

A NEW POINT ON THE BUCKET LIST

A Cauldron with Cross-Shaped Attachments from an Iron Age Grave at Castaneda, Canton Grisons, Switzerland

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So far, the Iron Age graveyard of Castaneda in the Val Mesolcina, located in the southern part of the Swiss Canton Grisons, has yielded some 200 graves, dating from between 500 and 150 BC, as well as parts of the associated settlement. Castaneda lies on the north-eastern border of the Alpine region occupied by the Golasecca culture during the Late Bronze and Early Iron Ages, on an important communication route through the Val Mesolcina. This very old interaction zone connected Northern Italy with the Swiss Plateau (Mittelland) and the Alpine Rhine Valley, as far as Lake Constance.

In summer 2021, four new graves were uncovered. Grave 1/2021, dating from the end of the Hallstatt period, contained a bronze cauldron with cross-shaped attachments. The entirely preserved vessel belongs to Type C, as defined by Gero v. Merhart. These cauldrons have been discovered in a wide area, stretching from the Balaton region in Hungary to the source of the Seine in France, almost exclusively as part of high-ranking male grave inventories. The *Caput Adriae* region is suspected to have been the production centre.

The discovery of the Castaneda cauldron is an opportunity to reanalyse the distribution of Type C cauldrons. This may shed some new light on Early Iron Age trade routes and trade networks, while also offering new insights into social hierarchies in the Alpine region of the Golasecca culture during the Early Iron Age.

INTRODUCTION

The village of Castaneda is located on a south-facing terrace, 780 m above sea level and 450 m above the valley floor, at the junction of the Val Calanca and the Val Mesolcina in the Swiss Canton Grisons (Fig. 1). Since the Mesolithic (*Della Casa* 2000), the valley of the Moesa River has been a dynamic interaction zone. Furthermore, it has been a key section of an important north-south route over the San Bernardino Pass, connecting Northern Italy with Southern Central Europe, i.e. the Swiss Plateau (Mittelland) and the Alpine Rhine Valley as far as Lake Constance (*Nebelsick/Balzer/Metzner-Nebelsick et al.* 2022, 621). Traces of early settlements, established during the Neolithic, have been found not only at Castaneda, but also at Mesocco, the Val Mesolcina's northernmost municipality (*Rageth* 1992; *Rageth/Defuns* 1992).

Throughout the Iron Age, the Val Mesolcina marked the north-eastern border of the Golasecca culture of Northern Italy. The dense network of settlements known from the Hallstatt (Ha) and La Tène (Lt) periods and the associated, extraordinarily furnished burial grounds suggest that the communication and trading route across the San Bernardino became particularly important at this time (*Nagy* 2012, 20–26; *Schmid-Sikimić/Seifert/Ebnöther* 2023). The cemeteries, in particular, have been known and excavated since the late 1800s. Many grave inventories were dispersed across various European museums (*Stech* 2013). Over the last 20 years, several projects have focused on the publication of grave inventories from the cemeteries of Castaneda (*Nagy* 2012) and Mesocco (*Schmid-Sikimić* 2002) in Canton Grisons, and the necropolis of Giubiasco (*Tori et al.* 2010) in Canton Ticino.

The Iron Age burial ground of Castaneda is located to the south of the church of St. Stefano, while the remains of the Late Bronze Age and Iron Age settlement are just northeast of it. Patrick Nagy, when



Fig. 1. The Val Mesolcina in the south-west of the Swiss Canton Grisons. The known Iron Age settlements are marked in red (map: www.map.gis.gr.ch; aerial image: ETH-Bibliothek Zürich, Bildarchiv/Stiftung Luftbild Schweiz; photograph: Swissair Photo AG/LBS_R1-911505/CC BY-SA 4.0; graphic: ADG).

he published the known grave and settlement features in 2012, estimated that at least 200 graves, almost exclusively inhumation burials, had been uncovered by then (Nagy 2012, 84).¹ These belonged to the local phases Tessin C to Lt C, corresponding to phases Ha D3 to Lt C in the Central European chronology (Fig. 2; Nagy 2012, 365–377, fig. 8: 1). The associated settlement started much earlier, during Tessin A, which can be correlated with Ha D1 (Nagy 2012, 361–364). The chronological discrepancy may suggest that the full extent of the burial ground has not yet been recorded.

¹ Owing to the early excavation of the graveyard, the exact number of burials is unknown.

	Lombardy De Marinis 1981	Tessin/Misox Nagy 2012	Central Europe Nagy 2012
1000 BCE	Ascona II	Protogolasecca II	Ha B1
	Protogolasecca Tipo Ca Morta – Malpensæ	Protogolasecca III	Ha B2
900 BCE	G I A1	G I A1	Ha B3
800 BCE	G I A2	G I A2	Ha C
700 BCE	G I B	G I B	
	G I C	G I C	
600 BCE	G II A	Tessin A	Ha D1
	G II A/B	Tessin B	Ha D2
500 BCE	G II B	Tessin C	Ha D3
	G III A1	Tessin D1	Lt A
	G III A2	Tessin D2	
400 BCE	G III A3	Lt B1	Lt B1
	G III B	Lt B2	Lt B2
300 BCE		Lt C1	Lt C1
200 BCE		Lt C2	Lt C2
		Lt D1	Lt D1a
100 BCE		Lt D2	Lt D1b
			Lt D2a
10 BCE			Lt D2b

Fig. 2. Relative chronology of the Golasecca culture in Lombardy, Ticino/Mesolcina and Central Europe (cf. Nagy 2012, fig. 8: 1).

THE DISCOVERY OF THE CAULDRON GRAVE AT CASTANEDA

In June 2021, the Archaeological Services of Canton Grisons (ADG) carried out archaeological investigations in the Via a la Mota, just south of the church and right at the heart of the known Iron Age cemetery. The excavations yielded four Iron Age graves: two cist graves belonging to phases Tessin D2 and Lt C1 respectively, a third, severely damaged, probably dating from phase Lt B2, and grave 1/2021, which will be discussed in more detail here.

Only about 0.5 m below the surface (Fig. 3) an almost square pit emerged, surrounded by stone slabs and containing a rare cremation burial. Evidence of the incineration burial rite is highly unusual in the Castaneda cemetery; grave 1/2021 is only the second cremation burial to have been found so far.² The grave goods had been deposited in the north-western half of the small tomb, while the cremated bones had been scattered in its south-eastern half (Fig. 4). The most outstanding of the various grave goods was an entirely preserved cauldron with cross-shaped attachments. Associated with a bronze cup and a ceramic beaker, it was part of a set of vessels often observed in funeral contexts of the Golasecca culture, consisting of a large container, a scoop, and a drinking vessel (Nagy 2012, 338).



Fig. 3. Uncovering of grave 1/2021 and the cauldron with cross-shaped attachments from Castaneda (photo: ADG).



Fig. 4. Grave 1/2021. Grave plan and distribution of the grave goods (photo & graphics: ADG).

² In the Val Mesolcina and Sopraceneri regions, inhumation burials were the norm from phase Tessin C (Ha D3) onwards, while in the Sottoceneri region and Lombardy, cremation burials were most common (Della Casa *et al.* 2010, 352). Of the over 200 graves published by P. Nagy, only the female grave 68, dating from Tessin D2 (Lt A), has so far been identified as a cremation burial.

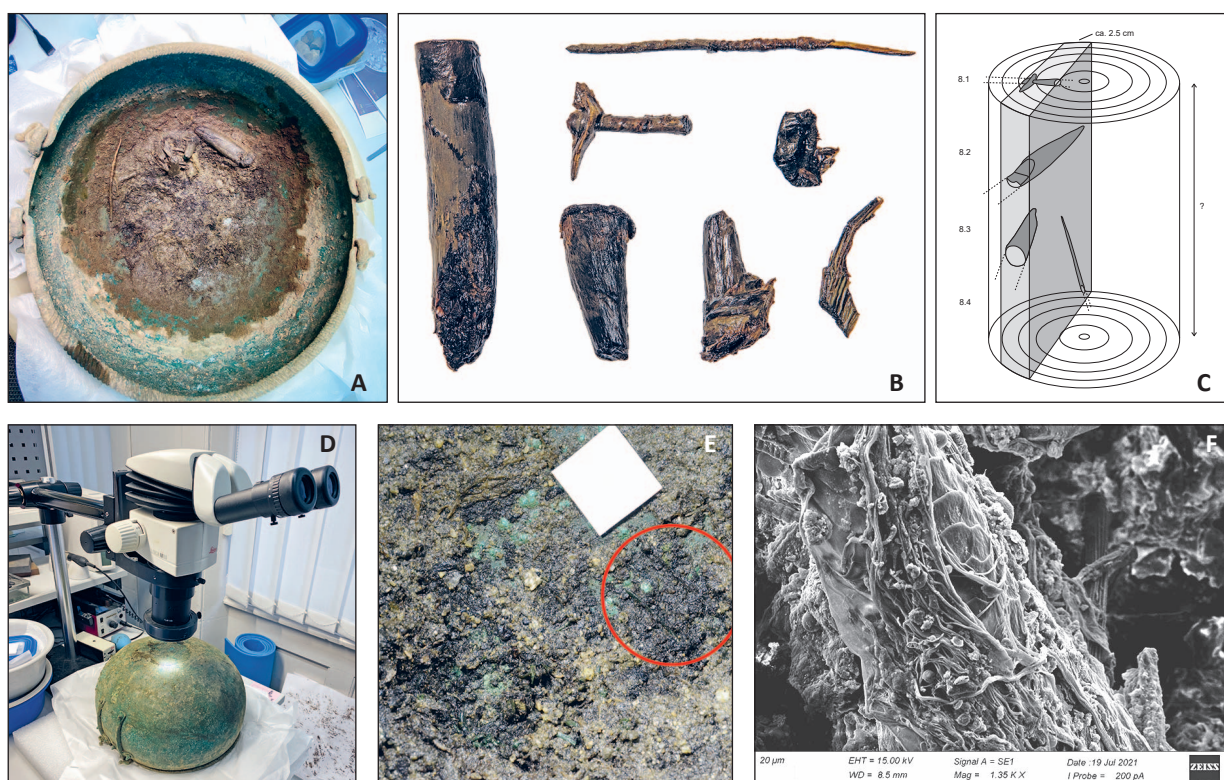


Fig. 5. Scientific analysis of the Castaneda cauldron. A – wood and organic residues at the bottom of the cauldron; B – detail of the preserved wood with tool marks; C – reconstruction of the wooden board (lid); D – analysis of textile/leather residues; E – macroscopic evidence of sheep wool on the cauldron; F – microscopic evidence of sheep wool on the cauldron (photos A–D: ADG; E–F: A. Rast-Eicher).

Grave goods and their positions in the grave

The ceramic beaker, of Nagy's Type 1c (Tessin B–C; Nagy 2012, 260, fig. 4: 73), was placed upside down to the west of the bronze cauldron, while the scoop, a single-handled bronze cup known as a *capeduncola*, was placed to the south of it. Remains of wood both above and below the *capeduncola* suggested that it had once stood on a wooden board and had a wooden cover. The cauldron had also originally stood on a wooden board. Five identical serpentine fibulae completed the ensemble. One lay under the cauldron, three lay between the cauldron and the *capeduncola*, and a fifth was deposited with an iron knife to the east of the cauldron.

Dating of the grave

The fibulae belong to Type 3 of the serpentine fibulae defined by P. Nagy for Castaneda and date the grave to local phase Tessin C, i.e. Ha D3 (Nagy 2012, 106).³ The poorly preserved *capeduncola*, made of thin bronze sheet,⁴ belongs to a well-known type from Northern Italy (De Marinis 1981, 24–205; Nagy 2012, 221, fig. 4: 52) dating to G III A 1, i.e. Ha D3 (Fig. 2). It has an everted rim, a high, almost vertical neck and a dome shaped body. On the neck, an incised decoration is preserved: at least four horizontal lines, between which patterned bands composed of bundles of strokes, hanging triangles and slash hatches are recognisable. A good parallel was found in grave 81 at Castaneda itself, which dates the same period as grave 1/2021 (Nagy 2012, 745, pl. 71: 511). Interestingly, the handle of our *capeduncola* does not have

³ According to Nagy's seriation of the Castaneda graves, types 2 and 3 of the serpentine fibulae represent an early stage (C1) of the phase Ticino C (Nagy 2012, 346, fig. 6: 3).

⁴ Because of its fragile state of preservation, a thorough analysis and documentation of the bronze scoop has not yet been possible. At the time of writing, it is in the process of conservation at the HE-Arc in Neuchâtel, Switzerland.



Fig. 6. The Castaneda cauldron (photo: ADG).

a cruciform attachment like other specimens of the type but tapers to a point like a willow leaf. A cup from Este, Benvenuti grave 116, dating from Lt A, has a similar attachment (*Capius/Chieco Bianchi* 2006, 251, pl. 130: 16).

