

Boris Čargo, Maja Miše

Lončarska proizvodnja u Isi Pottery Production in Issa

Boris Čargo
HR, 21 000 Split
Arheološki muzej u Splitu
Zrinsko-Frankopanska 25
boris.cargo@armus.hr

Maja Miše
HR, 21 000 Split
Filozofski fakultet u Splitu
Sinjska 2
mmise@ffst.hr

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Boris Čargo
Croatia, 21 000 Split
Archaeological Museum in Split
Zrinsko-Frankopanska 25
boris.cargo@armus.hr

Maja Miše
Croatia, 21 000 Split
Faculty of Arts and Letters in Split
Sinjska 2
mmise@ffst.hr

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Rad je uvod u proučavanje keramičarske djelatnosti u antičkoj Isi. Na jednome mjestu sažimaju se svi dosad poznati podatci koji potvrđuju pretpostavke o keramičkoj proizvodnji, a na osnovi novopronađenih ulomaka različitih keramičkih oblika donosi se i uvid u pojedine oblike isejskih proizvoda tijekom kasnoga helenizma i ranorimskoga razdoblja. Na temelju analize pronađenih ulomaka lončarska djelatnost u Isi može se pratiti od 3. st. pr. Kr., i traje barem do 3. st. po. Kr. Pronađeni ulomci svjedoče o raznolikoj lončarskoj proizvodnji, od helenističkih terakotnih figura tipa Tanagra, preko svjetiljaka i reljefnih čaša, do amfora i dolija, manjih vrčeva s jednom ručkom, pečatnih svjetiljaka i drugog iz kasnijeg ranorimskog razdoblja.

U suradnji s Rudarsko-geološko-naftnim fakultetom Sveučilišta u Zagrebu načinjene su prve arheometrijske analize keramičkih ulomaka i mogućih prirodnih pojava gline na otoku Visu, u svrhu što boljeg razumijevanja procesa izrade keramičkih proizvoda i opsega lončarske djelatnosti u tom istočnojadranskom gradu tijekom spomenutih razdoblja. Rezultati tih analiza ovdje se prvi put objavljuju.

Ključne riječi: Isa, Vis, Martvilo, Vlaška njiva, južna Italija, lončarske peći, keramički kalupi, keramički škart, helenistička i rimska keramika, piti/doliji, kvarcni pijesak, arheometrijske analize

This work constitutes an introduction to the study of pottery production in ancient Issa. In a single place, it summarizes all previous data pertaining to pottery production confirmed by previous hypotheses thereon, while newly-discovered fragments of various pottery forms provide an insight into individual forms of Issa products during the Late Hellenistic and Early Roman periods. Pursuant to an analysis of the potsherds, pottery production in Issa can be followed from the third century BC, lasting until the third century AD at the very least. The fragments found testify to the diverse pottery production, from Hellenistic terracotta figures of Tanagra type and relief cups, to amphorae and dolia, juglets with single handles, stamped oil-lamps and so forth from the later Early Roman period.

In cooperation with the Mining, Geology and Petrochemistry Faculty of the University of Zagreb, the first archaeometric analyses of ceramic fragments and possible deposits of clay on the island of Vis were conducted for the purpose of the best possible understanding of the actual process of making ceramics and the extent of pottery activity in this Eastern Adriatic city during the aforementioned periods. The results of these analyses are published here for the first time.

Key words: Issa, Vis, Martvilo, Vlaška njiva, Southern Italy, pottery kilns, ceramic moulds, ceramic discards, Hellenistic and Roman pottery, pithoi/dolia, quartz sand, archaeometric analysis

Prvi arhivski i arheološki podatci koji su ukazali na postojanje lončarske djelatnosti u Iasi (*Issa*), bili su zapisi don Silvestra Bonačića iz 1921. godine¹ o postojanju lončarske peći na istočnoj strani grada, *extra muros*, zatim podatci Š. Stanića o pronalasku ostataka peći na zapadnoj strani grada, na položaju Martvilo² godine 1851., te nalazi peći iz 1948. godine³ i godine 1980., također na Martvilu.⁴ Tome treba pridodati i novopronađene skromne ostatke arhitekture na perifernom dijelu Martvila, koji bi se, s obzirom na pronalazak ulomaka kalupa za izradu reljefne helenističke keramike te malih podmetača za predmete prilikom pečenja, u njihovoj neposrednoj blizini, namjenski mogli povezati uz lončarsku radionicu (sl. 1).⁵

