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A BRIEF REMARK ON SELECTED IRON AGE POTTERY FROM THE GRADINA MONBRODO NEAR THE CISTERNA BAY IN ISTRIA

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Abstract: The paper deals with the fortified hilltop settlement Gradina Monbrodo on the west coast of Istria in Croatia. Istria is known for its specific form of settlements of the Gradina type, also called Castellieri or Kastellieri, with encircling fortified ramparts built in dry-stone technique using the local limestone. They first appeared in the late Early Bronze Age and were characteristic until the Iron Age. Although over 440 such hilltop settlements are known, only a very small number have been archaeologically examined. Accordingly, many questions remain unanswered, especially regarding the chronological classification and thus the simultaneous occupation of the fortified settlements. The level of knowledge about the Iron Age settlements is generally worse that of the Bronze Age. In view of the relatively well researched Iron Age urn-cemeteries, the state of knowledge about the Iron Age settlements seems unbalanced. The Gradina Monbrodo, which has so far been studied in three excavation campaigns between 2016–2018 as part of a Korean-Croatian joint project, could play a potential key role in the study of the Bronze to Iron Age transition, as well as in general for researches on Iron Age settlement activities. In this paper, selected pottery from the Gradina Monbrodo is presented for the first time and their chronological classification is discussed. This determination is of particular importance for a previously undated stratigraphic layer and potential transition horizon from the Bronze to the Iron Age and thus of chronological relevance.

Keywords: Iron Age, Istria, Gradinas, hillfort settlements, pottery, chronology

INTRODUCTION

Istria, the largest peninsula in the Northern Adriatic, owes its name to ancient sources such as the work Periegesis of Hecataeus of Miletus, in which the pre-Roman inhabitants of the land are called Histri or Istri (Hänsel *et al.* 2015, 45). The Istrian peninsula is characterized by a hilly karst limestone landscape, which has an extremely rugged relief due to its high susceptibility to erosion (Hänsel *et al.* 2015, 45). Calcareous humus-like soil accumulates as a weathering product in the sediment traps, as the cracks and depressions in the limestone are called. This forms the basis for the specific shrub and grass vegetation, known as Macchia.

Gradinas, Castellieri or Kastellieri represent the characteristic form of hilltop settlements in Istria during the Bronze and Iron Ages. The prehistoric settlements are located on small elevations in the karst landscape and are still clearly visible in the field. They are characterized by a defensive architecture with ring-shaped walls made of limestone rubble, but using the dry-stone technique. The limestone that was used for the construction of the fortifications was quarried on site from the bedrock. About 440 fortified hilltop settlements are known to date (Buršić-Matijašić 2007). However, only a fraction of the known Gradinas have been dated by systematic research, the majority were usually dated on the basis of surface finds from field surveys.

THE ARCHAEOLOGICAL SITE – GRADINA MONBRODO

Gradina Monbrodo with its superficially visible, but heavily forested, encircling ramparts is situated close to the sea on a 30 m high hill near the bay of Cisterna, about 7 km south of the city of Rovinj (Figs. 1–3). It is located just over 3 km away (southwards) from the important Gradina Monkodonja, which is the most prominent example of the hillforts and has been systematically excavated in the 1950s (Buršić-Matijašić 1998) and between 1997 and 2008 (Hänsel *et al.* 2015; Hellmuth Kramberger 2017). The presumed central settlement of Monkodonja can be mentioned a prime example, which provides a lot of information about dry-stone architecture, subsistence, social structures and contacts with neighboring and foreign regions, as well as chronology in the developed Early- and beginning Middle Bronze Age in Istria. While Monkodonja was inhabited exclusively in the developed Early and Middle Bronze Age until the middle of the 2nd millennium BC[1], Monbrodo shows most likely an occupation during different Bronze and Iron Age periods

[1] A series of 45 C14 data, based on animal and human bones, testify that the establishment of the settlement took place around or before 1800 BC (Hänsel *et al.* 2015, 424–452). The first construction activities on the dry-stone wall of the main fortification took place in the 19th/early 18th century BC. The earlier phase of the main occupation of the hillfort falls into the 18th–17th centuries BC, the later one into the 16th to the beginning of the 15th century BC. According to Reinecke's

Fig. 1. The upper Adriatic with Istria and the location of the Gradina Monbrodo (map author)

(Müller *et al.* 2016; Hellmuth Kramberger *et al.* 2018). The hillfort was first examined in 1954 by Boris Baćić, when he discovered prehistoric and Roman pottery (Bekić 1996, 84; Buršić-Matijašić 2007, 177). A later analysis of pottery finds from Monbrodo indicated a settlement from the Aeneolithic[2] to the Roman period. Between 2016 and 2018 three excavation campaigns took place at Monbrodo in the framework of the project "Bronze Age Settlement Hierarchies in Istria, Croatia" (see acknowledgements) and two preliminary reports were published in 2016 and 2018 (Müller *et al.* 2016; Hellmuth Kramberger *et al.* 2018). Three trenches were excavated on the western flank of the hillfort, one on the central plateau, "the Acropolis" (Sonda 1/Trench 1), one on the second terrace (Sonda 3/Trench 3) and one on the third terrace (Sonda 2/Trench 2). All trenches were positioned directly adjacent to the internal face of the semi-circular ramparts, which are still visible in the forest. On the third settlement terrace (Müller *et al.* 2016, 41) no prehistoric traces of use could be identified, but on the central plateau and on the second settlement terrace extensive settlement traces of different periods were found. It should be emphasized that such an extensive stratigraphy of almost 2 m, discovered in Sonda 1 on Monbrodo, has rarely been preserved on other hilltop settlements in the karst due to erosion processes. The large quantities of handmade pottery from the lowest stratigraphic units immediately above the bedrock are comparable to the Monkodonja pottery assemblage (cf. Müller *et al.* 2016, 32–35; Hellmuth Kramberger *et al.* 2018, 34–35, Pl. 2–3), so that the evidence currently available suggests that the establishment of a first fortification on the Acropolis dates in the developed Early or Middle Bronze Age. However, it should be noted that the

chronological scheme for Central Europe, this is a period between the end of B A1 and the transition from B B1 to B B2/C1 (ibid. Fig. 332).

[2] Aeneolithic material could not be identified during the excavations in the years 2016–2018.

Fig. 2. View on the forested elevation with the Gradina Monbrodo from the Cisterna Bay (photo author)

Fig. 3. View from the air, visible are the annular walls under the canape of trees (drone photo Z. Grbin, AMI Pula, 2017)

results are preliminary, as the final processing and publication of the excavation findings and finds is still pending. Of this earlier, approx. 2.50 m wide dry-stone wall on the Acropolis, only the base of the lowest layer has been preserved (Hellmuth Kramberger *et al.* 2018, Fig. 3, Fig. 6; here Fig. 4, hatched area; Fig. 5 – SJ (SU)[3] 21, 25, 27–28). Remarkably, it is about 2 m away from the Acropolis wall, which is visible today (Fig. 4 and 5 – SJ (SU) 20). It is very likely that the 4 m wide acropolis wall, which is visible today, was built using the stones of the earlier wall. However, it was not built directly on the line of the earlier wall, but about 2 m away from the earlier line of the rampart and built on a more recent occupation deposit and a stone structure documented as SJ (SU) 12, which runs transversely to the earlier, Bronze Age wall (SJ (SU) 21, 25, 27–28) (Müller *et al.* 2016, Fig. 8, Fig. 10). These deposits, essentially stratigraphic unit SJ (SU) 13, partly SJ (SU) 15, in the grid squares A1–2/C1–2 as well as SJ (SU) 26 and 30 in the grid squares A3–4/B3–4 (Hellmuth Kramberger *et al.* 2018, Fig. 5) clearly differ in color and composition from the underlying earlier, late Early to Middle Bronze Age layers

[3] SU refers to "stratigraphic unit".

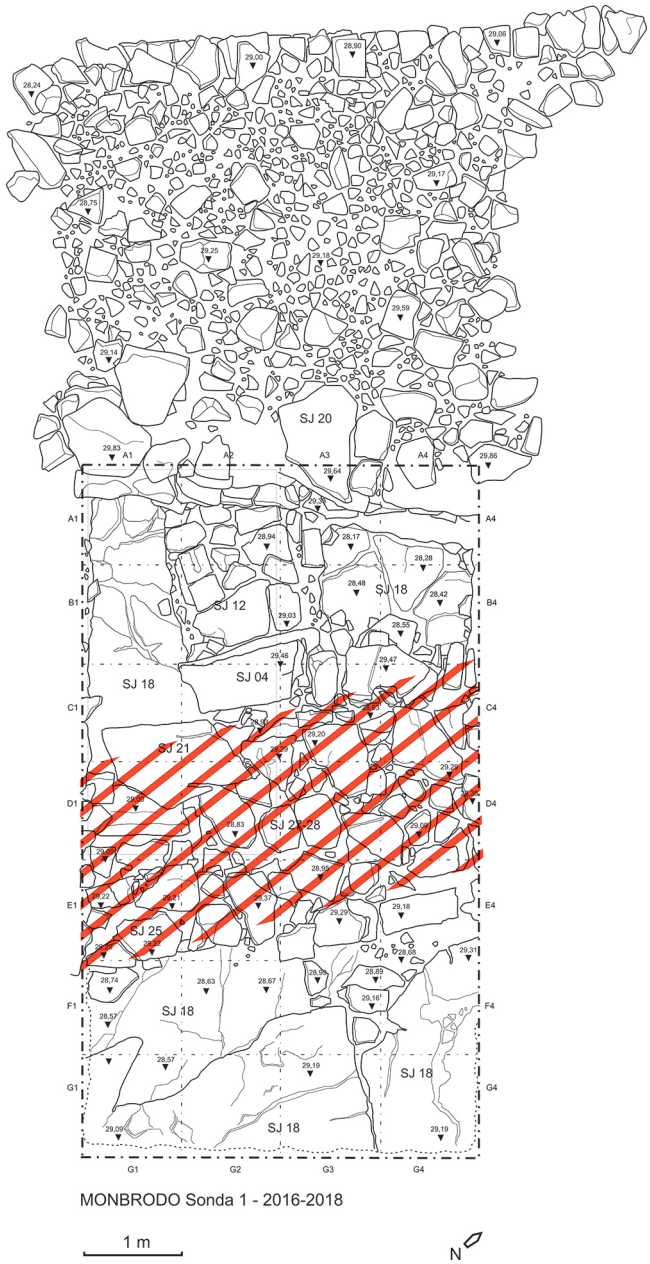

Fig. 4. Final planum of the trench in Sonda 1 (Acropolis), the hatched area marks the Acropolis wall from the Bronze Age (drawing Z. Grbin, digital drawing author)

Fig. 5. Oblique view on Sonda 1 (Acropolis) with marked stratigraphic units (SJ) (drone photo Z. Grbin, AMI Pula, 2017)

(cf. Fig. 6). Several bronze finds and wheel made pottery from the layers SJ (SU) 09 and 06 above this so-called 'intermediate phase' (ibid. Fig. 13) are of chronological importance and indicate a dating to the Late Iron Age between the late 4th and 2nd century BC (Müller *et al.* 2016, 35–37; Hellmuth Kramberger *et al.* 2018, 21–22). Late variants of fibulae of the Certosa type, type VII in variants e–f[4] (Müller *et al.* 2016, Pl. 1,5–6; Hellmuth Kramberger *et al.* 2018, Pl. 1, 3) (Figs. 7–8), a fibula of the developed Middle La Tène scheme of the Nesactium type[5] (Hellmuth Kramberger *et al.* 2018, Pl. 1, 2, 20, Fig. 7,B) and the fragment of a fibula with three knots on the bow and disc-shaped foot ("Fibel mit Dreiknopfbügel und Scheibenfuß") have been discovered (ibid. Pl. 1,1, 22, Fig. 9,B). These finds also show the integration of the settlement into the wider communication network of the upper Adriatic and south-east Alpine region during the Late Iron Age.