Scientific analyses

During conservation, a thin layer of organic residue and fragments of wood (Fig. 5: A, B) were found in the bottom of the cauldron. The wood was identified as branches of spruce. Processing marks were detected on some of the fragments (Fig. 5: B), which had originally been part of a 3 cm-thick board, presumably used as a lid (Fig. 5: C). Radiocarbon dating of one of the fragments confirmed that the wood was contemporary with the burial and not secondary material introduced later on.⁵

Furthermore, remains of sheep wool were detected, not only in the bottom and on the outside of the cauldron (Fig. 5: D–F), but also on the scoop, the three fibulae deposited between the scoop and the cauldron, and the fibula under the cauldron. By contrast, no remains of wool were found on the knife and the fibula next to it. This suggests that the drinking service had been wrapped in a sheepskin and fastened with four fibulae before being deposited, while the personal accoutrements of the deceased were placed directly in the grave.

THE CAULDRON FROM GRAVE 1/2021 AT CASTANEDA

The completely preserved cauldron, with cross-shaped attachments (Fig. 6), has semi-circular twisted handles. The handle ends are bent into hooks with S-shaped extensions and hemispherical knobs on the tips (Fig. 7: C). The four single handle attachments, mounted pairwise (Fig. 7: B), are undecorated. Each is fixed to the body of the cauldron by three rivets with conical heads. In cross-section, their eyelets are diamond-shaped, their central branches trapezoidal, and their flat arms and lower ends triangular. The arm of one of the crosses has a semi-circular recess (Fig. 7: E) – either a false hole or a casting defect.

The rounded body of the vessel is 15.8 cm high and measures 27.6 cm in diameter at the narrowest point (where the handles are mounted) and 29.6 cm at the widest. The retracting rim is slightly thicker than the rest of the body. A recessed, flat bottom, with a diameter of 8.6 cm, provides stability (Fig. 7: A). Several dents on the body and stress marks on the handles (Fig. 7: D) are proof of intensive use. In addition, the vessel had been patched with a 1 × 2.5 cm metal plate attached to the outside (Fig. 7: A).

An elaborate geometric frieze is incised below the rim of the vessel, composed of 13 horizontal lines and groups of oblique and vertical strokes (Fig. 8). At the top of the frieze, an initial blank band is followed by a band filled with simple, oblique hatching lines. The hatching lines are set at more-or-less regular intervals, running from upper right to lower left. The bottom of the frieze is marked by a band of hanging triangles, each filled with three inscribed lines converging at the point. These outer bands frame the central, seven-band-wide ornamentation consisting of three ingeniously interlaced, continuous, crenelated meanders (*Zinnenmäander*). Rectangular areas filled with a zig-zag pattern form the horizontal lines of the meanders, while the verticals consist of bundles of three vertical strokes, each running across three bands. The upper meander consists of broad merlons and narrow crenels, the middle meander of uniform merlons and crenels, and the lower meander of narrow merlons and broad crenels. The filler spaces above the crenels of the uppermost row and below the merlons of the lowermost row are filled by four centrally inscribed slashes. These filler spaces combined with the prominent vertical lines of the interlaced meander bands form a second pattern, namely a stepped wavy band that appears superimposed over the meanders.

The decoration is best preserved near the cross-shaped attachments (Fig. 7: E); towards the centre of the cauldron, the decoration had been heavily abraded. Constant maintenance and cleaning probably caused the fine, incised decoration at the easily reachable centre of the container to disappear over time, while the area around the handle attachments was less carefully and intensively cleaned. This, and the overall condition of the vessel, show that it had been in use, carefully treated and maintained, for a long period, possibly several generations.

⁵ Sample BE-17211.1.1 2464 ±26 BP, 758–420 BC, cal. 2 sigma.

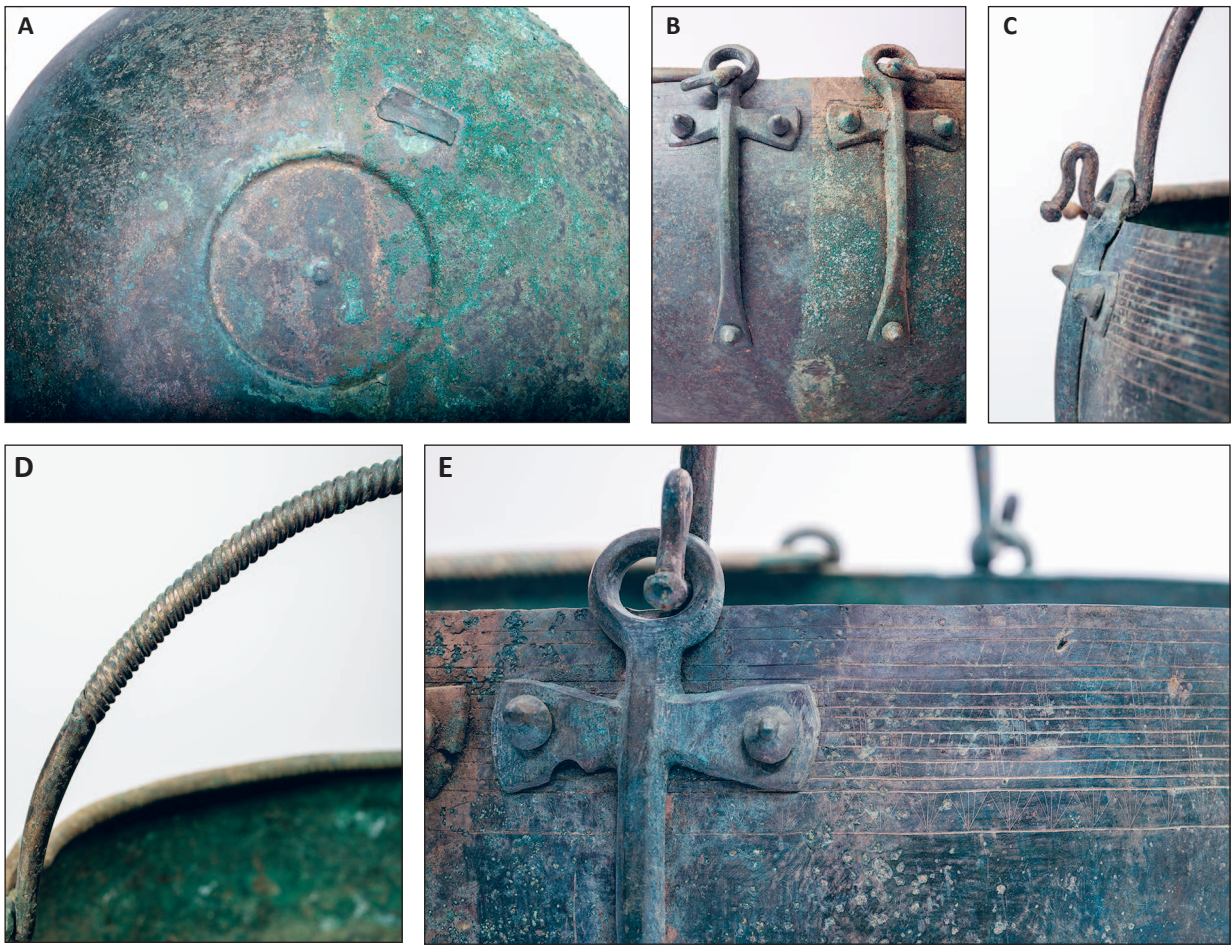


Fig. 7. Details of the Castaneda cauldron. A – bottom of the cauldron with patch; B – cross-shaped attachments, only the left one has been restored; C – handle hook with S-shaped extension and hemispherical knob on the tip; D – twisted handle and stress marks; E – the ornamentation on the rim was best preserved next to the handle attachments (photo: ADG).

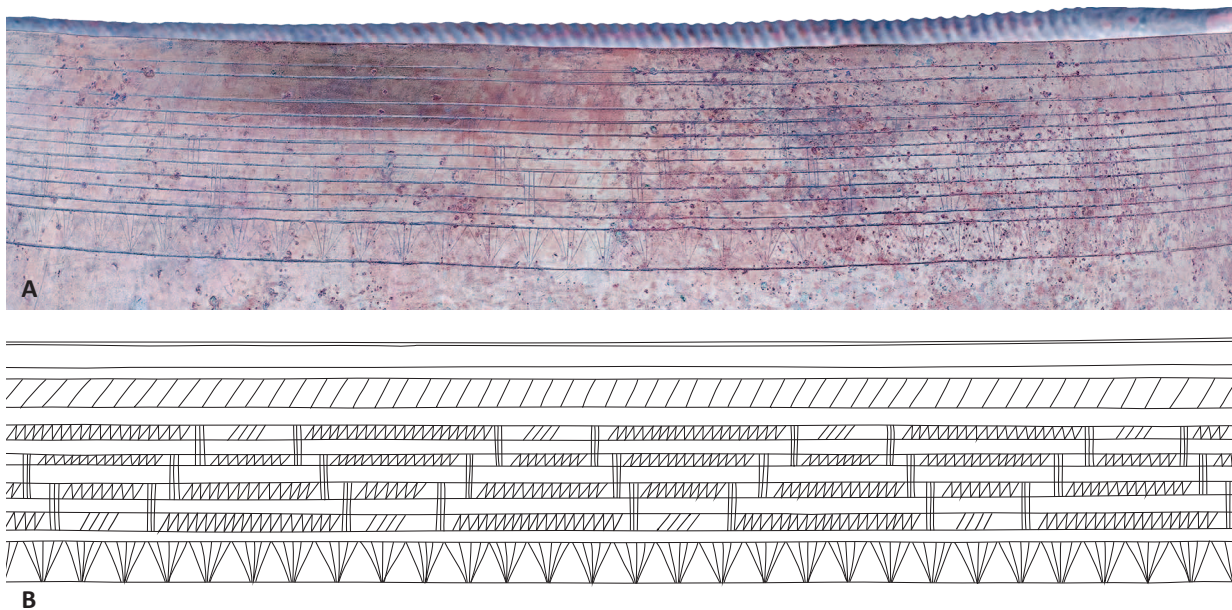


Fig. 8. A – false-colour picture of the ornamentation on the cauldron's rim; B – reconstruction of the decorative pattern (photo & graphics: ADG).

SPATIAL ANALYSIS OF VON MERHART'S TYPE C CAULDRONS

Research history

The cauldron belongs to Type C of cauldrons with cross-shaped attachments, as defined by Gero von Merhart in 1952 (*Merhart 1969*, 286, 298–300, map 1). At the time, von Merhart listed 63 specimens and recognised the southern groups of the Eastern Hallstatt culture as the main producing agents. Cauldrons of Type C arrived in Central Europe from the Eastern Alps during periods Ha C and Ha D. Von Merhart's distribution map shows them loosely dispersed from the Balaton region to the source of the Seine. Markus Egg added some 30 specimens to von Merhart's list and pointed out that, besides the main distribution centre in modern Slovenia, another minor one existed in Northern Venetia (*Egg 1985*, 373–377, fig. 40; 1996, 100–102, fig. 58). B. Teržan (1998, 525, 526, fig. 9) postulated a shift of the production area from the Styrian-South Pannonian Group in Ha C–Ha D1 to the Dolenjsko Group in Ha D2–Ha D3.

The typological development of the cauldrons with cross-shaped attachments is still not clear. They are found almost exclusively in grave contexts, whose dates span the whole of the Hallstatt period, i.e. approximately 300 years. In 1991, in his unfortunately unpublished dissertation on ancient Venetic bronze production, Ralf Schwarz tried to classify the cauldrons by their handle attachments (*Schwarz 1991*, 234–253).⁶ Based on antiquarian and archaeological observations, he was able to identify different possible workshops and formulate some theories about their chronological development. In his view (*Schwarz 1991*, 253), cauldrons with single handle attachments (mounted in pairs) were older than those with twin attachments, the latter not appearing before Ha D1, while the cauldrons' decoration, based mainly on meanders, evolved from complex patterns, requiring considerable time to execute, to simpler forms, eventually consisting of no more than single bands of hatching and triangles; the very last cauldrons simply had horizontal lines around the rims or remained undecorated.

Method and data

The aim of our study was to verify Schwarz's conclusions by conducting spatio-temporal and statistical analyses. For this purpose, we compiled a database, from the available literature, of 134 specimens of Type C cauldrons, originating from 72 sites, spread over 12 countries (Table 1).⁷ We grouped the specimens into ten feature combinations, based on combinations of the type of the cross-shaped attachment and the type of ornamentation on the rim: cauldrons with single attachments combined with (1) checkerboard patterns,⁸ (2) meanders, (3) lines, (4) triangles and (5) no decoration; cauldrons with twin attachments combined with (6) meanders, (7) lines, (8) triangles and (9) no decoration; and finally, cauldrons with an indeterminate form of attachment and/or decoration (10). On the timeline, the cauldrons were separated into three groups: early (Ha C), middle (Ha D1–Ha D2)⁹ and late (Ha D3–Lt A).