Unatoč važnosti pronalaska keramičke peći na sjevernoj strani Martvila za arheoloških istraživanja godine 1948., tada nije načinjen njezin detaljan opis, niti su zabilježene njezine mjere i točan položaj, a nisu načinjene ni fotografije. Isto su tako zanemareni nalazi keramičkog škarta i sitne keramike, osim većeg ulomka slijepljenih vrčića, pronađenih na sjevernom dijelu Martvila u neposrednoj blizini peći. Sve nas to lišava mnogih spoznaja o tehnološkim osobitostima peći, načinu njezine gradnje i kapacitetu, kao i detaljnijeg uvida u oblike lončarskih izrađevina na temelju nalaza keramičkog škarta, datiranja i mogućeg praćenja razvoja pojedinih keramičkih oblika od kasnog helenizma do ranorimskog razdoblja.

Svi koji su se u svojim radovima doticali isejskih lončarskih radionica i keramičke proizvodnje, polazili su od pretpostavke da su peći pronađene 1921. i 1948. iz helenističkog razdoblja, no izostale su čvršće argumentacije za takve pretpostavke.⁶

Sustavnim proučavanjem isejske keramičke proizvodnje prvi se počeo baviti B. Kirigin, ponajprije proučavanjem helenističke keramike, posebice one tipa *Gnathia*. Temeljem ikonografske i morfološke analize izdvojio je posude izrađene u tzv. *Gnathia* stilu, za koje smatra da su uradci isejskih lončarskih radionica iz kasnohelenističkog razdoblja.⁷ I sam istražujući na isejskoj

The first archival and archaeological data which indicated the existence of pottery production in Issa were those provided by Fr. Silvestar Bonačić on the existence of a pottery kiln on the eastern side of the city, *extra muros*, in 1921,¹ followed by data from Š. Stanić that the remains of a kiln were discovered on the western side of the town in 1851 at the Martvilo site,² as well as the finds of a kiln from 1948³ and 1980, also at Martvilo.⁴ The newly-discovered, modest remains of architecture on the periphery of Martvilo should be added to this, as the discovery of fragments of a mould to make Hellenistic relief ceramics, and small kiln supports in their immediate vicinity, can be linked to a pottery workshop in terms of their purpose (Fig. 1).⁵

Despite the portentous discovery of a kiln on the northern side of Martvilo during archaeological research conducted in 1948, detailed descriptions, measurements, a precise location and photographs thereof are lacking. Also neglected were the finds of discards and other tiny ceramics, except for the large fragment of a glued-together juglet, found on the northern section of Martvilo in the immediate vicinity of the kiln. This fact deprives us of much knowledge we could have had today on its technological features, construction method, capacity and, based on the finds of discarded ceramics, a more detailed insight into the forms of pottery products, their dating and potential observation of the development of individual ceramic forms from the Late Hellenistic to the Early Roman periods.

All of those who touched upon Issa pottery workshops and pottery production in their works set off from the assumption that the kilns found in 1921 and 1948 dated to the Hellenistic period, but strong arguments to back these assertions have been absent.⁶

The first to launch systematic study of Issa ceramic production and initiate research into this problem was B. Kirigin. He mostly studies Hellenistic pottery, particularly Gnathian ware. Based on iconographic and morphological analyses, he distinguished vessels made in the Gnathian style, which he deemed products of the Issa pottery workshops from the Late Hellenistic era.⁷ During his own research at the

1 Arhiv Arheološkog muzeja - Split, za 1921, br. 283.

2 Stanić 1927, str. 93.

3 Abramić 1949, str. 13.

4 Kirigin, Marin 1985, str. 52, 53; isti rad na engleskom jeziku, Kirigin, Marin 1988.

5 Na ovome mjestu provedeno je zaštitno arheološko istraživanje ostataka rimske nekropole, koja je "nalegla" na helenističke ostatke te ih uništila. Prigodom istraživanja uz ostatke keramičkih kalupa pronađena je velika količina helenističke keramike, koja će nakon što se obradi uvelike proširiti znanja o izgledu i oblicima isejske kasnohelenističke lončarske proizvodnje. Rezultati istraživanja još nisu stručno obrađeni i cjelovito objavljeni. Objavljeni su samo pojedini ulomci kalupa za izradu reljefne helenističke keramike, Čargo 2008, str. 195-197; Čargo 2003, str. 409. Uz istraženi prostor postoje manji dijelovi neizgrađene površine u privatnom vlasništvu koji su slobodni za istraživanje, pa u budućnosti stručnu pozornost treba obratiti i na te dijelove.