DISCUSSION

The 'intermediate phase' with SJ (SU) 13, 26 and 30 in Sonda 1 on Monbrodo, which cannot yet be precisely dated, contained numerous, relatively well-preserved sherds of handmade pottery, some of which could be joined together, and other ceramic objects such as spindle whorls (e.g. Müller *et al.* 2016, Pl. 3, 3), mortars (ibid. 36, Pl. 4, 1–2), bronze slag and a bone tool/spatula (ibid. 47, Pl. 6, 8–9) as well as possible fragments of tripods, (baking) plates on three legs (e.g. Fig. 13f; for the tripods comp. Fig. 10). Several triangular handles with end plates were also discovered (ibid. 32–33, Pl. 3, 5–7), which are usually described as an important leading type of the developed Early and Middle Bronze Age pottery in Istria (e.g. Hellmuth Kramberger 2017, 244, Figs. 215–217; cf. Fig. 9c). However, the pottery assemblage from SJ (SU) 13, 26 and 30 is dominated by vessels that differ significantly from the early to middle Bronze Age material both in terms of their technique, fabrics as well as their forms (Müller *et al.* 2016, 35–36). Particularly striking are their coarse forms with proportionally thick walls and the absence of any decoration (cf. Figs. 11–12). In addition, several special pottery objects have been discovered (Fig. 13a–c), which do not allow comparisons among the characteristic pottery type specter of the developed Early and Middle Bronze Age. In the following, an attempt will be made to find indications for the chronological

[4] Variant h was erroneously printed in the first publication. For type VII of the Certosa fibulae see e.g. Teržan 1977, 328, 371, map 42, 372; Blečić Kavur 2015, 153, Fig. 56.

[5] For the fibulae of the Nesactium type see Blečić Kavur 2009.

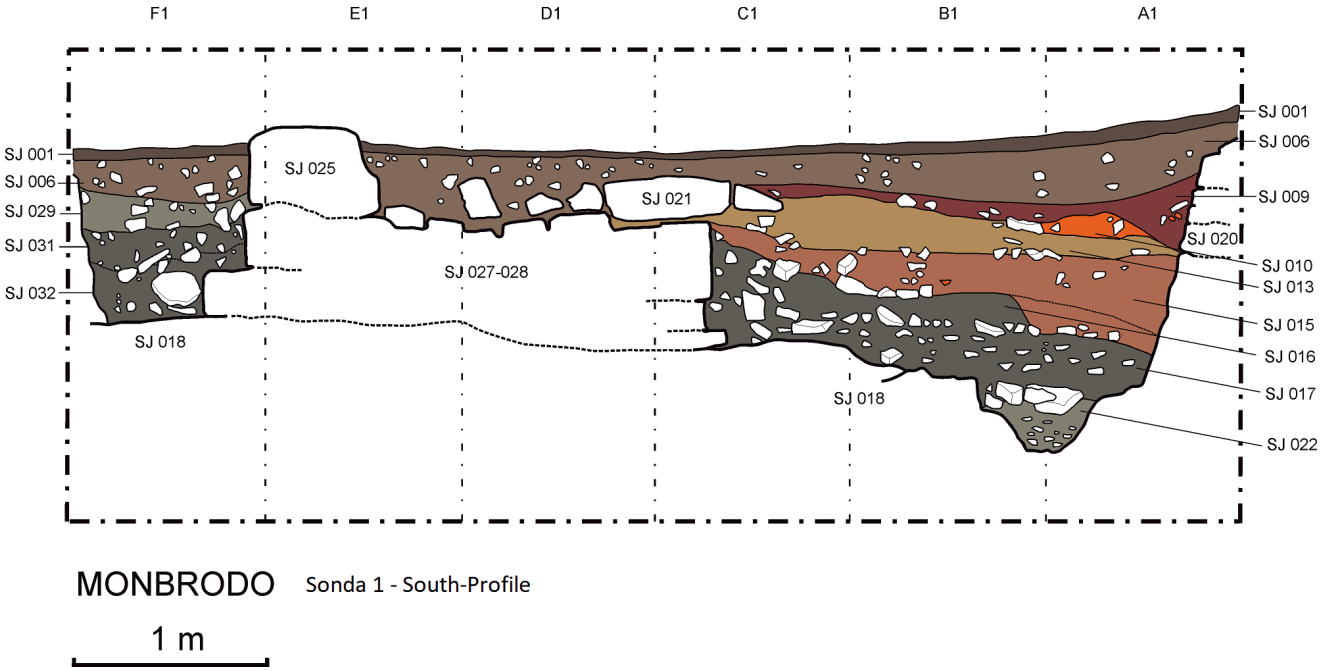

Fig. 6. Drawing of the South-profile in Sonda 1 (Acropolis) (drawing Z. Grbin, digital drawing author)

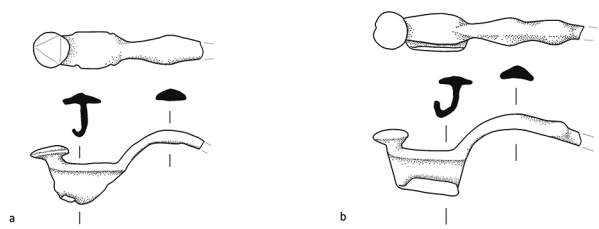

Fig. 7. Two bronze fibulae of Certosa Type from Sonda 1 (Acropolis) (drawing author)

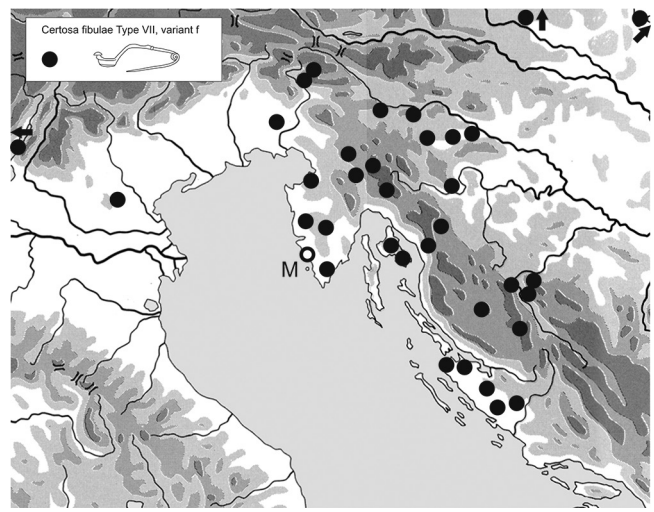

Fig. 8. Distribution of fibulae Certosa Type VII variant f (after Teržan 1977, Fig. 42, list p. 328)

classification of these vessels and other pottery on the basis of their formal characteristics.

In order to differentiate the material, it is first important to take a look at the forms of the Early and Middle Bronze Age. Of particular interest are different forms of pots (Fig. 9), since the majority of the vessels from Monbrodo to be discussed belong to this group. Based on the extensive pottery material from the Gradina Monkodonja (Hellmuth Kramberger 2017), which, as mentioned above, represents the presumed central settlement in the Rovinj area, a comprehensive typology was developed and studies on ceramic technology were conducted. The study can be considered representative for the whole developed Early and Middle Bronze Age in Istria. During the excavations in Monkodonja, more than 400,000 pottery shards were recovered, of which 7,420 vessels and vessel fragments were analyzed in detail and statistically evaluated, i.e. in regard to of vessel shape and dimensions, surface treatment, color, porosity, hardness, tempering and their finding spot. In total, storage vessels, pots and pithoi[6] take up the largest share of the analyzed pottery material with 32–35% (ibid. 405, Fig. 283). The pots were mostly fired in a changing atmosphere (reducing-oxidizing firing), accordingly, their coloring on the outside changes into different shades of red, brown and orange or rarely beige, while the inside of the pots is mostly black. The outer surfaces of the vessels are often smoothed[7] or mostly covered with barbotine[8] and additionally decorated with plastic applications and incisions (cf. Fig. 9a–b, e). Various forms of tongue-like grips are also characteristic. The plastic ledges, buttons and incised arches were sometimes attached to pots and pithoi in a very specific and interesting way, in

[6] Pithoi were defined as vessels whose height exceeds their width and which have a rim diameter of over 35 cm. On the average, rim diameters of 45 cm were measured. The term "pithos" was used to differentiate between large storage vessels and smaller pots, since in the former it is to be expected that they were used exclusively as storage vessels, while in the latter it is conceivable that they were used both, as storage containers and as cooking vessels.

[7] Simple smoothed surfaces have only been detected on 10% of the pottery (cf. Hellmuth Kramberger 2017, 45, Fig. 16).

[8] Barbotine was detected on 20% of all vessels examined (ibid.).