Major problems and data biases hampering the study were related to the dating of the objects. More than half of the cauldrons, namely 73 specimens, could not be dated directly, either because they were found without other dating material, or because of missing documentation; after all, a huge proportion of the cauldrons originates from old excavations.¹⁰ Moreover, a fairly large discrepancy between the time of production and the time of deposition of the cauldrons, especially those found outside the supposed production areas in Italy and Slovenia, was to be expected. Found almost exclusively in high-ranking grave inventories,

⁶ As he himself admitted, this was a stopgap solution, since in the case of a vast number of finds from Venetic territory only the cauldron attachments were preserved.

⁷ M. Egg listed 82 cauldrons (*Egg 1985*, 373–376) and added a further seven in 1996 (*Egg 1996*, 101). B. Teržan contributed another seven specimens (*Teržan 1998*, 525). Since then, in addition to the cauldron from Castaneda/CH, four specimens have been discovered at Verucchio/IT, two at Aigen im Ennstal/AT and one each at Niederrasen/IT, Stari Kostolac/RS and Szurdokpüspöki/HU, cf. literature in Table 1. The remainder were added based on Schwarz's typology of the attachments from Venetic cauldrons (*Schwarz 1991*, 234–253) and represent a minimum count of these vessels.

⁸ This ornament is also found on the older Urnfield cauldrons of von Merhart's Type B. On the Type C cauldrons, it is only found in combination with single attachments.

⁹ Specimens dating from Ha D in general were included in this phase.

¹⁰ For example, most of the Venetic specimens and the cauldrons from Magdalenska gora and Stična originated from mixed up grave inventories from the excavations by the Duchess of Mecklenburg in the early 1900s. The latter contributed to a vivid and ongoing discussion on the chronology of the Early Iron Age in Slovenia (*Božič 2010; 2016; Gabrovec et al. 2006; 2010; Tecco Hvala 2012; Tecco Hvala/Dular/Kocuvan 2004*).

Table 1. List of Type C cauldrons with cross-shaped attachments.

Nr	Country	Location	Lat_wgs84	Lon_wgs842	Context	Attachments	Ornaments	Feature combination	Group_phase	Phase	Reference
1	Austria	Bernhardthal	48.693	16.869	unknown	single attachments	indet	10	indet	indet	<i>Prüssing 1991</i> , 73, No. 259, pl. 68
2	Austria	Hallstatt	47.554	13.646	grave	single attachments	meander	2	early (Ha C)	Ha C1	<i>Kroner 1959</i> , 132, 133, pl. 113: 1
3	Austria	Hallstatt	47.554	13.646	grave	double attachments	lines	7	middle (Ha D/Ha D1–D2)	Ha D	<i>Kroner 1959</i> , 146, pl. 126: 2
4	Austria	Helpfau-Uttendorf	48.154	13.117	grave	double attachments	lines	7	middle (Ha D/Ha D1–D2)	Ha D2	<i>Egg 1985</i> , 373–377, fig. 27: 40
5	Austria	Helpfau-Uttendorf	48.154	13.117	grave	double attachments	lines	7	middle (Ha D/Ha D1–D2)	Ha D2	<i>Egg 1985</i> , 373–377, fig. 27: 40
6	Austria	Hof i. Leithageb	47.944	16.576	grave?	single attachments	meander	2	indet	indet	<i>Kubitschek 1911</i> , 243, fig. 24
7	Austria	Kleinklein	46.740	15.430	grave	single attachments	meander	2	early (Ha C)	Ha C2	<i>Dobiat 1980</i> , 203, pl. 2: 7
8	Austria	Kleinklein	46.740	15.430	grave	double attachments	meander	6	middle (Ha D/Ha D1–D2)	Ha D1	<i>Hack 2002</i> , 115, 116, fig. 23; pl. 1; <i>Hebert 1991</i> , 41, 42, fig. 9
9	Austria	Kleinklein	46.740	15.430	grave	double attachments	lines	7	middle (Ha D/Ha D1–D2)	Ha D2	<i>Egg/Kramer 2005</i> , 33, fig. 28
10	Austria	Kulm bei Aigen	47.523	14.141	grave	single attachments	meander	2	middle (Ha D/Ha D1–D2)	Ha D1	<i>Artner 2012</i> , 69, 70, fig. 19; pl. 4; 5: 15–18
11	Austria	Kulm bei Aigen	47.523	14.141	grave	single attachments	meander	2	middle (Ha D/Ha D1–D2)	Ha D1	<i>Artner 2012</i> , 69, 70, fig. 19; pl. 4; 5: 15–18
12	Austria	Pfaffstetten	48.015	16.261	grave?	double attachments	meander	6	indet	indet	<i>Kyrle 1924</i> , XXVI, fig. 16
13	Austria	Ramingstein	47.075	13.836	unknown	unknown	indet	10	indet	indet	<i>Merhart 1969</i> , 372
14	Austria	Strettweg	47.176	14.659	grave	unknown	indet	10	middle (Ha D/Ha D1–D2)	Ha D1	<i>Egg 1996</i> , 100–102, fig. 54: 5–9; pl. 26: 5–9
15	Austria	Waisenberg	46.705	14.563	grave	unknown	indet	10	late (Ha D3–Lt A)	Ha D3	<i>Glückscher 1994</i> , 47
16	Croatia	Beram	45.256	13.898	grave	double attachments	triangles (various)	8	indet	indet	<i>Merhart 1969</i> , 372; <i>Mladin 1974</i> , 125, 126, pl. 30: 7
17	Croatia	Beram	45.256	13.898	grave	double attachments	triangles (various)	8	indet	indet	<i>Merhart 1969</i> , 372; <i>Mladin 1974</i> , 125, 126, pl. 30: 7
18	Croatia	Goričan	46.386	16.680	grave	unknown	indet	10	indet	indet	<i>Vidović 1984</i> , 97
19	Croatia	Nesactium	44.917	13.969	grave	single and double attachments	no ornaments	10	indet	indet	<i>Mladin 1974</i> , 99, 100, grave 12, No. 48, pl. 11: 1; 45: 3, 3a
20	Croatia	Nesactium	44.917	13.969	grave	single attachments	triangles (various)	4	indet	indet	<i>Mladin 1974</i> , 100, grave 12, No. 49, pl. 11: 2; 46: 1, 1a
21	Croatia	Nesactium	44.917	13.969	grave	double attachments	no ornaments	9	indet	indet	<i>Mladin 1974</i> , 100, grave 12, No. 50, pl. 11: 3; 46: 2
22	Croatia	Nesactium	44.917	13.969	grave	double attachments	lines	7	indet	indet	<i>Mladin 1974</i> , 100, 101, grave 12, No. 51, pl. 12: 1; 46: 3
23	Croatia	Nesactium	44.917	13.969	grave	unknown	meander	10	indet	indet	<i>Mladin 1974</i> , 101, grave 12, No. 52, pl. 45: 6, 6a
24	Croatia	Nesactium	44.917	13.969	grave	unknown	meander	10	indet	indet	<i>Mladin 1974</i> , 101, grave 12, No. 53, pl. 12: 3
25	Croatia	Nesactium	44.917	13.969	grave	double attachments	indet	10	indet	indet	<i>Mladin 1974</i> , 109, 110, grave unknown, Nos. 10, 11, pl. 17: 4, 5; 64: 5, 8
26	Croatia	Picuge	45.197	13.648	grave	single attachments	triangles (various)	4	indet	indet	<i>Mladin 1974</i> , 121, pl. 64: 4, 6, 7; <i>Starč 1955</i> , 157, pl. 37: 1
27	Croatia	Picuge	45.197	13.648	grave	single attachments	triangles (various)	4	indet	indet	<i>Mladin 1974</i> , 121, pl. 64: 4, 6, 7; <i>Starč 1955</i> , 157, pl. 37: 1
28	Croatia	Picuge	45.197	13.648	grave	double attachments	no ornaments	9	early (Ha C)	Ha C	<i>Mladin 1974</i> , 113, grave 19, No. 5, pl. 12: 2; 44: 4

Table 1. Continuation.

Nr	Country	Location	Lat_wgs84	Lon_wgs84	Context	Attachments	Ornaments	Feature combination	Group_phase	Phase	Reference
29	Croatia	Piçuge	45.197	13.648	grave	single attachments	lines	3	early (Ha C)	Ha C	<i>Mladin 1974</i> , 113, grave 19, No. 6, pl. 22: 2; 60: 1, 1a, 121, grave 19, Nos. 29–31, pl. 29: 4; 64: 4, 6, 7
30	Croatia	Piçuge	45.197	13.648	grave	single attachments	checkerboard	1	indet	indet	<i>Mladin 1974</i> , 110, grave 4, pl. 22: 1; 54; <i>Staré 1955</i> , 157, pl. 37: 2
31	Croatia	Sv. Petar Ludbreški	46.255	16.694	grave	single attachments	indet	10	middle (Ha D/Ha D1–D2)	Ha D	<i>Balen-Letunić 1984</i> , 69–71, pl. 1: 1
32	Czech Republic	Býčí skála cave	49.307	16.694	deposition	double attachments	lines	7	middle (Ha D/Ha D1–D2)	Ha D2	<i>Hallstatt a Býčí skála 1969</i> , 84, pl. 4
33	Czech Republic	Červené Poříčí-Svíhov	49.501	13.295	grave?	single attachments	meander	2	middle (Ha D/Ha D1–D2)	Ha D2	<i>Smolík 1886</i> , 194–196, pl. 9: 11
34	Czech Republic	Nymburk	50.186	15.044	unknown	double attachments	no ornaments	9	indet	indet	<i>Kytlicová 1991</i> , 111, 112, No. 76, pl. 15
35	France	Bouranton	48.311	4.180	grave	single attachments	triangles (various)	4	late (Ha D3–Lt A)	Ha D3–Lt A	<i>Verbrughe/Villes 1995</i> , 46, 47
36	France	Buchères	48.238	4.114	unknown	double attachments	no ornaments	9	indet	indet	<i>Gaudron 1956</i> , 192–194, fig. 2
37	France	Cravant	47.685	3.689	unknown	double attachments	meander	6	indet	indet	<i>Gaudron 1956</i> , 192–194, fig. 1
38	France	Estissac	48.271	3.803	grave	double attachments	triangles (various)	8	late (Ha D3–Lt A)	Ha D3–Lt A	<i>Deffressigne/Villes 1995</i> , 60, fig. A 3: 09
39	France	Poiseul-La-Ville-La Perrière	47.577	4.682	grave	single attachments	meander	2	early (Ha C)	Ha C1	<i>Chaume/Feugère 1990</i> , fig. 5: 5; <i>Joffroy/Paris 1973</i> , 221–223, fig. 5: 6: 2
40	Germany	Aislingen	48.505	10.455	grave	single attachments	checkerboard	1	middle (Ha D/Ha D1–D2)	Ha D1–2	<i>Jacob 1995</i> , 85, No. 230; <i>Kossack 1959</i> , 141, pl. 38: 5; <i>Schwarz 1991</i> , 243
41	Germany	Asperg	48.904	9.144	grave	double attachments	indet	10	middle (Ha D/Ha D1–D2)	Ha D	<i>Jacob 1995</i> , 85, No. 234; <i>Zürn 1970</i> , 21, pl. 12
42	Germany	Bargen, Engen (Konstanz)	47.883	8.764	grave	double attachments	meander	6	early (Ha C)	Ha C2	<i>Jacob 1995</i> , 85, No. 231
43	Germany	Friedrichsfeld	49.440	8.575	grave	single attachments	meander	2	early (Ha C)	Ha C2	<i>Jacob 1995</i> , 85, No. 232; <i>Neilissen 1975</i> , 190, pl. 5
44	Germany	Herbertingen-Hundersingen	48.077	9.399	grave	double attachments	meander	6	early (Ha C)	Ha C?	<i>Jacob 1995</i> , 84, No. 227; <i>Schiek 1957</i> , 141 pl. 24: 1
45	Germany	Mendingen-Ihringen	48.043	7.647	grave	double attachments	lines	7	middle (Ha D/Ha D1–D2)	Ha D2	<i>Jacob 1995</i> , 84, No. 228; <i>Thomas 1982</i> , 69–71, fig. 2
46	Germany	Mössingen-Beisen	48.394	9.037	grave	unknown	meander	10	early (Ha C)	Ha C2	<i>Jacob 1995</i> , 85, No. 233; <i>Merhart 1969</i> , 372, pl. 49: 2
47	Germany	Rehling	48.486	10.923	grave	single attachments	meander	2	middle (Ha D/Ha D1–D2)	Ha D	<i>Jacob 1995</i> , 84, 85, No. 229; <i>Kossack 1959</i> , 188, pl. 49: 2
48	Hungary	Ártánd	47.126	21.758	grave	double attachments	no ornaments	9	late (Ha D3–Lt A)	Ha D3	<i>Párducz 1965</i> , 149, pl. 4: 5; <i>Patay 1990</i> , 30, No. 32, pl. 24
49	Hungary	Regőly	46.578	18.389	unknown	double attachments	no ornaments	9	indet	indet	<i>Párducz 1965</i> , 219, pl. 24: 1; <i>Patay 1990</i> , 30, No. 33, pl. 24
50	Hungary	Somlószőlös	47.175	17.352	grave?	single attachments	triangles (various)	4	middle (Ha D/Ha D1–D2)	Ha D2	<i>Bakay/Kalicz/Sági 1970</i> , 197, fig. 57: 9; <i>Patay 1990</i> , 30, 31, No. 34, pl. 25
51	Hungary	Szurdokpüspöki	47.976	19.698	grave	single attachments	indet	10	late (Ha D3–Lt A)	Ha D3–Lt A	<i>Tankó 2015</i> , 438, 439, fig. 2: 1
52	Hungary	Vaskeresztes	47.196	16.450	grave	unknown	triangles (various)	10	early (Ha C)	Ha C2	<i>Fekete 1985</i> , 33–35

Table 1. Continuation.