6 Abramić 1949, str. 13; Novak 1953, str. 59, 60; Novak 1961, str. 63; Kirigin 1990, str. 58; Kirigin 1999, str. 421, bilj. 39; Brusić 1999, str. 14.

7 Kirigin 1984, str. 83-86; Kirigin 1990, str. 58-65; Kirigin 1996, str. 121-153.

1 Archives of the Archeological Museum in Split, for 1921, no. 283.

2 Stanić 1927, p. 93.

3 Abramić 1949, p. 13.

4 Kirigin, Marin 1985, pp. 52, 53; same work in English, Kirigin, Marin 1988.

5 Archeological rescue research was conducted at this site into the remains of the Roman necropolis which "overlaid" these Hellenistic remains and devastated them. During research, besides remains of ceramic molds, a high quantity of Hellenistic pottery was found which, once it is analyzed, will greatly improve knowledge of the appearance and forms of Late Hellenistic Issa pottery production. The results of research have not yet undergone expert analysis nor have they been completely published. Only individual fragments of molds to make Hellenistic relief ceramics have been published, Čargo 2008, pp. 195-197; Čargo 2003, p. 409. In addition to the researched area, there are minor portions of the neighboring tracts under private ownership which are open to research, so in the future attention will have to focus on these as well.

6 Abramić 1949, p. 13; Novak 1953, pp. 59, 60; Novak 1961, p. 63; Kirigin 1990, p. 58; Kirigin 1999, p. 421, note 39; Brusić 1999, p. 14.

7 Kirigin 1984, pp. 83-86; Kirigin 1990, pp. 58-65; Kirigin 1996, pp. 121-153.



Slika 1.

Položaji gdje su se nalazile lončarske peći te mjesta gdje su nađeni kalupi i škart ulomci keramike.

1. Približan položaj lončarske peći pronađene u istraživanjima 1948. g.,
2. Položaj ostataka lončarske peći pronađene u istraživanjima 1980. g.,
3. Rimska piscina, 4. Mjesto nalaza sinteriranog dijela trbuha p/d (sl. 14),
5. Mjesto nalaza slijepljenih vrčića (sl. 16), 6. Mjesto nalaza sinteriranog oboda vrča (sl. 17), 7. Prostor na kojem se nalaze brojni ulomci škarta keramike nedefiniranog oblika, 8. Mjesto nalaza sinteriranih dijelova trbuha i oboda p/d (sl. 12, 13), 9. Mjesto nalaza rustično izrađenog kipića muškarca (sl. 11), 10. Mjesto nalaza gornjeg dijela kalupa za izradu pečatnih svjetiljki (Firmalampen) (sl. 10), 11. Mjesto nalaza sinteriranog oboda amfore (sl. 18), 12. Položaj gdje su pronađeni keramički ulomci kalupa za izradu reljefne helenističke keramike, 13. - 14. Mjesto nalaza dijelova zida lončarske peći, sekundarno uzidanih u ogradni suhozid i ogradni zid igrališta (sl. 6, 7), 15. - 16. Približan položaj krčevinskih gomila s istočne strane Ise, 17. Mjesto nalaza donjeg dijela figure Tanagra (sl. 2), 18. Mjesto nalaza keramičke školjke (sl. 3)

Figure 1.

Locations of the pottery kilns, and the sites where moulds and discarded ceramic fragments were found.

1. Approximate position of the pottery kiln discovered during excavations in 1948., 2. The position of the remains of pottery kilns discovered during excavations in 1980., 3. Roman piscinae, 4. Discovery site of sintered part of the p/d (Fig. 14), 5. Discovery site of sintered and melted jugs (Fig. 16), 6. Discovery site of sintered rim of jar (Fig. 17), 7. The area where numerous fragments of pottery waste of undefined shape were found, 8. Discovery site of sintered parts of belly and rim of p/d (Fig. 12, 13), 9. Discovery site of male figurine (Fig. 11), 10. Discovery site of the upper part of the lamp mould (Firmalampen) (Fig. 10), 11. Discovery site of sintered part of amphora rim (Fig. 18), 12. The position where fragments of Hellenistic relief pottery moulds were found, 13.-14. Parts of wall of pottery kiln, a secondarily bricked into the surrounding dry stone boundary wall and playgrounds (Fig. 6, 7), 15.-16. Approximate position of the cairns on the east part of Issa, 17. Discovery site of lower part of Tanagra figurine (Fig. 2), 18. Discovery site of the ceramic shell (Fig. 3).