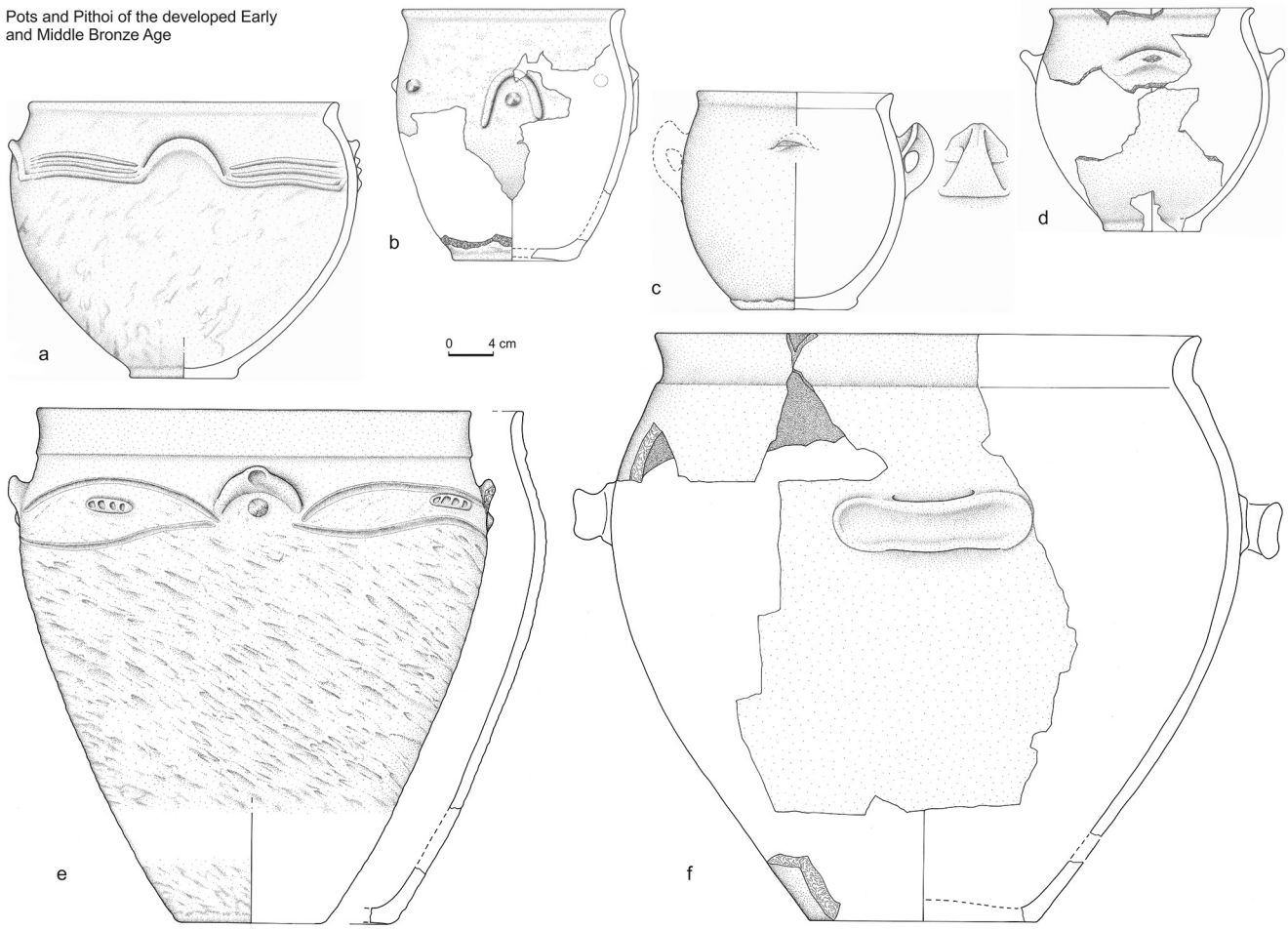

Fig. 9. Characteristic types of pots and pithoi during the developed Early and Middle Bronze Age in Istria from the Gradina Monkodonja (drawings author)

Fig. 10. Ceramic tripod from the Gradina Monkodonja (photo K. Mihovilić, AMI Pula)

a combination forming stylized faces (Hellmuth 2012; comp. here Fig. 9e). The inner surfaces of the vessels are carefully smoothed, sometimes even burnished. In addition to pots and pithoi with barbotine, another group of undecorated storage vessels with a well-burnished surface appears (Fig. 9c–d, f). The majority of all pots and pithoi represent fine-pored ceramics with medium-sized or few coarse particles (temper), whereby "fine-pored" here denotes a mean pore size of 0.3 mm (cf. Hellmuth Kramberger 2017, 49–50, Fig. 22). By macroscopic observation of the size, number and type of inclusions, 29 different ceramic fabrics could be defined (ibid. 50–58). Temper types such as lime, quartz, mica or grog were identified macroscopically. Pottery samples were also subjected to petrographic analysis, which showed the presence of quartz, calcite, muscovite, hematite and kalsilite in varying percentages. Of particular interest, especially with regard to the pottery from Monbrodo, is a ceramic fabric characterized by a high calcite content visible to the naked eye. In Monkodonja, pottery with a high calcite content was mainly observed in a limited number of grid squares in the inner area of the Acropolis and came to light immediately above the bedrock. They were sealed (i.e. preserved) by a later wall, which suggests that the finds date from the time of construction or use of the first, earliest fortification before or around 1800 BC. The find complexes, which are dated to the peak of the hillfort and its destruction around the middle of the 2nd millennium BC, show a significantly lower proportion of pronounced calcite temper.

As already mentioned, the large quantities of handmade pottery from the lowest stratigraphic units immediately above the bedrock in Monbrodo are comparable to the Monkodonja pottery assemblage. Since no C14 data are available to date, dating these stratigraphic units can only be estimated accordingly between the late 19th/early 18th and early

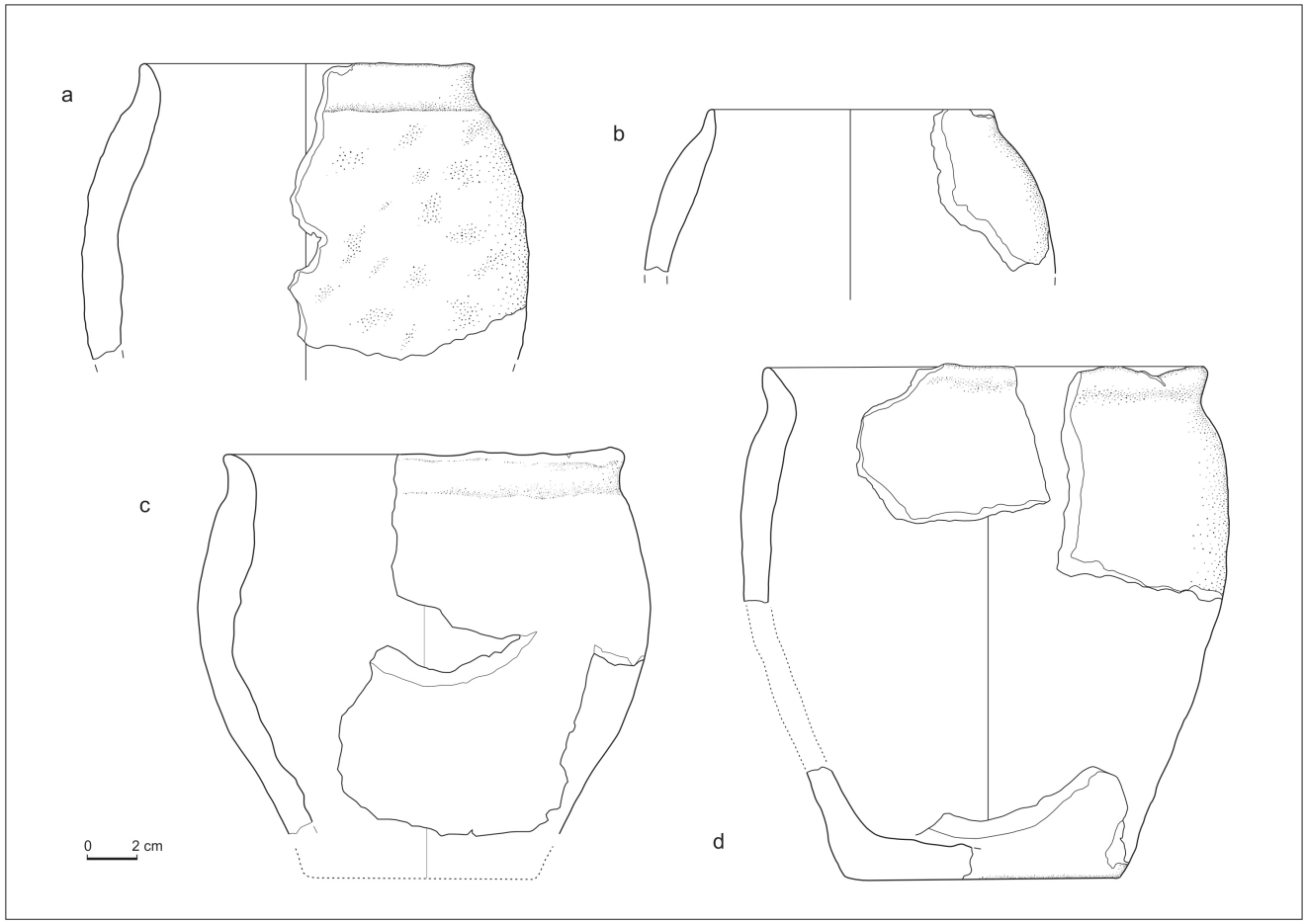

Fig. 11. Finds from Monbrodo, Sonda 1: a – grid square C1, SU 13 (rim- and belly-fragment of an ovoid pot with narrow opening, rim shows ledge on the outside, hand-made pottery; surface on the internal and external side roughly smoothed, color on the internal and external surface brown, color in the cross-section black; porosity is fine, the pottery is hard; clay fabric MC b with a large amount of calcite temper: cf. Hellmuth Kramberger 2017, Fig. 24, 31; the diameter of the rim is app. 12.8 cm, the maximum wall thickness is 1.6 cm, the maximum height is 11.7 cm; publication Müller *et al.* 2016, Pl. 4,4); b – grid square B1, SU 13 (rim- and shoulder-fragment of an ovoid pot with narrow opening, hand-made pottery; surface on the internal and external side smoothed, color on the internal and external surface brown with shades of black as well as in the core; porosity is fine, the pottery is very hard; clay fabric MC b with a large amount of calcite temper: cf. Hellmuth Kramberger 2017, Fig. 24, 31; the diameter of the rim is app. 11 cm, the maximum wall thickness is 1.3 cm, the maximum height is 6.4 cm; publication Müller *et al.* 2016, Pl. 4,3); c – grid squares A3/B3, SU 26/SU 30 (upper part of an ovoid pot with narrowing lower part, hand-made pottery; surface on the internal and external side smoothed, color on the internal and external surface brown, color in the cross-section black; porosity is rather fine, the pottery is very hard; clay fabric MC b with a large amount of calcite temper: cf. Hellmuth Kramberger 2017, Fig. 24, 31; the diameter of the rim is app. 16 cm, the maximum wall thickness is 1.8 cm, the maximum height is 15 cm); d – grid square A1, SU 09 (fragments of a pot, hand-made pottery; surface on the internal and external side roughly smoothed, color on the internal and external surface shades of brown, color in the cross-section black-brown; porosity is fine, the pottery is hard; clay fabric MC b with a large amount of calcite temper: cf. Hellmuth Kramberger 2017, Fig. 24, 31; the diameter of the rim is app. 17.4 cm, the diameter of the bottom is app. 11 cm, the maximum wall thickness is 1.4 cm, the maximum height (reconstructed) is 21.7 cm; publication Müller *et al.* 2016, Pl. 2,2).