N°	Country	Location	Lat_wgs84	Lon_wgs84	Context	Attachments	Ornaments	Feature combination	Group_phase	Phase	Reference
53	Italy	Asolo	45.796	11.913	unknown	single attachments	meander	2	indet	indet	<i>Notizie degli Scavi</i> 1883, 118–120; <i>Schwarz</i> 1991, 236, 237, No. 264
54	Italy	Asolo	45.796	11.913	unknown	single attachments	meander	2	indet	indet	<i>De Fogolari</i> 1980, 95, pl. 4; c; <i>Notizie degli Scavi</i> 1883, 118–120; <i>Schwarz</i> 1991, 236, 237, No. 264
55	Italy	Belluno province	46.140	12.216	unknown	single attachments	meander	2	indet	indet	<i>Schwarz</i> 1991, Nos. 290, 291, 293, 299, 300, 304, 305
56	Italy	Belluno province	46.140	12.216	unknown	single attachments	meander	2	indet	indet	<i>Schwarz</i> 1991, Nos. 290, 291, 293, 299, 300, 304, 305
57	Italy	Belluno province	46.140	12.216	unknown	single attachments	meander	2	indet	indet	<i>Schwarz</i> 1991, Nos. 290, 291, 293, 299, 300, 304, 305
58	Italy	Belluno province	46.140	12.216	unknown	single attachments	meander	2	indet	indet	<i>Schwarz</i> 1991, Nos. 290, 291, 293, 299, 300, 304, 305
59	Italy	Castel Novo	45.616	11.463	unknown	double attachments	triangles (various)	8	indet	indet	<i>Laviosa Zambotti</i> 1938, 384, 385, fig. 152; <i>Merhart</i> 1969, 372, pl. 29; 9
60	Italy	Cavarzano	46.147	12.216	grave?	single attachments	triangles (various)	4	indet	indet	<i>Notizie degli Scavi</i> 1883, 37, 38; <i>Schwarz</i> 1991, Nos. 266, 270, 271
61	Italy	Cavarzano	46.147	12.216	grave?	single attachments	meander	2	indet	indet	<i>Notizie degli Scavi</i> 1883, 37, 38; <i>Schwarz</i> 1991, No. 265
62	Italy	Cavarzano	46.147	12.216	grave?	single attachments	meander	2	indet	indet	<i>Notizie degli Scavi</i> 1883, 37, 38; <i>Schwarz</i> 1991, No. 303
63	Italy	Cavarzano	46.147	12.216	grave?	single attachments	no ornaments	5	indet	indet	<i>Notizie degli Scavi</i> 1883, 37, 38; <i>Schwarz</i> 1991, Nos. 283–285
64	Italy	Cavarzano	46.147	12.216	grave?	single attachments	no ornaments	5	indet	indet	<i>Notizie degli Scavi</i> 1883, 37, 38; <i>Schwarz</i> 1991, No. 289
65	Italy	Cavarzano	46.147	12.216	grave?	single attachments	no ornaments	5	indet	indet	<i>Notizie degli Scavi</i> 1883, 37, 38; <i>Schwarz</i> 1991, Nos. 292, 294–298
66	Italy	Cavarzano	46.147	12.216	grave?	single attachments	no ornaments	5	indet	indet	<i>Notizie degli Scavi</i> 1883, 37, 38; <i>Schwarz</i> 1991, Nos. 271, 273, 275
67	Italy	Cavarzano	46.147	12.216	grave?	single attachments	no ornaments	5	indet	indet	<i>Notizie degli Scavi</i> 1883, 37, 38; <i>Schwarz</i> 1991, Nos. 277–281, 308–310.
68	Italy	Ellen	46.779	11.839	unknown	double attachments	indet	10	indet	indet	<i>Lunz</i> 1974, 160, pl. 45; 3
69	Italy	Lozzo di Cadore	46.486	12.446	grave	single attachments	indet	10	indet	indet	<i>Notizie degli Scavi</i> 1883, 67
70	Italy	Lozzo di Cadore	46.486	12.446	grave	single attachments	indet	10	indet	indet	<i>Notizie degli Scavi</i> 1883, 67
71	Italy	Lozzo di Cadore	46.486	12.446	grave	single attachments	indet	10	indet	indet	<i>Notizie degli Scavi</i> 1883, 67
72	Italy	Lozzo di Cadore	46.486	12.446	grave	single attachments	indet	10	indet	indet	<i>Notizie degli Scavi</i> 1883, 67
73	Italy	Mel	46.065	12.098	grave	double attachments	lines	7	late (Ha D3–Lt A)	Lt A	<i>De Fogolari</i> 1980, 95, pl. 5; a; <i>Schwarz</i> 1991, 250, No. 316
74	Italy	Mel	46.065	12.098	grave?	single attachments	meander	2	indet	indet	<i>Schwarz</i> 1991, 244, 245, No. 288
75	Italy	Mel	46.065	12.098	grave?	single attachments	meander	2	indet	indet	<i>Schwarz</i> 1991, 248, No. 301
76	Italy	Mel	46.065	12.098	grave?	single attachments	meander	2	indet	indet	<i>Schwarz</i> 1991, 249, No. 311
77	Italy	Montebelluna	45.778	12.042	grave	single attachments	meander	2	early (Ha C)	Ha C2	<i>De Fogolari</i> 1980, 95; <i>Schwarz</i> 1991, 241, 242, No. 282
78	Italy	Montebelluna	45.778	12.042	grave	unknown	triangles (various)	10	indet	indet	<i>De Fogolari</i> 1980, 95; <i>Schwarz</i> 1991, 249, Nos. 306, 312–315
79	Italy	Montebelluna	45.778	12.042	grave	unknown	triangles (various)	10	indet	indet	<i>De Fogolari</i> 1980, 95; <i>Schwarz</i> 1991, 249, Nos. 306, 312–315
80	Italy	Niederrassen	46.773	12.038	grave	single attachments	lines	3	middle (Ha D/Ha D1–D2)	Ha D1–2	<i>Demetz/Lunz/Brunner Renzler</i> 1997, 51, fig. p. 9; 21.
81	Italy	Padua	45.413	11.875	grave	single attachments	checkerboard	1	early (Ha C)	Ha C1	<i>Chieco Bianchi/Garbsch</i> 1978, 87, pl. 20; 22; 25; <i>Schwarz</i> 1991, 236, 237, No. 263, 242, 243, No. 286

Table 1. Continuation.

Nr	Country	Location	Lat_wgs84	Lon_wgs84	Context	Attachments	Ornaments	Feature combination	Group_phase	Phase	Reference
82	Italy	Padua	45.413	11.875	grave	single attachments	checkerboard	1	early (Ha C)	Ha C1	Chieco Bianchi/Garbsch 1978, 87, pl. 20; 22; 25; Schwarz 1991, 236, 237, Nos. 263; 242, 243, No. 286
83	Italy	Trentino province	46.055	11.125	unknown	double attachments	lines	7	indet	indet	Merhart 1969, 372, pl. 29: 7
84	Italy	Verucchio	43.983	12.423	grave	single attachments	indet	10	early (Ha C)	Ha C2	Eles 2015, Seriation, Type 173, grave 48/1972
85	Italy	Verucchio	43.983	12.423	grave	single attachments	indet	10	early (Ha C)	Ha C2	Eles 2015, Seriation, Type 173, grave 12/2005.
86	Italy	Verucchio	43.983	12.423	grave	single attachments	indet	10	early (Ha C)	Ha C2	Eles 2015, Seriation, Type 173, grave 25/2005
87	Italy	Verucchio	43.983	12.423	grave	single attachments	indet	10	early (Ha C)	Ha C2	Eles 2015, Seriation, Type 173, grave 35/2005
88	Netherlands	Venlo	51.370	6.149	unknown	single attachments	lines	3	indet	indet	Roymans 1991, 42, 43, fig. 15: a
89	Serbia	Stari Kostolac	44.716	21.172	single find	double attachments	meander	6	indet	indet	Jacanović 1995, 101, 102, Cat. No. 2, fig. 3
90	Slovakia	Bratislava (Pozsony)	48.217	17.407	unknown	unknown	indet	10	indet	indet	Merhart 1969, 372
91	Slovenia	Dolenjske Toplice	45.754	15.062	grave	double attachments	no ornaments	9	late (Ha D3–Lt A)	Ha D3–Lt A	Teržan 1976, 401, pl. 30: 10
92	Slovenia	Dolenjske Toplice	45.754	15.062	grave	double attachments	triangles (various)	8	late (Ha D3–Lt A)	Ha D3–Lt A	Starč 1955, 143, pl. 28: 5; Teržan 1976, 402, pl. 38: 1
93	Slovenia	Gornja Radgona	46.677	15.991	grave	unknown	indet	10	indet	indet	Teržan 1990, 87, 88, 342, 343
94	Slovenia	Legen	46.502	15.109	grave	unknown	triangles (various)	10	early (Ha C)	Ha C	Strmčnik-Gulič 1979, pl. 5: 10
95	Slovenia	Libna	45.954	15.522	grave	double attachments	lines	7	indet	indet	Guštin 1976, 46, pl. 77: 1; Starč 1955, 144, pl. 28: 4
96	Slovenia	Magdalenska gora	45.980	14.634	grave	single attachments	triangles (various)	4	middle (Ha D/Ha D1–D2)	Ha D1–2	Prelboge, grave 2/13; Gabrovec 1963, pl. 15: 2; Gabrovec et al. 2010, 215, 216; Kromer/Gabrovec 1962, 2; Tecco Hvala/Dulari Kocuvan 2004, 129, pl. 24: 11
97	Slovenia	Magdalenska gora	45.980	14.634	grave	double attachments	no ornaments	9	late (Ha D3–Lt A)	Ha D3	Barrow 4, grave 32; Hencken 1978, 23 pl. 72: n
98	Slovenia	Magdalenska gora	45.980	14.634	grave	single and double attachments	no ornaments	10	late (Ha D3–Lt A)	Ha D3–Lt A	Laščik, grave 5/6-7-7a; Gabrovec et al. 2010, 216–218; Hencken 1978, 30, 31, pl. 110: d
99	Slovenia	Magdalenska gora	45.980	14.634	grave	single attachments	triangles (various)	4	late (Ha D3–Lt A)	Ha D3–Lt A	Laščik, grave 5/29; Gabrovec et al. 2010, 216–218; Hencken 1978, 36–38, pl. 136: c
100	Slovenia	Magdalenska gora	45.980	14.634	grave	single attachments	no ornaments	5	late (Ha D3–Lt A)	Ha D3–Lt A	Laščik, grave 5/29; Gabrovec et al. 2010, 216–218; Hencken 1978, 36–38, pl. 136: c, d
101	Slovenia	Magdalenska gora	45.980	14.634	grave	single attachments	lines	3	indet	indet	Starč 1955, 143, pl. 28: 1
102	Slovenia	Magdalenska gora	45.980	14.634	grave	single attachments	meander	2	early (Ha C)	Ha C2	Starč 1955, 143, pl. 25: 1
103	Slovenia	Medvedjek	45.930	14.919	grave	double attachments	no ornaments	9	indet	indet	Barrow 1, grave 36; Egg 1985, 374, No. 7
104	Slovenia	Razvanje	46.518	15.636	grave	single attachments	triangles (various)	4	middle (Ha D/Ha D1–D2)	Ha D	Pahič 1968, 62 pl. 4: 24; Teržan 1990, 329, pl. 63: 1
105	Slovenia	Rifnik	46.200	15.404	unknown	unknown	indet	10	indet	indet	Merhart 1969, 372
106	Slovenia	Rifnik	46.200	15.404	deposition	single attachments	meander	2	middle (Ha D/Ha D1–D2)	Ha D	Vrenčur 2018, 87–91, pl. 38: 2
107	Slovenia	Rifnik-Crnolica	46.200	15.404	grave	double attachments	no ornaments	9	early (Ha C)	Ha C2	Vrenčur 2011, 90, 91, pl. 13: 1

Table 1. Continuation.

