fibuli zahvaljujem za te podatke kot tudi, da me je opozoril na to fibulo.

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


Opis (t. 18)


Ia3, Ic, IIa, IIb, IIc in IId. V različicah Ia3, IIa, IIb 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 stabilni bron in medenino, je fibula št. 3.

Uporaba medenine v fibule posameznih različic je pomemben element za opredelitev njihove izvora. Ta je bil nakazan že v ugotavljanju njihove razširitvenosti (glej pogl. 4). Tako so vse analizirane fibule Alesia Ia3 najverjetneje izdelovali v Italiji, verjetno v Aquileiji ali njeni okolici. Enako velja tudi za vsaj del fibul različice Ia, tj. skupinico, ki ji med drugim pripadajo fibule s slovenških najdišč. Razširjenost (glej spodaj) in uporaba medenine prav tako kažeta na (severno)italski izvor fibul različice Alesia Ia, IIc in IId. Češtinova domneva, ki jih je prišlo iz vivrščine (Craddock 1978b, 381), je pri kovanih predmetih skrajno malo verjetna.


Rezultati arheometričnih analiz fibul skupine Alesia iz Slovenije kažejo, da je to značilen najstarejši vir ruskih fibul, ki so jih praviloma izdelovali v medenini. Cink in svinčev metal so bila v uporabi za izdelavo brušil, rušil, grobišč, vsakogarja ali pa za prorači (število primerov: Lokavec-Kovačevče, Bač - Gradčje, Bodrež, Loke-Kolenovca pri Novi Gorici (enajst fibul))

7. SKLEP

Zajeti podatki kažejo, da so fibule skupine Alesia v Slove-
niji razmeroma dobro zastopane. Poznane so s sledečih najdišč: (vrstni red glede na število primerov: Lokavec-Kovačevče, Bač - Gradčje, Bodrež, Loke-Kolenovca pri Novi Gorici (enajst fibul)).


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niji razmeroma dobro zastopane. Poznane so s sledečih najdišč: (vrstni red glede na število primerov: Lokavec-Kovačevče, Bač - Gradčje, Bodrež, Loke-Kolenovca pri Novi Gorici (enajst fibul)))

Ali so tudi življenje mej, ki so bila verjetno namenjena kulturnemu darovanju predmetov (sedem fibul: Šentviška planota medeninaste - št. 2, 4, 10, 13). V skupini Alesia skupine Ia3, Ic, IIa, IIb, IIc in IId kot odpadni predmeti za ponovno uporabo.

Razširjenost fibul te skupine posnemale (kopirale) delavniško izvoz v "rimskih" delavnicah. Štiri izdelane svinčevaste fibule v skupini Ia3 kažejo na čisto medenino in torej na izdelevali zlata, ki je pri kovanih predmetih skrajno malo verjetna.

Kot odpadni predmeti za ponovno uporabo.

Razširjenost fibul te skupine posnemale (kopirale) delavniško izvoz v "rimskih" delavnicah. Štiri izdelane svinčevaste fibule v skupini Ia3 kažejo na čisto medenino in torej na izdelevalni izvor zlata, ki je pri kovanih predmetih skrajno malo verjetna.

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Kot odpadni predmeti za ponovno uporabo.
Brooches of the Alesia group in Slovenia

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


Galski medeninasti noveci, 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 obravnovanih fibul, Irma Langus k opisu njihove ohranjenosti, Sonja Perovšek pa za pripravo fibul za PIXE analize (vsi Narodni muzej Slovenije). Nada Osmuk, Beatriča 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 Dolenski 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).