15th century BC. However, according to current knowledge, the Monbrodo pottery appears to be particularly similar to pottery in use in Monkodonja at the time of its destruction around the middle of the second millennium BC[9]. In contrast, the pottery of the so-called 'intermediate phase' (Figs. 11–12) differs significantly from the presumed Middle Bronze Age material. First of all, the overall coarse form of several small pots with an average rim diameters of 15 cm and their proportionally thick vessel walls, which reach a thickness of up to 1.8 cm, is striking. No ornaments have been preserved and no handles or grips could be assigned. They are mainly of ovoid or oviform forms with either a thinned and slightly everted rim (Fig. 11) or a slightly inverted, even rim (Fig. 12). The surface on the inside and outside is roughly smoothed, the surface colors vary in different shades of brown[10], in the core the pottery is of black color. The porosity is fine[11] and the pottery is hard or even very hard[12]. A striking feature is the clay fabric, which is characterized by a considerable amount

[9] At Monkodonja, only limited observations can be made on the chronological subdivision of the pottery due to rare layer formations. However, the available stratigraphic evidence and a comparison of individual groups of finds in different grid squares within the main fortification (Sonda IX), the upper town (Sonda III) and the interior of the Acropolis (Sonda III) allow certain observations (cf. Hellmuth Kramberger 2017, 321–333).

[10] Munsell Soil Color Charts 5R5/2–4; 5R4/2–4; 5R3/2; 5R2.5/2; 7.5R3/2; 10R3/2; 2.5YR4/4–8; 5YR3/3; 7.5YR3/2.

[11] For the pottery from Monkodonja the limit between fine pored and coarse pored is 0.5 mm (cf. Hellmuth Kramberger 2017, 49–50).

[12] Mohs scale of mineral hardness 3–4 or 5–6.

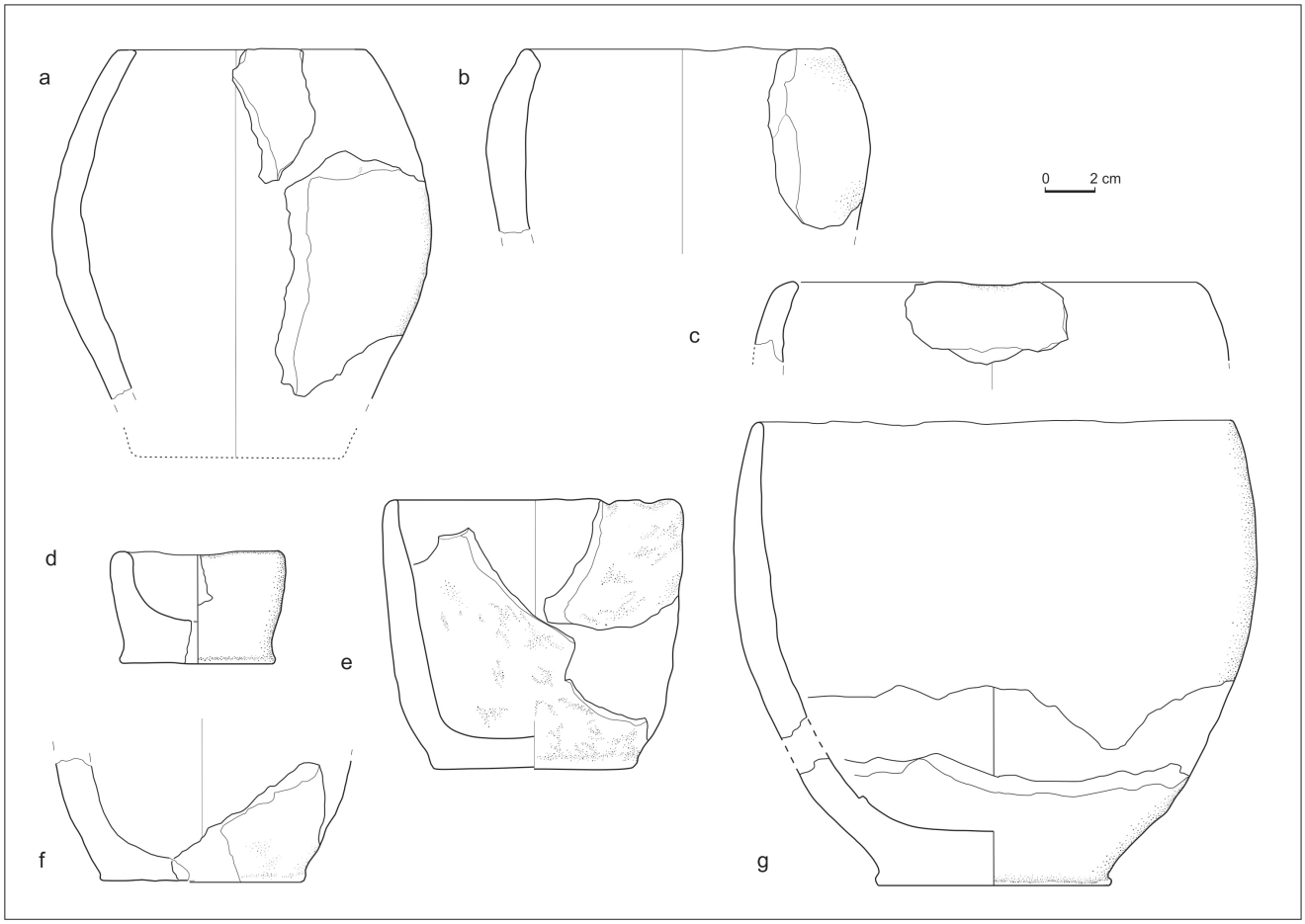

Fig. 12. Finds from Monbrodo, Sonda 1: a – grid square B3, SU 26 (fragments of an oviform pot, hand-made pottery; surface on the internal and external side smoothed, color on the internal and external surface patchy with shades of brown and gray, color in the cross-section black; porosity is fine, the pottery is very hard; clay fabric MC b with a large amount of calcite temper: cf. Hellmuth Kramberger 2017, Fig. 24, 31; the diameter of the rim is app. 10 cm, the maximum wall thickness is 1.4 cm, the maximum height is app. 13.6 cm); b – grid square A3, SU 26 (rim-fragment of an oviform pot, hand-made pottery; surface on the internal and external side smoothed, color on the external surface dark brown with a reddish hue, on the internal surface reddish-brown, color in the cross-section black; porosity is fine, the pottery is very hard; clay fabric MC b with a large amount of calcite temper: cf. Hellmuth Kramberger 2017, Fig. 24, 31; the diameter of the rim is app. 12 cm, the maximum wall thickness is 1.6 cm, the maximum height is 7.2 cm); c – grid square A4/B4, SU 30 (inverted rim-fragment of a pot, hand-made pottery; surface on the internal and external side roughly smoothed, color on the external surface dark brown, on the internal surface black, color in the cross-section black; porosity is fine, the pottery is very hard; clay fabric MB b with a medium amount of calcite temper: cf. Hellmuth Kramberger 2017, Fig. 24, 31; the diameter of the rim is app. 16.5 cm, the maximum wall thickness is 1.1 cm, the maximum height is 3.2 cm); d – g rid square B1, SU 13 (part of a small vessel with vertical rim and massive bottom, entire profile preserved, hand-made pottery; surface on the internal and external side smoothed, color on the internal and external surface brown as well as in the core; porosity is fine, the pottery is hard; clay fabric MC a: cf. Hellmuth Kramberger 2017, Fig. 24, 31; the diameter of the rim is app. 6.6 cm, the maximum wall thickness is 1.8 cm, the maximum height is 4.5 cm; publication Müller *et al.* 2016, Pl. 4,2); e – grid square B3, SU 12/13 (small open pot with straight sides and flat bottom, hand-made pottery; surface on the internal and external side roughly smoothed, color on the internal and external surface orange, color in the cross-section black; porosity is fine, the pottery is very hard; clay fabric MC b with a large amount of calcite temper: cf. Hellmuth Kramberger 2017, Fig. 24, 31; the diameter of the rim is app. 11 cm, diameter of the bottom app. 8 cm, the maximum wall thickness is 1.4 cm, the maximum height is app. 10.6 cm); f – grid square A4/B4, SU 30 (bottom-fragment of a pot, hand-made pottery; surface on the external side roughly smoothed, on the internal side not preserved, color on the external surface bright reddish-brown, on the internal surface reddish-brown, color in the cross-section brown; porosity is coarse, the pottery is hard; clay fabric MC b with a large amount of calcite temper: cf. Hellmuth Kramberger 2017, Fig. 24, 31; the diameter of the bottom is app. 8 cm, the maximum wall thickness is 1.4 cm, the maximum height is 4.8 cm); g – grid square C1, SU 13 (almost complete pot of a globular shape, bottom entirely preserved, hand-made pottery; surface on the internal and external side smoothed, color on the internal and external surface shades of reddish-brown, color in the cross-section black; porosity is fine, the pottery is hard; clay fabric MB b: cf. Hellmuth Kramberger 2017, Fig. 24, 31; the diameter of the rim is app. 19 cm, the diameter of the bottom is 9 cm, the maximum wall thickness is 1.5 cm, the maximum height (reconstructed) is 18.2 cm; publication Müller *et al.* 2016, Pl. 3,8).

of calcite[13] temper that is clearly visible to the naked eye (cf. Hellmuth Kramberger 2017, Fig. 24 and 31, 62; Fig. 33,3). As already mentioned, in the nearby Gradina Monkodonja, which dates in the late Early and Middle Bronze Age, vessels with a considerable amount of calcite temper appear mainly in contexts related to the earliest building phase (and use) of the Acropolis wall. However, there are no comparable pottery forms from these contexts to the coarse pots from Monbrodo. Though, handmade pottery made of a clay fabric containing a large amount of calcite temper is known from the well-researched Iron Age urn-necropolises in Istria. In general, there are great discrepancies between our knowledge of the

[13] Petrographic analyzes have shown that the clearly visible particles are calcite (Hellmuth Kramberger 2017, 61, 63, Fig. 34).