Nr	Country	Location	Lat_wgs84	Lon_wgs84	Context	Attachments	Ornaments	Feature combination	Group_phase	Phase	Reference
108	Slovenia	Šmarjeta	45.888	15.250	grave	single attachments	triangles (various)	4	indet	indet	<i>Druzinka vas: Stare 1973</i> , 81, pl. 62: 1
109	Slovenia	Šmarjeta	45.888	15.250	grave	double attachments	no ornaments	9	indet	indet	<i>Maše vine: Hoernes 1915</i> , 112
110	Slovenia	Šmarjeta	45.888	15.250	grave	single attachments	meander	2	indet	indet	<i>Vini vrh: Staré 1955</i> , 144, pl. 31: 1
111	Slovenia	Šmarjeta	45.888	15.250	grave	double attachments	lines	7	indet	indet	<i>Staré 1955</i> , 143, pl. 26: 1; <i>Staré 1973</i> , 74, pl. 36: 1
112	Slovenia	Šmarjeta	45.888	15.250	grave	double attachments	no ornaments	9	indet	indet	<i>Staré 1955</i> , 143, pl. 27: 2; <i>Staré 1973</i> , 75, pl. 36: 2
113	Slovenia	Stična	45.957	14.805	grave	single attachments	meander	2	indet	indet	<i>Barrow 2, grave 3: Gabrovec et al. 2006</i> , 27 od. 36; <i>Wells 1981</i> , 50, fig. 37: a
114	Slovenia	Stična	45.957	14.805	grave	unknown	lines	10	indet	indet	<i>Barrow 4: Gabrovec et al. 2006</i> , 27 od. 36; <i>Wells 1981</i> , 50, 51, fig. 38: a
115	Slovenia	Stična	45.957	14.805	grave	double attachments	no ornaments	9	middle (Ha D/Ha D1–D2)	Ha D1	<i>Barrow 2, grave 6: Gabrovec et al. 2006</i> , 27 od. 36; <i>Wells 1981</i> , 51, fig. 40: a
116	Slovenia	Stična	45.957	14.805	grave	single attachments	lines	3	indet	indet	<i>Barrow 5, grave 14: Gabrovec et al. 2006</i> , Barrow 50; <i>Wells 1981</i> , 70, fig. 124: b
117	Slovenia	Stična	45.957	14.805	grave	single attachments	meander	2	middle (Ha D/Ha D1–D2)	Ha D1	<i>Barrow 5, grave 18: Gabrovec et al. 2006</i> , Barrow 50, fig. 42; <i>Wells 1981</i> , 71, fig. 128: b
118	Slovenia	Stična	45.957	14.805	grave	double attachments	no ornaments	9	indet	indet	<i>Barrow 6, grave 8: Gabrovec et al. 2006</i> , Barrow 55; <i>Wells 1981</i> , 73, 74, fig. 139: a
119	Slovenia	Stična	45.957	14.805	grave	double attachments	lines	7	indet	indet	<i>Barrow 7, grave 2: Gabrovec et al. 2006</i> , Barrow 27; <i>Wells 1981</i> , 80, 81, fig. 169: a
120	Slovenia	Stična	45.957	14.805	unknown	single attachments	checkerboard	1	indet	indet	<i>Staré 1955</i> , 143, pl. 27: 1
121	Slovenia	Stična	45.957	14.805	grave	double attachments	no ornaments	9	middle (Ha D/Ha D1–D2)	Ha D1	<i>Gabrovec et al. 2010</i> , 30, Barrow 48, Find 23, fig. 9, pl. 14
122	Slovenia	Stična	45.957	14.805	unknown	double attachments	lines	7	indet	indet	<i>Staré 1955</i> , 143, pl. 26: 2
123	Slovenia	Stična-Grize	45.947	14.824	grave	unknown	triangles (various)	10	early (Ha C)	Ha C	"Grize" Barrow Vessel: <i>Gabrovec et al. 2006</i> , 173, pl. 146, Barrow 28 od. 29; <i>Gabrovec et al. 2010</i> , 279; <i>Merhart 1969</i> , 372
124	Slovenia	Sv. Lovrenc	46.244	15.110	grave	double attachments	no ornaments	9	early (Ha C)	Ha C2	<i>Staré 1955</i> , 143, pl. 25: 2; <i>Teržan 1990</i> , 110, 357, pl. 78: 1
125	Slovenia	Svelo	45.825	13.731	unknown	single attachments	no ornaments	5	indet	indet	<i>Merhart 1969</i> , 372, pl. 17: 6
126	Slovenia	Unec	45.823	14.284	grave	unknown	meander	10	early (Ha C)	Ha C	<i>Urleb 1956</i> , 294, pl. 1: 4
127	Slovenia	Vače	46.119	14.838	grave	unknown	indet	10	indet	indet	<i>Barrow 3, grave 7: Mahr 1934</i> , 122
128	Slovenia	Vače	46.119	14.838	grave	unknown	indet	10	indet	indet	<i>Flat grave 13: Mahr 1934</i> , 121
129	Slovenia	Vače	46.119	14.838	unknown	single attachments	indet	10	indet	indet	<i>Staré 1955</i> , 144, pl. 28: 3
130	Slovenia	Vintarjevec	46.015	14.823	grave	single attachments	indet	10	indet	indet	<i>Staré 1955</i> , 144, pl. 28: 2
131	Slovenia	Zamarkova	46.574	15.792	unknown	unknown	checkerboard	1	indet	indet	<i>Merhart 1969</i> , 372
132	Switzerland	Arbedo	46.213	9.044	deposition	unknown	meander	10	middle (Ha D/Ha D1–D2)	Ha D	<i>Schindler 1998</i> , 130, 131, Cat. No. 1183, pl. 50
133	Switzerland	Castaneda	46.257	9.141	grave	single attachments	meander	2	late (Ha D3–Lt A)	Ha D3	–
134	Switzerland	Claro	46.255	9.017	unknown	double attachments	meander	6	late (Ha D3–Lt A)	Ha D3–Lt A	<i>De Marinis 2000</i> , 396–398, fig. 33

like the princely mounds of Strettweg (Egg 1996) and Kleinklein (Dobiat 1980; Egg/Kramer 2005; Hack 2002) in Austria or the Early Iron Age centres of Stična and Magdalenska gora in Slovenia, where they were often found together with prestigious horse-burials (Dular 2007, fig. 1), the cauldrons could have been handed down as heirlooms over several generations before being deposited in a grave inventory, as demonstrated by the newly discovered cauldron from Castaneda.

Another major issue was related to preservation status. Roughly 25% (38 specimens) of the known cauldrons fell into feature combination 10, as the form of the handle attachment and/or the ornamentation was unknown. Often, this was because the ornamentation had become abraded as a result of poor preservation, or in some cases, prolonged use, but there were also instances where descriptions in the literature were incomplete or where no conservation had been carried out.

Spatio-temporal analysis

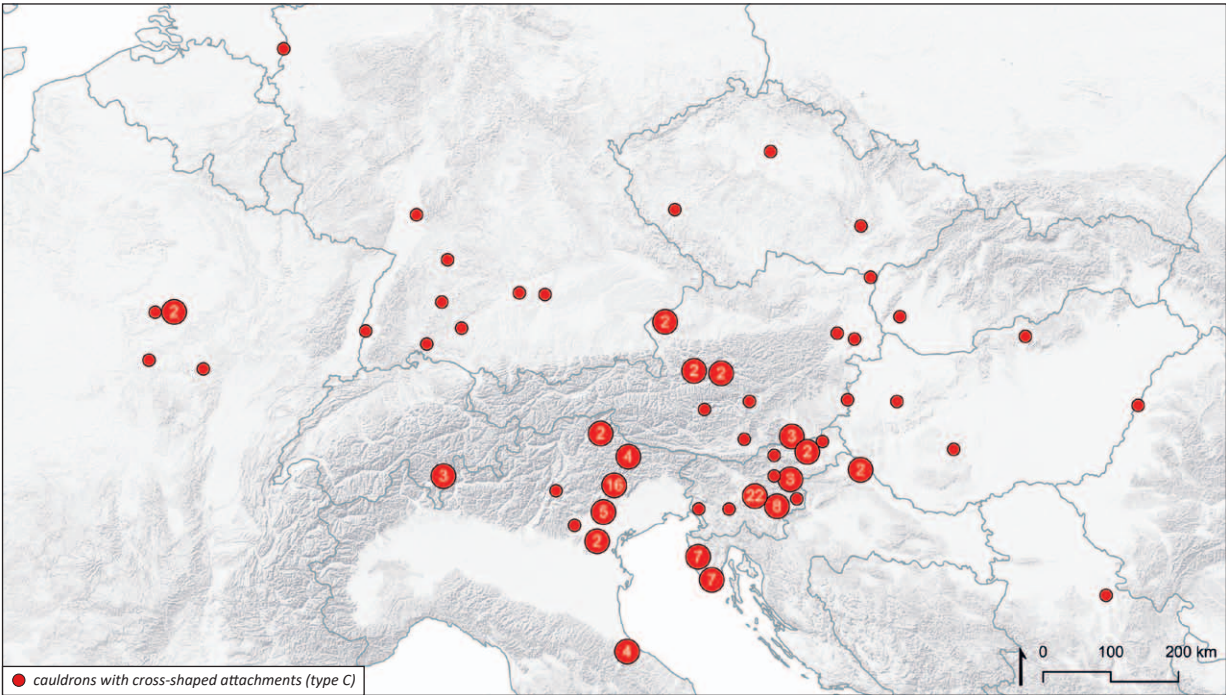
Figure 9 shows the geographical distribution of von Merhart's Type C cauldrons. It highlights two concentrations, one in Central Slovenia, with 41 specimens, and the other in Northeastern Italy, with at least 35. Since von Merhart's study, it has been widely recognised that the workshops producing the cauldrons were located in those two regions (Egg 1985, 377; Merhart 1969, 299). The Istrian peninsula, where 14 specimens were found at Nescatium and Picuge, may also have harboured a workshop; this will be discussed later. The specimens from Hungary have been interpreted as resulting from contacts between the Dolenjska Group of Slovenia and the Scythian world of the Carpathian Basin (Teržan 1998, 525, 526; Tankó 2015, 440).

Most of the 15 Austrian specimens were found on an old salt-trading route connecting the salt mines of Hallstatt in Upper Austria with Styria and Central Slovenia (Artner 2012, 75, with references; Egg 1985, 384). Two specimens were found at Uttendorf, a key point on the salt route connecting Hallstatt and Hallein with the Inn and Danube valleys (Egg 1985, 383–385). Similarly, the pieces from Eastern Austria, Slovakia and the Czech Republic may have been related to a communication route known as the 'Amber Road', connecting the *Caput Adriae* via the Morava River Valley and the Bohemian Basin to the valleys of the Weichsel and the Oder and thus to Poland and the Baltic region, known for their amber reserves (most recently Chytráček *et al.* 2017, 248–252). Most likely of all to have been connected to communication routes is the accumulation in Southwestern Germany, in the triangle between the rivers Rhine,¹¹ Main and Danube. The French specimens should be seen in a similar context. They were found in Burgundy, in the hills of the Côte-d'Or separating the upper Saône and Seine valleys, in Champagne, around Troyes, and in the upper valley of the Yonne. The find sites are all fairly close to the Hallstatt period princely site at Mont Lassois, where an artificial harbour was recently discovered (Chaume 2020). Strikingly similar is the concentration of Swiss cauldrons: all of them were found within a radius of some 10 km at the north-eastern end of Lake Maggiore, where the transalpine routes over the San Bernardino and Gotthard passes meet and the rivers Ticino and Moesa are no longer navigable. In summary, it can be stated that the distribution of the cauldrons correlates strongly with overland trade and communication routes.

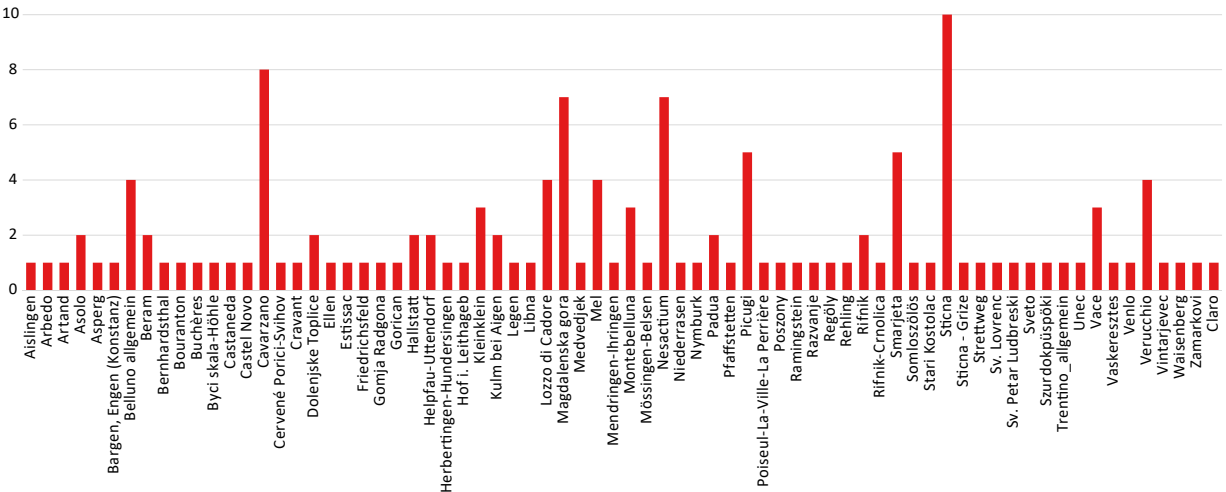
Figure 10 shows the distribution of handle-attachment types (single/twin) relative to their dating. It clearly highlights the major problems caused by the lack of dated specimens. Nevertheless, some tendencies can be observed. In the early phase (Ha C), single handle attachments outnumber twin attachments by far. During the middle phase (Ha D1–Ha D2), the numbers are almost equal, with single attachments still slightly more prevalent. In the late phase (Ha D3–Lt A), this situation is reversed, with twin attachments now slightly more common. Another indication for a chronological sequence are two cauldrons from Slovenia and Croatia, respectively, on which both single and twin attachments were mounted. Possibly these two pieces were repaired. The cauldron from Magdalenska gora (No. 98) dates from the late phase, while the specimen from Nesactium (No. 19) is undated.