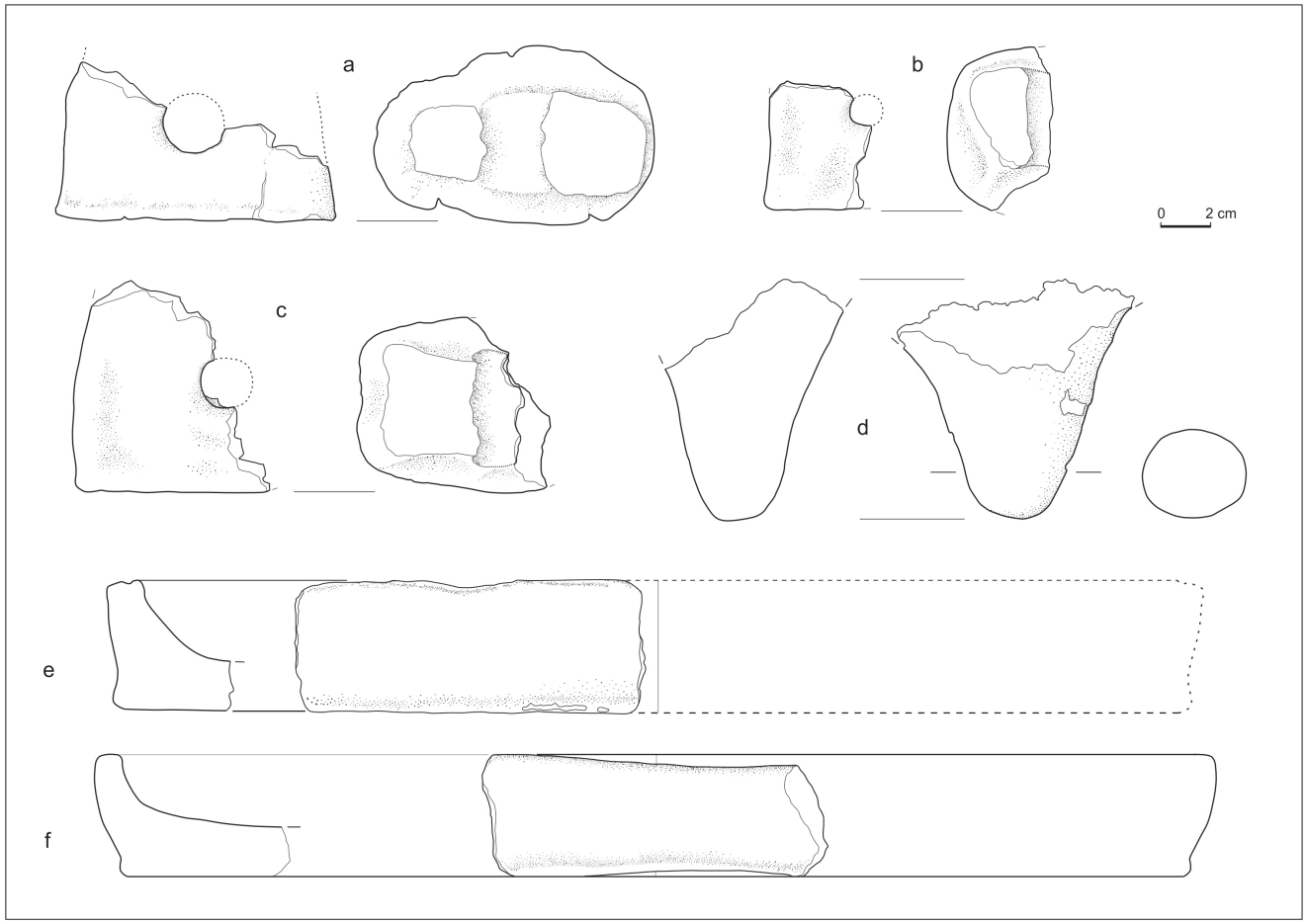

Fig. 13. Finds from Monbrodo, Sonda 1: a – grid square A4, SU 12/13 (partly preserved ceramic object with oval standing surface and perforation, hand-made pottery; surface smoothed and of beige color, color in the cross-section orange; porosity is fine, the pottery is hard; clay fabric MB b: cf. Hellmuth Kramberger 2017, Fig. 24, 31; maximum length is 11 cm, maximum width 7 cm, the diameter of the perforation is appr. 2.4 cm, the maximum height is 6.3 cm); b – grid square B4, SU 26 (partly preserved ceramic object with rectangular to oval standing surface and perforation, hand-made pottery; surface burnished and of beige color, color in the cross-section orange; porosity is fine, the pottery is very hard; clay fabric MB b: cf. Hellmuth Kramberger 2017, Fig. 24, 31; maximum length 4 cm, maximum width 6.5 cm, the diameter of the perforation is appr. 1.3 cm, the maximum height is 5.1 cm); c – grid square B3, SU 26 (partly preserved ceramic object with rectangular to oval standing surface and perforation, hand-made pottery; surface burnished and of beige-orange color, color in the cross-section orange; porosity is fine, the pottery is very hard; clay fabric MB b: cf. Hellmuth Kramberger 2017, Fig. 24, 31; maximum length is 7.6 cm, maximum width 6.8 cm, the diameter of the perforation is appr. 2 cm, the maximum height is 8.3 cm); d – grid square C1, SU 05 (foot of a tripod, hand-made pottery; surface on the internal and external side very roughly smoothed, color on the internal and external surface reddish-orange as well as in the core; porosity is course, the pottery is hard; clay fabric GA c: cf. Hellmuth Kramberger 2017, Fig. 25, 31; the maximum thickness is 5.8 cm, the maximum height is 9.4 cm; publication Müller *et al.* 2016, Pl. 1,4); e – grid square A1, SU 09 (rim-fragment of a plate or tripod, hand-made pottery; surface on the internal and external side smoothed, color on the internal and external surface orange-beige as well as in the core; porosity is course, the pottery is hard; clay fabric GC b with a large amount of calcite temper: cf. Hellmuth Kramberger 2017, Fig. 25, 31; the diameter of the rim is app. 43 cm, the maximum wall thickness is 3.5 cm, the maximum height is 5.2 cm; publication Müller *et al.* 2016, Pl. 2,4); f – grid square B3, SU 13 (rim-fragment of a plate or tripod, hand-made pottery; surface on the internal and external side smoothed, color on the internal surface beige and on the external surface orange, color in the cross-section orange; porosity is fine, the pottery is hard; clay fabric MC b with a large amount of calcite temper: cf. Hellmuth Kramberger 2017, Fig. 24, 31; the diameter of the rim is app. 41 cm, the maximum wall thickness is 3 cm, the maximum height is 4.8 cm).

less studied settlements and the cemeteries (Mihovilić 2013, 33–57; Urem 2012, 91). Accordingly, it is certainly difficult to draw conclusions from pottery from the graves about the simultaneous spectrum of vessels in the settlements. Another problem in connection with our observation is that detailed information on the clay fabric is rarely available. Although information on clay fabrics are available in selected cases – in fact, tempering, usually consisting of a large amount of calcite or 'fine flint grains' (Cestnik 2009, 179–180), material from Nesactium (Mihovilić 2001), Rovinj (Matošević, Mihovilić 2004) or Kaštel near Buje (Cestnik 2009), can be cited as examples. This fact is favorable and allows a better assessment of comparisons, as a decision based on formal similarities alone can lead to incorrect conclusions[14].

Reminiscent of the simple, thick-walled and coarse-shaped pots with a thinned and slightly everted rim from Monbrodo (Fig. 11) may be found in a small pot from grave 10/zone 1 in Nesactium (Mihovilić 2001, 147–148, Tab. 7,6; Mihovilić 2013, 220, Fig. 140, in front right) (Fig. 14g). It is a vessel with a broad flat bottom and a thinned rim edge and

[14] Examples are simple ovoid pots from graves in Nesactium (Mihovilić 2001, 182–183, Pl. 40,7, Pl. 41,20), which correspond in their shape to the vessels from Monbrodo (Fig. 12a, g), however, the pots from Nesactium have a polished surface of red-black and reddish-brown color.