A look at the distribution by country is also informative. In Slovenia, the first assumed production centre, and in adjacent Austria and Croatia, single and twin attachments are equally prevalent. The same applies to Hungary, Germany and France, on the periphery. In Northern Italy, however, the second large production area, single attachments clearly predominate. Unfortunately, Italy has the highest rate of undated specimens, at about 63%; the dated pieces, however, belong mostly to the early phase. In Slovenia, the dated cauldrons are spread evenly throughout all the phases. Except for early

¹¹ The isolated piece from Venlo in the Netherlands (No. 88) may also be related to contacts via the Rhine Valley.



Distribution: cauldrons with cross-shaped attachments per site



Distribution: cauldrons with cross-shaped attachments per country

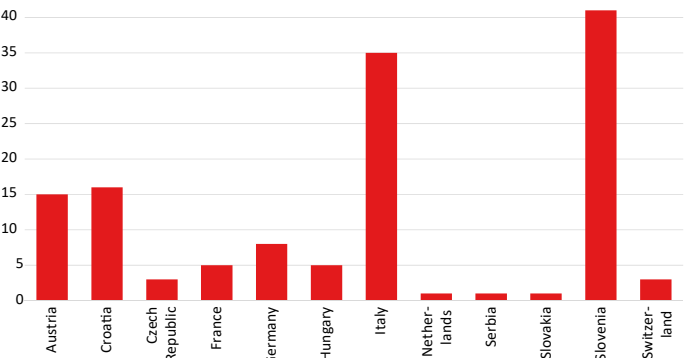
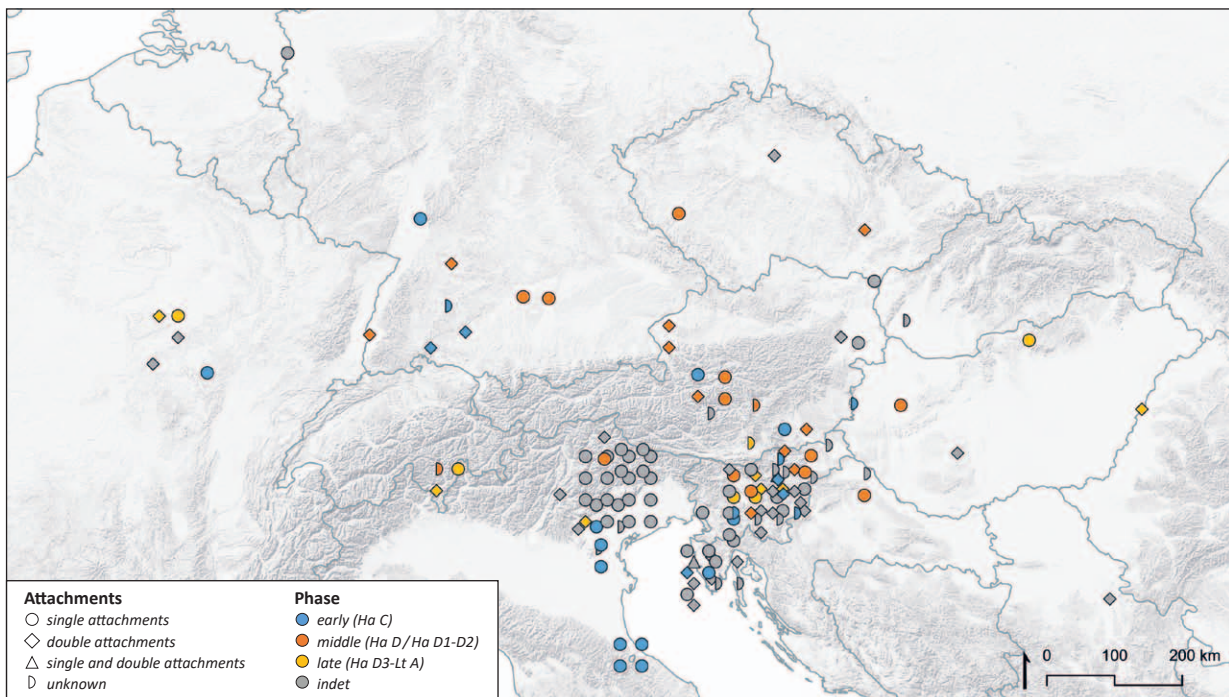
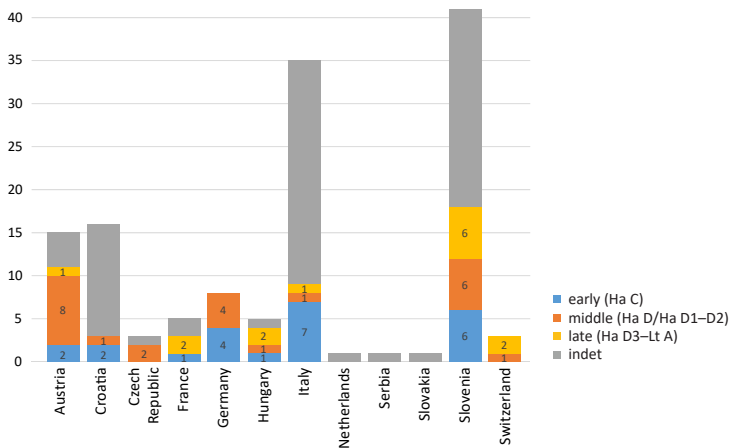


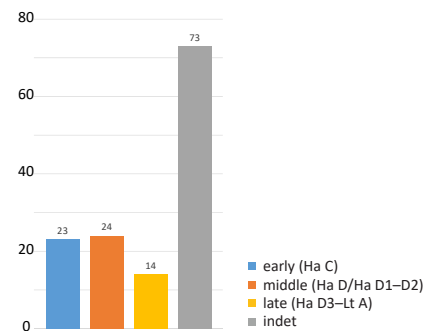
Fig. 9. Distribution map of Type C cauldrons with cross-shaped attachments and related statistics. Points on the map are represented as point clusters. Numbers on the points represent the number of finds in the specific area (map: background map: SRTM30 Hillshade; SRTM 30m [NASA Shuttle Radar Topography Mission Global 1 arc second] by NASA EOSDIS Land Processes Distributed Active Archive Center [LP DAAC, <https://lpdaac.usgs.gov/>] provided via WMS by terrestris GmbH & Co. KG Bonn; graphics: ADG).



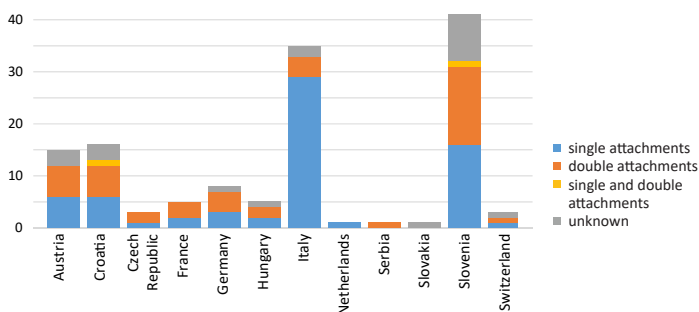
Distribution: phase per country



Distribution: cauldrons with cross-shaped attachments (type C) per phase



Distribution: attachments per country



Distribution: attachments per phase

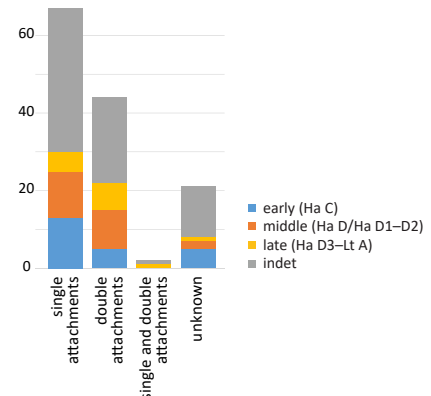
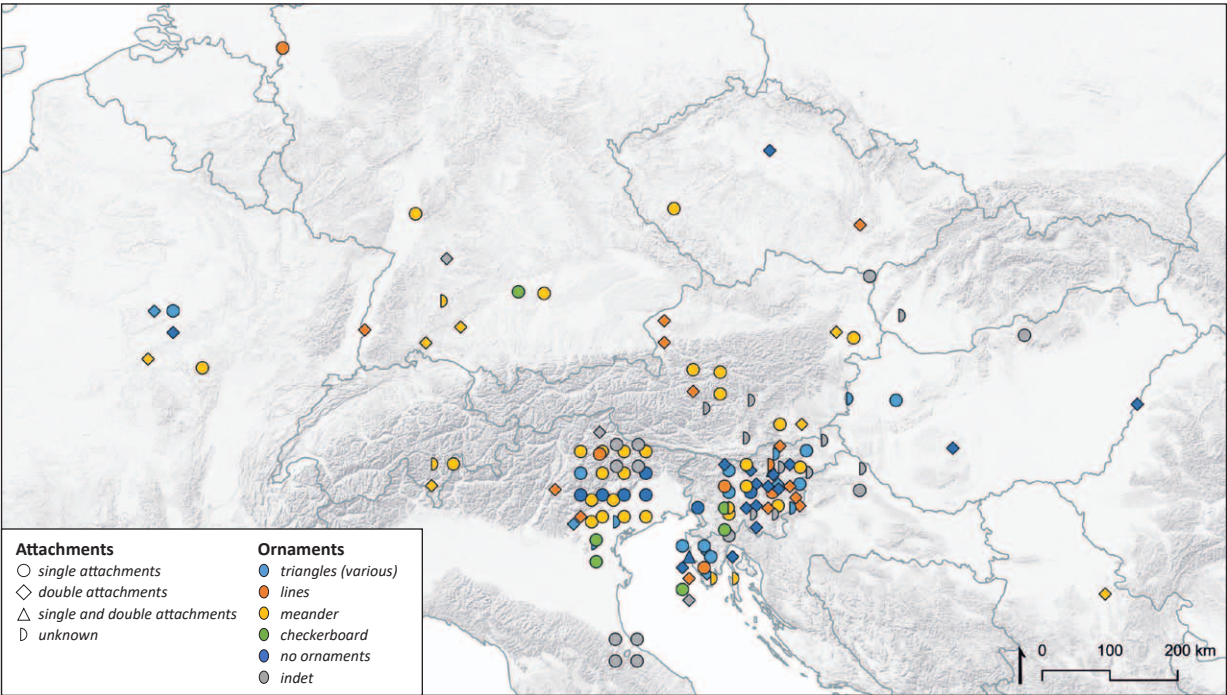
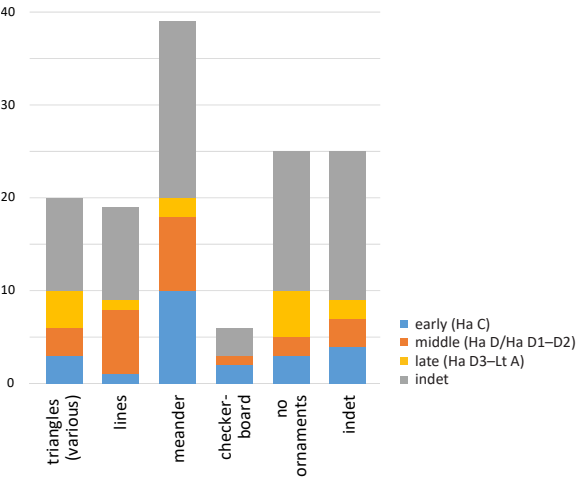


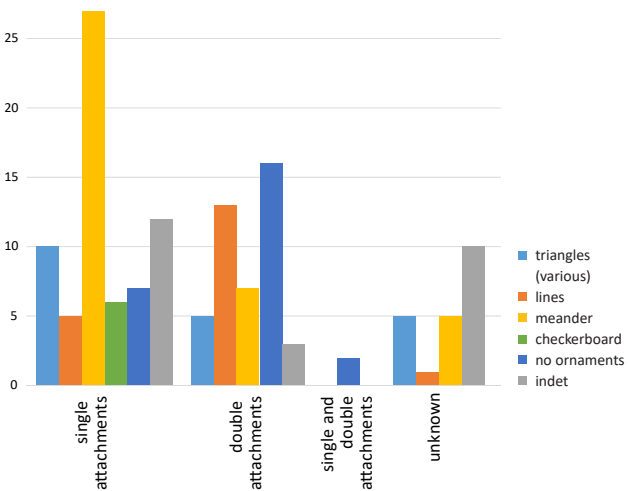
Fig. 10. Distribution map of Type C cauldrons with single and twin cross-shaped attachments over time and related statistics. Points on the map are represented in the form of point cluster displacements (map: background map: SRTM30 Hillshade; SRTM 30m [NASA Shuttle Radar Topography Mission Global 1 arc second] by NASA EOSDIS Land Processes Distributed Active Archive Center [LP DAAC, <https://lpdaac.usgs.gov/>] provided via WMS by terrestris GmbH & Co. KG Bonn; graphics: ADG).