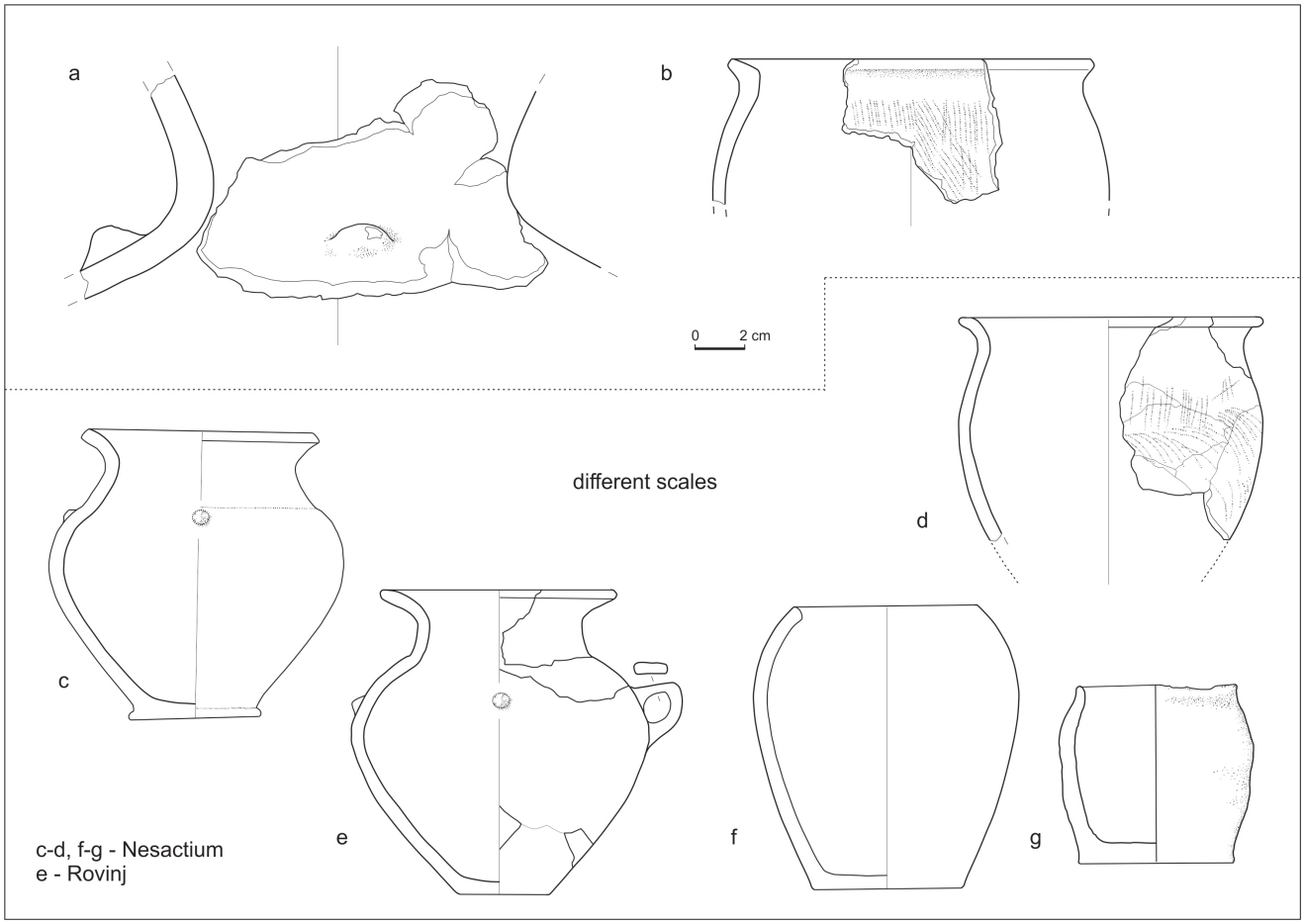

Fig. 14. Finds from: a – Monbrodo, Sonda 1, grid square F1, SU 06 (neck-fragment of a pear-shaped/bottle-shaped vessel with a knob on the shoulder, hand-made pottery; surface on the internal and external side not preserved (burnt), color on the external surface gray and on the internal surface black; porosity is fine, the pottery is hard; clay fabric MA a: cf. Hellmuth Kramberger 2017, Fig. 24, 31; the diameter of the neck is app. 13.5 cm, the maximum wall thickness is 1.5 cm, the maximum height is 8.3 cm); b – Monbrodo, Sonda 3, grid square B1, SU 12/13 (everted rim-fragment of a pot with a decoration of comb-like lines on the exterior; surface on the internal and external side burnished, color on the internal and external surface black as well as in the cross-section; porosity is fine, the pottery is very hard; clay fabric MC b with a large amount of calcite temper: cf. Hellmuth Kramberger 2017, Fig. 24, 31; the diameter of the rim is app. 14 cm, the maximum wall thickness is 0.8 cm, the maximum height is 5.7 cm); c – Nesactium, from grave 8 (a pear-shaped vessel with flat bottom, a shallow horizontal channel at the transition to the narrowed conical neck, the rim is everted; decorated with three knobs on the shoulder; surface finely polished, color dark brown, almost black; the diameter of the rim is 15.5 cm, the height is 18.4 cm; inter alia the grave 8 contained painted 'Daunian' kraters and a bronze three-knob fibula: after Mihovilić 2001, p. 180–182, Pl. 39,8); d – Nesactium, from the group of finds discovered until 1953 (upper part of an oval vessel with narrowed neck and everted rim, decorated with soft comb-like lines on the exterior; vessel was manufactured on the potter´s wheel, color dark brown; the clay fabric contains a rather large amount of calcite temper; the diameter of the rim is 16 cm, the wall thickness is between 0.5–0.7 cm, the maximum height is 9.4 cm: after Mihovilić 2001, p. 259, Pl. 101,19); e – Rovinj, from the area of a necropolis (a pear-shaped vessel with flat bottom and short narrowed conical neck with everted rim; decorated with three knobs on the shoulder and a vertical strip-shaped handle; the surface color is patchy with shades of reddish-brown and dark brown; the clay fabric contains a large amount of calcite temper; the maximum diameter is 22 cm, the maximum height is 23 cm: after Matošević, Mihovilić 2004, p. 29, Pl. 8,3); f – Nesactium, from grave 6 = "F" (an oval pot with flat bottom and a slightly inverted rim; grey-brown pottery; the diameter of the rim is 13.4 cm, the diameter of the bottom is 11.4 cm, the maximum height is 21.1 cm; inter alia the grave 6 contained a painted Oinochoe of the "Alto Adriatico" type: after Mihovilić 2001, p. 146–147, Pl. 5,15); g – Nesactium, from grave 10 (an oval small pot with a broad flat bottom and a thinned rim edge; coarsely manufactured black-brown pottery with a amount of calcite temper; the diameter of the rim is 9.5 cm, the diameter of the bottom is 9 cm, the maximum height is 10.3 cm; inter alia the grave 10 contained two situla-shaped vessels, two bronze pins and a bronze fibula (after Mihovilić 2001, p. 147–148, Pl. 7,6).

coarsely manufactured black-brown pottery with a considerable amount of calcite temper. The diameter of the rim is 9.5 cm, the diameter of the bottom is also 9 cm and the maximum height is 10.3 cm. With these dimensions, the vessel is somewhat smaller than the specimen from Monbrodo, but, the form, surface treatment and clay fabric are comparable. The grave 10/zone 1 from Nesactium contained several other objects, relevant for chronological classification of the grave. Among them are two situla-shaped vessels on a low conical foot, one decorated with rows of impressed dots, the other with horizontal ribs[15], two bronze pins, one with a head shaped like a series of small spheres[16] ("Nadel mit geripptem Kopf")[17], and a bronze fibula with a crescent-shaped foot, a small comb ("Kämmchen") at the end of the foot and

[15] Compare Teržan *et al.* 1985, 38, Nos. 4, 6.

[16] See also Mihovilić 2013, 196, Fig. 114, second from the right.

[17] Compare Teržan et al. 1985, 28 no. 9, 29; Teržan 1990, 226 map 23; Metzner-Nebelsick 2003, 428.

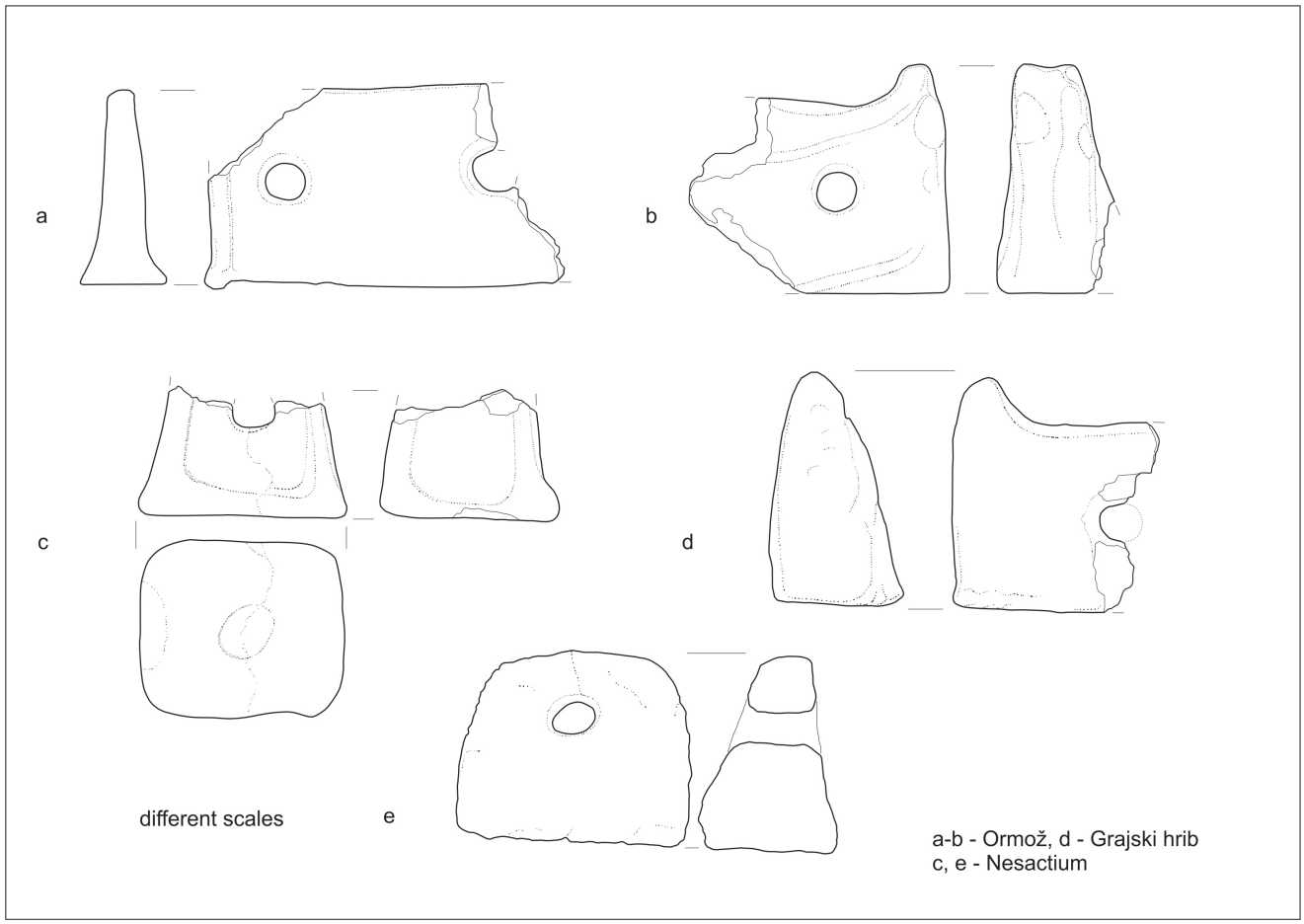

Fig. 15. Finds from: a – Ormož, Skolibrova ulica, Sector 5 (1979), grid 86 (firedog, fragmented; coarse fabric, bright brown color, smooth surface: after Dular, Tomanič Jevremov 2010, p. 152, Pl. 91,11); b – Ormož, Skolibrova ulica, Sector 3 (1978). B, grid 14 (firedog, fragmented; coarse fabric, yellow-brown color, rough surface: after Dular, Tomanič Jevremov 2010, p. 136, Pl. 39,10); c – Nesactium, from the group of finds discovered until 1953 (two fragments of the foot of a firedog or of a weight; brown-red burnished pottery; maximum length is 9.9 cm, maximum width 8.4 cm, the maximum height is 6 cm: after Mihovilić 2001, p. 236, Pl. 80,1); d – Grajski hrib in Gornja Radgona, Sonda 1, grid 2, section 4 (firedog, fragmented, coarse fabric, red-gray color, rough surface: after Dular 2013, p. 201, Pl. 82,10); e – Nesactium, from the group of finds discovered until 1953 (a semicircular weight with a widened base and a circular opening; coarse brown pottery, black in the cross-section; maximum thickness is 7.8 cm, maximum width 13.9 cm, the maximum height is 11.5 cm: after Mihovilić 2001, p. 236, Pl. 80,2).

rhombic cross-section of the bow[18]. K. Mihovilić (2013, 197) points out that bronze pins with a head shaped like a series of small spheres are common in Istria and are characteristic of the Early Iron Age phase III in Istria[19], which is dated to the last decades of the 8th and 7th centuries BC. For the situla-shaped vessel with a decoration with rows of dots reference is made to a very similar vessel from grave 21 in Kaštel near Buje (Cestnik 2009, 206, Fig. 63, Taf. 28,1; Mihovilić 2013, 200, 209, Fig. 116). According to comparisons with the regions of Este and S. Lucia these vessels date to the late 8th and in the 7th century BC (Cestnik 2009, 29, 37).

The rim fragment of an ovoid or globular pot with a wide opening and obliquely cut edge of the rim (Fig. 12b) shows parallels to an example from the group of different finds from Nesactium (Mihovilić 2001, 255, Pl. 98,16). Also the clay fabric of this vessel from Nesactium is characterized by a large amount of crushed calcite temper (Mihovilić 2001, 255). Of interest is also the grave 6 from Nesactium. Grave 6 = "F"/zone I was built as a small box with stones scattered on the base, it contained several vessels covered with flat stone slabs (Mihovilić 2001, 146–147, Pl. 5,10–17). Among them was an oval pot with a flat bottom and a slightly inverted rim, which, as in the previous example, shows an obliquely cut edge of the rim (ibid. Pl. 5,15; Mihovilić 2013, 212, Fig. 133, back left) (Fig. 14f). The diameter of the rim is 13.4 cm, the diameter of the base is 11.4 cm, the maximum height is 21.1 cm. According to the photograph, the clay temper of the grey-brown pottery also contained a larger amount of calcite and/or limestone temper. The grave also contained a cup with a raised strap-shaped handle[20], a form that is found in the S. Lucia group during the 7th century BC (Mihovilić 2013, 211). A chronologically much later object represents a wheel-made painted Oinochoe of the "Alto Adriatico" type,

[18] Similar to the Protocertosa-fibulae, compare Teržan *et al.* 1985, 20 no. 11, 21.

[19] The phase III of the Iron Age in Istria corresponds with Ha C1/2 according the chronology for Middle Europe (Mihovilić 2013, 114).

[20] Compare Teržan *et al.* 1985, 40 no. 5. See also two finds of such cups from Rovinj (Matošević, Mihovilić 2004, 22, Pl. 2,7; Pl. 7,1).

which indicates a dating to the phase VI[21] of the Nesactium urn graves, probably in the 4th century BC[22] (Mihovilić 2001, 107, Fig. 103).

From Sonda 1 on Monbrodo, grid square F1 (SJ (SU) 06), comes the neck-fragment of a pear-shaped or bottle-shaped vessel with a knob on the shoulder (Fig. 14a). The surface on inside and outside is not preserved, it is burnt, accordingly the color on the outside is gray. The original black surface is preserved on the internal surface. The porosity is fine and the pottery is hard[23]. The diameter of the neck is approx. 13.5 cm, the maximum wall thickness is 1.5 cm and the maximum height is 8.3 cm. In general, it should be noted that a decoration of bottle-shaped vessels with bulges or 'tutuli' on the shoulder is already part of the characteristic material of the developed Early and Middle Bronze Age in Istria (Hellmuth 2012, 30pp.; Hellmuth Kramberger 2017, 266–267, 261, Fig. 228, b1–3). Compared to the fragment from Monbrodo, however, these are larger, often hollow bulges with a halo (Hellmuth 2012, Pl. 6). The knob on the shoulder on the fragment from Monbrodo is much more reminiscent of some characteristic vessels from the Iron Age urn-necropolises. Namely, vessels such as those found in grave 8/zone V (1903 and 1904) from Nesactium (Mihovilić 2001, 180–182, Pl. 39,8; Mihovilić 2013, 211, Fig. 132) (Fig. 14c) or in the area of a necropolis in Rovinj (Matošević, Mihovilić 2004, 29, Pl. 8,3) (Fig. 14e)[24]. The grave 8/zone V from Nesactium, which contained several urn-burials in a square cella built with a coarse wall and covered with a slab, contained, among others, three 'Daunian' kraters of the South Daunian sub-geometric I and II type (Mihovilić 2001, 88, Fig. 76, 96, 97, Fig. 85)[25], a situla-shaped vessel characteristic for the S. Lucia group and a bronze south-eastern Alpine three-knob fibula ("Dreiknopffibel")[26], which indicate that the grave was used between the 7th and 6th/5th century BC, during the developed phase III and phase IV/V of the Early Iron Age in Istria (Mihovilić 2013, 211, 227).

It can be stated that due to the longer occupation of the graves from Nesactium no detailed temporal assignment is possible, the timespan ranges from the 7th to the 5th century BC, in the case of grave 6/zone I partly even up to the 4th century BC. Although the comparisons show, that the pottery from the so far undated 'intermediate phase' of Monbrodo could already be dated to the Early Iron Age. Altogether, this would indicate a settlement history both in the Late Iron Age (which is well documented) and in the Early Iron Age.

In addition to the above-mentioned coarse, ovoid vessels and the neck fragment with small knob, one other vessel fragment found on Monbrodo (Fig. 14b) has its comparison in Nesactium. Although not directly related to the 'intermediate phase', it is relevant for the chronological discussion. It is an everted rim of a black pot with a decoration of comb-like lines on the outside (Fig. 14b). The surface on the internal and external side is burnished, the porosity is fine and the pottery is very hard[27]. The clay contains a large amount of calcite temper (cf. Hellmuth Kramberger 2017, pic. 24, 31). The diameter of the rim is approx. 14 cm, the maximum wall thickness is 0.8 cm and the preserved height is 5.7 cm. The piece was found in Sonda 3 on the second settlement terrace on Monbrodo in SJ (SU) 12/13 and does not represent a common find among the pottery recovered so far. In the case of SJ (SU) 12/13 it is a relatively thin layer of compact blackish brown soil, which contained a large amount of sea snails and shells, clay daub, pottery and small finds and resembles SJ (SU) 06 in the grid squares A1–/B1–4 in Sonda 1 on the Acropolis (Hellmuth Kramberger *et al.* 2018, 27, 26, Fig. 17). All characteristics – decoration with soft comb-like lines on the exterior, dark color and calcite temper – also appear in the case of a wheel-made vessel of similar shape from Nesactium that belongs to the group of different finds discovered until 1953 (Mihovilić 2001, 259, Pl. 101,19) (Fig. 14d). While the find from Nesactium does not provide a context which clarifies the dating, the ceramic itself does. Pots with various forms of comb-stroke pottery ("Kammstrichkeramik") are very characteristic from the Middle La Tène period onwards (e.g. Trebsche 2003; cf. also Tiefengraber 2009, 271, 270, Fig. 14,9; Trebsche 2010, Fig. 3,1; Tiefengraber 2015, 636; Grahek 2018, 265 Fig. 12,L17). The chronological classification to the La Tène period is of special importance for the dating of the so far undated SJ (SU) 12/13[28] in Sonda 3. As already mentioned, the layer corresponds in its consistency and composition of finds to SJ (SU) 06 in Sonda 1 (Fig. 6), which contained fibulae that are characteristic for the developed Middle La Tène period (Hellmuth Kramberger *et al.* 2018, 21–22), but no chronologically relevant finds for SJ (SU) 12/13 in Sonda 3 had been identified so far. The layers below SJ (SU) 12/13 in Sonda 3 mark a distinct change in the consistency and color

[21] Phase VI corresponds with late Lt A-Lt C1 according the chronology for Middle Europe (Mihovilić 2013, 114). Settlement activities during the developed Middle La Tène period on Monbrodo is indicated, as mentioned above, by several bronze fibulae (Hellmuth Kramberger *et al.* 2018, 21–22).

[22] Fragments of pottery of the "Alto Adriatico" type were also found on Monbrodo (compare Müller *et al.* 2016, 34–35). This pottery appears throughout the Adriatic from the end of the 4th century BC and the beginning of the 3rd century BC. A location for the production centres around Spina has been posited (Kirigin 1992; Landolfi 1996; Mihovilić 1996, 44; Blečić Kavur 2015, 208). "Alto Adriatico" type pottery has only been found on a few sites in Istria, e.g. in Nesactium (Mihovilić 1996, 32–33, Figs. 44–47, 49–50) or Rovinj (Matošević, Mihovilić 2004, 16).

[23] Mohs scale of mineral hardness 3–4.

[24] Pear-shaped vessels with narrow, sometimes concave base, narrowed neck, everted mouth and a modest ornamentation with small knobs are described as "Timavo type" (Mihovilić 2001, 86, 87, Fig. 74; Mihovilić 2013, 217 in relation to Lonza 1977, 109, Pl. 10; see also Cestnik 2009, 22–24, 65). In most cases, the knobs are positioned lower on the shoulders.

[25] The dating of the South Daunian sub-geometric I–II phase falls into the period between the developed 7th and 5th century BC (Teržan 1995, Fig. 15; Mihovilić 2001, 96; Cestnik 2009, 32–33, 32 Fig. 13).

[26] Compare Teržan, Lo Schiavo, Trampuž-Orel 1985, 20 no. 5-9, 21. Regarding the type of "Dreiknopffibel" see e.g. Ogrin 1998; Glogović 2003, 62–64. The Fibula from grave 8/zone V from Nesactium was found in vessel "i" (Mihovilić 2001, 181–182, Pl. 39,5), another specimen with four small knobs on the shoulder, similar to the vessel on Fig. 14c.

[27] Mohs scale of mineral hardness 5–6.