Distribution: ornaments per phase



Distribution: attachments – ornaments



Distribution: ornaments per country

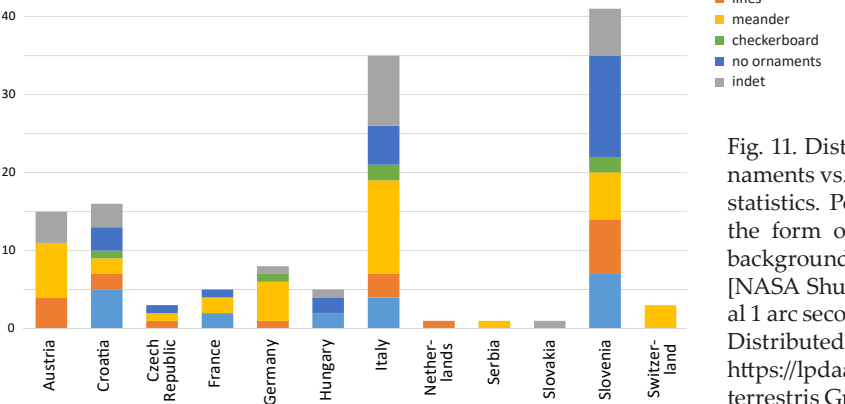


Fig. 11. Distribution map of Type C cauldron ornaments vs. handle-attachment types and related statistics. Points on the map are represented in the form of point cluster displacements (map: background map: SRTM30 Hillshade; SRTM 30m [NASA Shuttle Radar Topography Mission Global 1 arc second] by NASA EOSDIS Land Processes Distributed Active Archive Center [LP DAAC, <https://lpdaac.usgs.gov/>] provided via WMS by terrestris GmbH & Co. KG Bonn; graphics: ADG).

examples from Hallstatt (No. 2) and Kleinklein (No. 7), the Austrian cauldrons were all deposited in the middle phase, while the German cauldrons were deposited evenly throughout the early and middle phases. In France, we have evidence for two late depositions and one early one; since another two are undated, however, the data are inconclusive.

We can therefore state that the two production centres differ in terms of attachment type and dating. The differences in dating can be largely explained by the numerous undated pieces from Italy. The two cauldrons from Slovenia and Croatia bearing both types of attachment are of no help in correlating type with date, since it is not clear, if one type replaced the other, which was the earlier. However, the dominance of single attachments in Italy could be an indication that the different attachment types represent different workshop circles, rather than different time periods.

Let us now turn our attention to the ornamentation on the rims of the cauldrons (Fig. 11). Cauldrons with meanders and undecorated cauldrons clearly dominate the overall picture. The latter seem to have been most popular in Southeastern Europe, while those with meanders predominate in Central Europe. In Italy, meanders are the most common ornamentation. Undecorated cauldrons predominate in Slovenia, though a greater variability can be observed here, with cauldrons featuring meanders, lines and triangles also appearing in good numbers, all equally represented. In Croatia, triangles seem to have been the most popular ornamentation, while only meander- and line ornaments appear in Austria and Germany, with one exception.

The German cauldron from Aislingen (No. 40) bears a checkerboard pattern. This kind of decoration is also known from an older form of cauldron with cross-shaped attachments, namely von Merhart's Type B 2b (Merhart 1969, 288), but has so far only been found on six specimens of Type C. Two of them (Nos. 81 and 82) were found in the same grave, known as the 'Tomba dei vasi broccati', in Padua, Italy; two were found in Slovenia, at Stična (No. 120) and Vintarjevec (No. 130); and one was found on the Istrian peninsula, at Picuge, Croatia (No. 30). Since bronze cups with checkerboard ornaments have also been discovered on the Istrian peninsula, Schwarz tends to believe that cauldrons with this particular decoration may have originated here (Schwarz 1991, 243, 301–306, 326). Given Istria's long tradition in the production of bronze-sheet vessels (Stjernquist 1967, 83–85), it is at least a reasonable hypothesis.

If we look at the combinations of ornamentation types with the two different attachment types, it is noticeable that the checkerboard pattern is only present on cauldrons with single attachments. Meanders are by far the most common type of decoration on cauldrons of this type. By contrast, cauldrons with twin attachments are most commonly found with simple line decor or with no decoration at all.

As for chronology, it can be observed that all the types of decoration are already present in the early phase. Meanders and checkerboard ornaments are concentrated mainly in the early and middle phases. Triangles occur evenly across all the phases, while simple line decoration occurs most frequently in the middle phase and undecorated pieces are most strongly represented in the late phase.

Although the data for feature combinations are considerably distorted by the large number of undated and undetermined specimens, they are nevertheless worth including in our considerations (Fig. 12). In Italy, combination 2 is predominant, followed by combination 5. In Slovenia, as already observed, the situation is more dynamic: combination 9 is most frequent, but combinations 2, 4 and 7 are also well represented. Austria occupies an intermediate position, with combinations 2 and 7 accounting for most of the specimens. On the timeline, combinations 1, 2 and 6 occur during the early and middle phases; combinations 4, 5 and 7 are concentrated in the middle and late phases; the poorly represented combination 8 is present only in the late phase, while combination 9 is well documented in all phases.

We can sum up as follows. Meanders are the predominant ornament on cauldrons with single attachments and are mainly present in the early and middle phases in Italy, while most cauldrons with twin attachments have simple line decor or no decoration at all and are mainly found in Slovenia. Checkerboard decoration, found only on cauldrons with single attachments and concentrated in the early and middle phases, may be associated with a minor production centre in Istria. However, caution should be exercised when making generalised statements, as the example of the triangle decor, which is well documented in all phases, clearly shows. The feature combinations which include triangles (combinations 4 and 8) are only represented in the middle and late phases, since specimens with triangles dating from the early phase were found without attachments and therefore fall into combination 10.

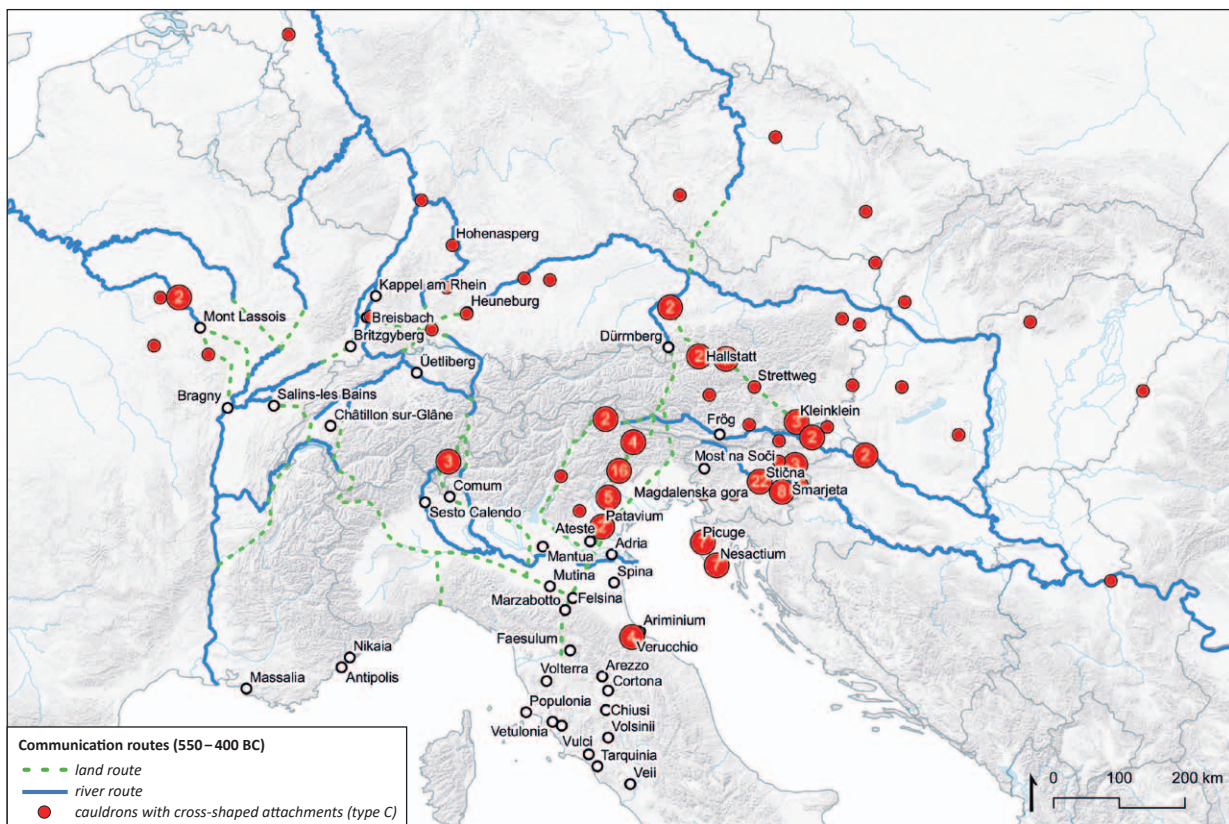


Fig. 13. Trade and communication routes between the Northern Mediterranean (Northern Adriatic, Po Plain and Southern France) and Central Europe (after *Della Casa* 2018, fig. 1.1; *Pauli* 1993, 162–170, fig. 40–43; map: background map: SRTM30 Hillshade; SRTM 30m [NASA Shuttle Radar Topography Mission Global 1 arc second] by NASA EOSDIS Land Processes Distributed Active Archive Center [LP DAAC, <https://lpdaac.usgs.gov/>] provided via WMS by terrestris GmbH & Co. KG Bonn; hydrological data: EU-Hydro – River Network Database, Version 1.3 (WMS-Service), © European Union, Copernicus Land Monitoring Service 2023, European Environment Agency (EEA); graphics: ADG).

CONCLUSIONS

Even though the data for conducting spatial analysis of the distribution of von Merhart's Type C cauldrons with cross-shaped attachments are heavily biased (more than 50% of specimens are undated and the feature combinations of 25% are unknown), some trends in the occurrence of single and twin attachments and their relationships with the different categories of ornamentation can be recognised.

Firstly, there is no evidence that the occurrence of different types of attachment is time-related. Single and twin attachments both occur from the beginning of production in Ha C, while twin attachments are also present on some specimens of von Merhart's earlier Type B1, mainly dating from Ha B2/B3 (*Merhart* 1969, 286, 287, pl. 25; 26). The ornament patterns do show some chronological development, however, evolving from complex meander decorations to simple line ornaments and eventually a complete absence of decoration, as Schwarz stated (*Schwarz* 1991, 253). Both attachment and ornament type, however, seem more strongly related to the evolution and interaction of different workshop centres than to chronology alone.

The spatial analysis supports the idea that at least two different production centres were active during the early Hallstatt period: one in Northeastern Italy, producing mainly cauldrons with single attachments and meander decor, and a second one in Central Slovenia, producing mainly cauldrons with twin attachments and simple line ornaments or no decoration at all. A third centre, probably closely related to the Italian workshops, can be postulated for the Istrian peninsula, producing cauldrons with single attachments and checkerboard decoration. The workshops must certainly have been in lively exchange and competition with one another, simply because of their geographical proximity. The Italian workshops seem to have stopped production, or changed their production style, early on. One can only speculate as to the reasons. In the middle of the sixth century BC, the Etruscans massively expanded

their influence in Northern Italy and the Po Valley (Becker 2017, 1024–1026) and more and more Etruscan bronze products found their way to Central Europe (Baitinger 2017). The Venetic workshops, caught between the Etruscan production centres in the west and the Eastern Hallstatt centres of Slovenia, may simply have lost access to the sales markets over time.