[28] SJ (SU) 12/13 in Sonda 3 follows a different counting of stratigraphic units, thus it is not the same as SJ (SU) 12 and 13 in Sonda 1.

of the soil and resemble the 'intermediate phase' in Sonda 1. So, there could be a demarcation between the Early and the Late Iron Age settlement phase.

Some perforated clay objects from the stratigraphic units SJ (SU) 12/13 and 26, i.e. the 'intermediate phase' of Sonda 1 on Monbrodo, appear unusual (Fig. 13a–c). All three objects have a flat base with an of oval or slightly rectangular outline and a 1.3–2.4 cm wide perforation which starts approx. 4 cm above the base. No upper part is preserved, so we do not know what the objects looked like as a whole. Their surfaces are smoothed (Fig. 13a) or burnished (Fig. 13b–c), the surface colors vary in different shades of beige[29], in the core the pottery shows different shades of orange[30]. The porosity is fine and the pottery is hard or very hard[31]. The clay fabric is characterized by a medium amount of medium sized lime and calcite particles (cf. Hellmuth Kramberger 2017, Fig. 24, 31). The first idea for the objects was, with regard to the fact that three pieces were found[32] and rim-fragments of plates are present (cf. Fig. 13e–f), that they represent the feet of a special form of tripod or three-footed plate. Tripods are an important group of ceramic products and also one of the leading forms in the Bronze Age hillforts in Istria, the Trieste Karst and on the Kvarner islands (Lonza 1977, 71; Mihovilić 1995, 32, map. 2; Blečić Kavur 2012, 104, 105, Fig. 3; Hellmuth Kramberger 2017, 215–220, Fig. 280,16) (comp. Fig. 10). The analyzed tripods from Monkodonja[33] all show burn marks on the upper surface (Hellmuth Kramberger 2017, Figs. 183b, 186), which indicates the use as portable stoves. In order for the tripods to be transported in a hot state, the feet were often provided with a perforation for the insertion grips made of organic material. As can be seen from in various studies (Hänsel, Teržan 2000, 179; Mihovilić 2001, 47–48; Hänsel *et al.* 2015, 503) tripods are a form originating from the Eastern Mediterranean cultural area. The extent of the period of use of the tripods is still not fully clarified, some researchers assumed that they were not used after the Late Bronze Age (e.g. Buršić-Matijašić 1998, 79 with reference to Cardarelli 1983, Pl. 18; Lonza 1981, 66), others like K. Mihovilić indicate a duration until the Iron Age (Mihovilić 1995, 31, map. 2; Mihovilić 2001, 47). At present, a well stratified find material of tripods, which can be assigned to a Late Bronze Age and Early Iron Age contexts, is still missing. On Monbrodo, besides the plate fragments (Fig. 13e–f), tripod feet (e.g. Fig. 13d[34]) were found in several stratigraphic units. There is the potential to gain new insights into the duration of the use of certain forms in the future. However, the question remains what the three perforated clay objects from Monbrodo represent. The two objects with a rather rectangular outline (Fig. 13b–c) are reminiscent of a variant of firedogs ("Feuerbock")[35] with a rectangular outline, two small 'horns' on the upper edge and a double perforation, as known from several settlement sites in Slovenia, which are dated to the Late Bronze Age–Early Iron Age. As examples, finds from the settlements Ormož in Northeast Slovenia (Dular, Tomanič Jevremov 2010, 136, Pl. 39,10[36]; 152, Pl. 91,11[37]), Poštela near Maribor (Teržan 1990, 276, Pl. 11,14[38]) or Grajski hrib in Gornja Radgona (Dular 2013, 201, Pl. 82,10[39]) can be mentioned (Fig. 15a–b, d). If one assumes, however, that all three objects from Monbrodo are similar, this comparison is problematic. In the case of the object from grid square A 4, SJ (SU) 12/13 (Plate 3,a) the entire standing surface is preserved, which makes it clear that it was an object with an oval outline with only one perforation. The firedogs mentioned are of rectangular, elongated form with two perforations. If one continues to look for comparisons in Istria, then two objects from Nesactium stand out (Mihovilić 2001, 236, Pl. 80,1–2) (Fig. 15c, e). While one shows a square base and was referred to as part of a 'fireplace stand' (firedog) or a weight, the other (completely preserved) has a rectangular base and is referred to a weight, both are perforated. The dimensions are approximately the same as those of the Monbrodo pieces. Both objects belong to the collection of finds from Nesactium, which came to light between 1901 and 1953, so their exact dating is uncertain. Interesting, however, is the designation as weight or loom weight and could therefore also apply to our pieces. In a piece from Nesactium, the perforation seems to be positioned in the lower half of the object (Mihovilić 2001, Pl. 80,1), and the same applies to all pieces from Monbrodo, which have a perforation only 3–4 cm above the base. However, it can be stated that the perforations of characteristic Late Bronze Age and Iron Age pyramid-shaped loom weights (e.g. Grömer 2016, 111, 113, Fig. 61, 116, Fig. 63, 279, Fig. 150) are usually located higher, in the most upper part of the objects[40]. The alleged finds of loom weights fit well with other finds from Sonda 1 on Monbrodo. Several spindle whorls (compare Müller *et al.* 2016, Pl. 3,3)[41] and a sewing needle point made of bronze also point to textile and clothing production. If,

[29] Munsell Soil Color Charts 5YR8/2–4; 7.5YR8/2–4.

[30] Munsell Soil Color Charts 2.5YR7/8; 2.5YR6/6–8; 2.5YR5/8; 2.5YR5/6–8; 5YR7/8; 5YR6/8.

[31] Surface treatment and fabrics show that the objects were carefully manufactured and fired, no objects were quickly and gross produced.

[32] They all match in terms of color and fabric, but the most complete object from SJ (SU) 12/13 Fig. 13a, has a rather oval outline and the surface has been carefully smoothed rather than burnished.

[33] Tripods account for 3% of the analyzed ceramic assemblage from Monkodonja, which consists of 7,420 typologically determinable vessels and vessel fragments.

[34] This tripod-foot comes from SJ (SU) 05 in grid square C1, a layer near the topsoil, which contained mixed material.

[35] For firedogs from the Late Bronze age and Early Iron Age see e.g. Nebelsick 1996; Matzerath 2011.

[36] The object comes from Skolibrova ulica, Sector 3 (1978). B: Grid 14. – A pit (no. 445) in sector 3 is dated to Ha B3 (Dular, Tomanič Jevremov 2010, 80).

[37] The object originates from Skolibrova ulica, Sector 5 (1979). Grid 86. – A pit (no. 144) in sector 5 is dated to Ha B (Dular, Tomanič Jevremov 2010, 80).

[38] The object was found on a refuse heap (Teržan 1990, 276).

[39] The object comes from Sonda 1, grid 2, section 4. Section 4 represents the upper part of layer 2 in Sonda 1, which dates to the transition from the Late Bronze Age to the Early Iron Age, Ha B2/3 and Ha C (Dular 2013, 187–188).

[40] A characteristic pyramidal loom weight was also found in Nescatium (Mihovilić 2001, Pl. 80,4).

[41] The published spindle whorl originates from SJ (SU) 13, i.e. the 'intermediate phase'. Two further, previously unpublished, spindle whorls and the sewing needle, come from the mixed layer SJ (SU) 06 in grid square s F3 and G3.

in addition, these are actually loom weights[42], they are most likely a further indicator for dating the 'intermediate phase' to the Late Bronze- or Early Iron Age. For it is striking that there were no ceramic loom weights among the pottery from Monkodonja, which included several hundred thousand pieces of pottery and other ceramic objects[43]. There are also no loom weights in pottery from the excavations conducted on Monkodonja by B. Baćić (cf. Buršić-Matijašić 1998). This also raises the question of what the Early and Middle Bronze Age loom weights in Istria actually looked like[44].

CONCLUSION

So far, characteristic finds from the Gradina Monbrodo, a settlement in the developed Early Bronze Age or Middle Bronze Age, as well as in the Late Iron Age, are proven. The corresponding settlement horizons are separated by at least one further layer with presumably associated architecture, which clearly differs in color and consistency from the aforementioned, so that it can be assumed that at least one further settlement horizon exists. In the present paper, an attempt was made to obtain information on the dating of the so-called 'intermediate phase' by means of formal and production-related comparisons of pottery finds. However, the comparison is based only on a very small amount of material and the comparison with finds from graves, because there is an extreme imbalance in research between the Iron Age settlements and the urn-necropolises. Nevertheless, the comparisons made indicate that a dating of the 'intermediate phase' into the Early Iron Age is possible. The results for the second settlement terrace with the Sonda 3 are significant. Here, a thin layer was discovered, which, in its composition and consistence, shows a strong similarity with the finds on the Acropolis in Sonda 1 which are related to the Late Iron Age. For Sonda 3, however, no finds from this layer could be identified so far, which would give information about the chronological classification. The identification of a vessel fragment from the group of La Tène period pottery with combed decoration changes this situation. It shows that the second settlement terrace was also settled during the Late Iron Age.

Looking at the overall Iron Age Istria picture, it is once again evident that Gradina Monbrodo could play a key role in the study of various chronological questions concerning the Bronze and Iron Age phases. During the Late Iron Age, the site was integrated into the wider Iron Age communication network, as shown by the finds of specific bronze jewelry, amber and imported painted wheel thrown pottery.

[42] Of course it is also a possibility that they are objects of different functions, e.g. in the case of the better preserved piece on Fig. 13a, a loom weight and fragments of firedogs in the other two on Fig. 13b–c.

[43] There are also no loom weights from other settlements dating into the same period as Monkodoja, e.g. Vrčin-Monte Orcino (Buršić-Matijašić 1997), but the research and publication situation is still poor overall. A very coarse, 'potato-shaped' loom weight comes from the Bronze and Iron Age site Medulin-Punta Kašteja (Mihovilić 1979, Tab. I, 5).

[44] Ceramic spools from the Elleri site (Castelliere di Elleri), south of Trieste are mostly seen in connection with salt production (Lonza 1977, 73, Fig. 4; Maggi, Pieri, Ventura 2017, 224, Fig. 122 top left), but similar spools could also have been used for textile production or tablet weaving (Grömer 2016, 106, Fig. 56, 107). Ceramic spools, described as firedogs, were found in a building dating to the Iron Age at the south-eastern corner of the Archaeological Museum of Istria in Pula (Mihovilić 2013, 49, Fig. 22). In the same context, pottery rings were found, which are explained either as vessel stands on a fireplace (ibid. 49, Fig. 21) or as loom weights.

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