Many of the cauldrons with cross-shaped attachments were in use for a long time before they found their way into graves or, less often, hoards. Apparently, these vessels circulated amongst an elite network of high-ranking individuals.¹² In the East Hallstatt district, they were exclusively male and of princely rank and were buried with opulent grave furnishings, including weapons, wagons and extensive bronze drinking services. If we compare the spatial distribution of their graves with the transport routes known for the Iron Age (Fig. 13; cf. Della Casa 2018, fig. 1.1; Pauli 1993, 162–170, fig. 40–43) it is evident that this group of people controlled interregional trade and communication networks connecting the Northern Mediterranean region, i.e. the Northern Adriatic, Po Plain and Southern France, with Central Europe.

The cauldron from Castaneda was most probably an import from Northeastern Italy. Contacts with the *Caput Adriae* region are well evidenced by finds from Castaneda and the Val Mesolcina (Nagy 2012, 393). The button ends of the cauldron's handles are striking, since they have not been observed on any other cauldron of Type C. They do occur, however, on ribbed buckets (*Rippenzisten*) of the Adriatic type (Stjernquist 1967, 75–78) and on *situlae*, probably produced at Bologna, of which one example was found in the well-known warrior grave B of Sesto Calende (De Marinis 2009, 179, fig. 17, 4). It is possible that the handles of the cauldron were replaced over time.

For Castaneda, however, the discovery of such a prestigious bronze vessel is also important from a social point of view. It sheds light on the social rank of its last owner.¹³ In the Alpine region of the Golasecca culture, the burial rite did not involve the status symbols customary elsewhere as part of the grave furnishings, such as weapons and chariots (Stech 2013, 309). In grave 1/2021, both the bronze cauldron, a unique imported piece from the Eastern Alps, and the incineration rite distinguish the deceased from his peers. He is the earliest individual so far known from Castaneda to have been buried with an extensive set of bronze vessels. It was not until phase Tessin D2 (Lt A) that bronze vessels became a regular feature in burials here (Nagy 2012, 334–338, fig. 5.7b; 5.9). The above-average presence of bronze vessels makes the Castaneda burials exceptional in the Alpine region of the Golasecca culture (Nagy 2012, 382).

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¹² Since they were often found together with horse equipment or even horse burials a connection to horse and chariot races seems to be evident (Teržan 2011).

¹³ Because of a lack of documentation and publication of Early Iron Age graves for the Sopraceneri region, as well as minor differences in grave-furnishing patterns, identifying the social status of the deceased and the dates of burials is not straightforward (Nagy 2012, 338). Imported goods seem to be a signifier of social rank (Stech 2013, 118). On this behalf the authors would like to thank Biljana Schmid-Sikimic for her valuable input for this article. Further investigations on the social status of the deceased in grave 1/2021 are on the way.

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Nový zápis v zozname kotlov

Kotol s krížovými atašami z hrobu z doby železnej z lokality Castaneda, kantón Grisons, Švajčiarsko

Christoph Baur – Christoph Walser – Thomas Reitmaier

Súhrn

Na pohrebisku z doby železnej v Castanede v údolí Val Mesolcina, ktoré sa nachádza v južnej časti švajčiarskeho kantónu Grisons (obr. 1), sa doteraz našlo približne 200 hrobov z obdobia 500 až 150 rokov pred n. l., ako aj časti súvisiaceho sídliska. Castaneda leží na severovýchodnej hranici alpského regiónu obývaného v neskoršej dobe bronzovej a staršej dobe železnej kultúrou Golasecca, na dôležitej komunikačnej trase prechádzajúcej údolím Val Mesolcina. Táto veľmi stará kontaktná zóna spájala severnú Itáliu so Švajčiarskou plošinou (*Mittelland*) a s alpským údolím Rýna až po Bodamské jazero.

V lete 2021 bol objavený ojedinelý žiarový hrob (č. 1/2021; obr. 3; 4), datovaný do záveru doby halštatskej (Tessin C, porov. obr. 2). Obsahoval kompletne zachovaný bronzový kotol typu C s krížovými atašami, ako ho definoval Gero v. Merhart (obr. 6–8). Tieto kotlíky, ktoré sa vyskytujú v širokom priestore od Balatonu v Maďarsku až po prameň Seiny vo Francúzsku, sú takmer výlučne súčasťou inventára hrobov vysoko postavených mužských jedincov. Predpokladá sa, že centrom výroby bola oblasť *Caput Adriae*.

Objav z Castanedy ponúka možnosť opätovne analyzovať distribúciu kotlov typu C (obr. 9–12). Hoci údaje pre priestorovú analýzu distribúcie sú značne skreslené (50 % exemplárov je nedatovaných; 25 % má neurčitú kombináciu prvkov), možno rozpoznať niektoré trendy vo vzťahu kotlov s jednoduchými a dvojíťmi atašami a rôznymi druhmi výzdoby.

V prvom rade neexistuje dôkaz, že výskyt rôznych typov ataší je chronologicky podmienený. Jednoduché aj dvojité ataše sa vyskytujú od začiatku výroby v HC, pričom tie druhé sú prítomné aj na niektorých exemplároch von Merhartovho skoršieho typu B1, datovaného najmä do HB2/HB3. Výzdoba vykazuje určitú chronologickú postupnosť, vyvíja sa od zložitého meandrového vzoru smerom k jednoduchým líniovým ornamentom. Tento vývoj vrcholí úplnou absenciou výzdoby. Zdá sa však, že tak forma ataší, ako aj typ výzdoby súvisia skôr s vývojom a interakciou rôznych dielenských centier než s chronológiou.

Priestorová analýza podporuje myšlienku dvoch výrobných centier: jedného v severovýchodnom Taliansku, ktoré vyrábalo najmä kotlíky s jednoduchými atašami a meandrovou výzdobou, a druhého v strednom Slovinsku, ktoré vyrábalo predovšetkým kotle s dvojíťmi atašami a jednoduchými líniovými ornamentmi alebo nezdobené kusy. Tretie centrum, ktoré pravdepodobne úzko súvisí s italskými dielňami, možno predpokladať na Istrijskom polostrove. Vyrábalo kotle s jednoduchými atašami a šachovnicovým vzorom. Zdá sa, že italské dielne zastavili výrobu alebo zmenili vyrábaný typ kotlov veľmi skoro. O dôvodoch možno len špekulovať. S etruskou expanziou v polovici 6. storočia pred n. l. mohli dielne v okolí dnešných Benátok jednoducho stratiť prístup na odbytové trhy.

Mnohé z kotlov s krížovými atašami sa používali dlho. Tieto nádoby zrejme kolovali v rámci elitnej siete vysoko postavených osôb. Vo východoalštatskom okruhu sa viažu výlučne na mužských jedincov alebo na vysokopostavených jedincov a nachádzali sa v sprievode ďalšej honosnej hrobovej výbavy. Ak porovnáme priestorové rozloženie takýchto hrobov s dopravnými trasami známymi pre dobu železnú (obr. 13), je zrejme, že táto skupina ľudí kontrolovala medziregionálne obchodné a komunikačné siete spájajúce severné Stredomorie so strednou Európou.

Kotol z Castanedy bol pravdepodobne importom zo severovýchodnej Itálie. Kontakty s regiónom *Caput Adriae* dokazujú nálezy z údolia Val Mesolcina. Nález prestížnej bronzovej nádoby vrhá svetlo na spoločenské postavenie jej posledného majiteľa. Pohrebný rítus v alpskej oblasti kultúry Golasecca neobsahoval inde obvyklé statusové symboly, ako sú zbrane a voz. Pri tomto pohrebe sa na odlíšenie pochovaného jedinca od jeho súputníkov použil jednak importovaný bronzový kotol, jednak kremácia ostatkov zosnulého. V Castanede je to zároveň najstarší doklad o pochovaní mŕtveho s rozsiahlym súborom bronzových nádob. Až vo fáze Tessin D2 (LTA) sa tu bronzové nádoby stali pravidelným prídavkom v hroboch. Nadpriemerne vysokým výskytom bronzových nádob sú hroby z Castanedy výnimočné v alpskom regióne kultúry Golasecca.

- Obr. 1. Val Mesolcina na juhozápade švajčiarskeho kantónu Grisons. Známe osídlenie z doby železnej je vyznačené červenou (mapa: map.gis.gr.ch; letecké foto: ETH-Bibliothek Zürich, Bildarchiv/Stiftung Luftbild Schweiz; foto: Swissair Photo AG/LBS_R1-911505/CC BY-SA 4.0; grafika: ADG).
- Obr. 2. Relatívna chronológia kultúry Golasecca v Lombardsku, v regióne Ticino/Mesolcina a v strednej Európe (porov. Nagy 2012, obr. 8.1).
- Obr. 3. Odkrývanie hrobu 1/2021 a kotla s krížovými atášami v Castanede (foto: ADG).
- Obr. 4. Hrob 1/2021. Plán hrobu a uloženie hrobových prídavkov (foto a grafika: ADG).
- Obr. 5. Analýzy kotla z Castanedy. A – zvyšky dreva a organického materiálu na dne kotla; B – detail zachovaného dreva so stopami nástroja; C – rekonštrukcia drevenej dosky (veko); D – analýza zvyškov textilu/kože; E – makroskopický doklad ovčej vlny v kotle; F – mikroskopický dôkaz ovčej vlny v kotle (foto A–D: ADG; E–F: A. Rast-Eicher).
- Obr. 6. Kotel z Castanedy (foto: ADG).
- Obr. 7. Detaily kotla z Castanedy. A – spodná časť kotla s reparačným zásahom; B – krížové atáše, reštaurovaná bola len ľavá; C – hák rukoväti s esovitým predĺžením a polguľovitým ukončením; D – tordovaná rukoväť so známami opotrebovania; E – výzdoba okraja sa najlepšie zachovala v blízkosti atáší (foto: ADG).
- Obr. 8. A – farebne filtrovaný obrázok výzdoby na okraji kotla; B – rekonštrukcia výzdobného motívu (foto a grafika: ADG).
- Obr. 9. Mapa rozšírenia kotlov typu C s krížovými atášami a súvisiaca štatistika. Body na mape sú prezentované vo forme zhlukov. Číslo v krúžkoch označuje počet nálezov v jednotlivých oblastiach (mapa: podkladová mapa: SRTM30 Hillshade; SRTM 30m [NASA Shuttle Radar Topography Mission Global 1 arc second] od NASA EOSDIS Land Processes Distributed Active Archive Center [LP DAAC, <https://lpdaac.usgs.gov/>] poskytovaná prostredníctvom WMS by terrestris GmbH & Co. KG Bonn; grafika: ADG).
- Obr. 10. Mapa rozšírenia kotlov typu C s jednoduchými a dvojíťmi krížovými atášami v čase a súvisiaca štatistika. Body na mape sú prezentované vo forme zhlukov (mapa: podkladová mapa: SRTM30 Hillshade; SRTM 30m [NASA Shuttle Radar Topography Mission Global 1 arc second] od NASA EOSDIS Land Processes Distributed Active Archive Center [LP DAAC, <https://lpdaac.usgs.gov/>] poskytovaná prostredníctvom WMS by terrestris GmbH & Co. KG Bonn; grafika: ADG).
- Obr. 11. Mapa rozšírenia výzdoby a typov rukovätí kotlov typu C a súvisiaca štatistika. Body na mape sú prezentované vo forme zhlukov (mapa: podkladová mapa: SRTM30 Hillshade; SRTM 30m [NASA Shuttle Radar Topography Mission Global 1 arc second] od NASA EOSDIS Land Processes Distributed Active Archive Center [LP DAAC, <https://lpdaac.usgs.gov/>] poskytovaná prostredníctvom WMS by terrestris GmbH & Co. KG Bonn; grafika: ADG).
- Obr. 12. Mapa rozšírenia kombinácií atribútov kotlov typu C v čase a súvisiaca štatistika. Body na mape sú prezentované vo forme zhlukov (mapa: podkladová mapa: SRTM30 Hillshade; SRTM 30m [NASA Shuttle Radar Topography Mission Global 1 arc second] od NASA EOSDIS Land Processes Distributed Active Archive Center [LP DAAC, <https://lpdaac.usgs.gov/>] poskytovaná prostredníctvom WMS by terrestris GmbH & Co. KG Bonn; grafika: ADG).
- Obr. 13. Obchodné a komunikačné trasy medzi severným Stredomorím (severná adriatická oblasť, Pádska nížina a južné Francúzsko) a strednou Európou (podľa Della Casa 2018, obr. 1.1; Pauli 1993, 162–170, obr. 40–43; mapa: podkladová mapa: SRTM30 Hillshade; SRTM 30m [NASA Shuttle Radar Topography Mission Global 1 arc second] od NASA EOSDIS Land Processes Distributed Active Archive Center [LP DAAC, <https://lpdaac.usgs.gov/>] poskytovaná prostredníctvom WMS by terrestris GmbH & Co. KG Bonn; hydrologické dáta: EU-Hydro – River Network Database, Version 1.3 (WMS-Service), © European Union, Copernicus Land Monitoring Service 2023, European Environment Agency (EEA); grafika: ADG).

Tabela 1. Zoznam kotlov typu C s krížovými atášami.

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