nekropoli na položaju Martvilo, godine 1980. pronašao je ostatke lončarske peći, a u njezinoj blizini keramički škart i kalupe.⁸

Sasvim je sigurno da su isejski lončarski proizvodi bili važan resurs u trgovini sa susjednim ilirskim stanovništvom. Shodno svojoj politici osnivanja potkolonija na prostoru srednje Dalmacije, Issa je stvarala središta u koja je prenosila svoju proizvodnju i iz kojih je ta trgovina kretala, što potvrđuju novija istraživanja u Spili kod Nakovane na Pelješcu, na rtu Ploča, u Resniku, Saloni i drugdje.⁹

Arheološkim istraživanjima u antičkim gradovima definiranje gabarita lončarske djelatnosti otežano je činjenicom da dosad nije pronađena nijedna u cijelosti sačuvana keramičarska peć.¹⁰ Grčki termin *ergasteria* odnosi se na različite aktivnosti unutar lončarskih radionica te ima široko značenje, a podrazumijeva mjesta rada s glinom, odnosno mjesta izrade i prodaje keramičkih proizvoda. S obzirom da su lončarske radionice proizvodile građevinske materijale (tegule, opeke, tubule za sustav kanalizacije), predmete za svakodnevnu uporabu (keramičke posude različitih namjena), posude za transport osnovnih namirnica (amfore, pite (*pithos*)/dolije - dalje u tekstu p/d), votivne predmete (terakotne statue), *ergasteria* su bile važne odrednice u razvoju grada, te izvrsno dokumentiraju njegovu socijalnu i gospodarsku djelatnost.¹¹ Usprkos tome, tvrde M. Vickers i D. Gill, socijalni je status keramičara bio veoma nizak.¹² Isti podatak donosi i J. M. Hemelrijk te kaže: "*To make a pottery was a Greek expression for hard work.*"¹³

Issa necropolis at the Martvilo site in 1980, he found the remains of a pottery kiln, and ceramic discards and moulds in its immediate vicinity.⁸

It is entirely certain that the Issa pottery products were a vital resource in trade with the neighbouring Illyrian population. In line with their policy of establishing sub-colonies in Central Dalmatia, Issa created centres to which it conveyed its production and from which this trade proceeded, and this is nicely confirmed by more recent research in Spila, near Nakovana on the Pelješac Peninsula, Cape Ploče, Resnik, Salona and elsewhere.⁹

Defining the extent of pottery activity in archaeological research into the cities of Classical Antiquity has been rendered difficult by the fact to no entirely preserved pottery kiln has ever been found.¹⁰ The Greek term *ergasteria* refers to various activities inside pottery workshops and it has no broader meaning, but implies a workplace with clay, or a place to make and sell ceramic products. Given that pottery workshops also made construction materials (tegulae, bricks, tubulae for sewers and drains), items of everyday use (ceramic vessels for various purposes), vessels to transport basic food items (amphorae, pithoi/dolia - hereinafter p/d), and votive items (terracotta statues), *ergasteria* were important components of any city's development, and they wonderfully document its social and economic activity.¹¹ Despite this, M. Vickers and D. Gill mentioned that the social status of ceramicists was rather low.¹² A similar conclusion is drawn by J. M. Hemelrijk, who noted: "to make a pottery was a Greek expression for toil."¹³

8 Kirigin, Marin 1985, str. 52,53; Kirigin 1986, str. 123; Kirigin 2010, u tisku.

9 Ti lokaliteti pripadaju ili svetištima, kao što su nakovanska Spila na Pelješcu (Forenbaher, Kaiser 2003) te svetište na rtu Ploči kod Rogoznice (Čače, Šešelj 2005, str. 163-186), ili helenističkom naselju u Resniku (*Siculi*), (Bilich 1994, str. 145-157; Brusić 2004). Novijim istraživanjima u špilji Sveti Filip i Jakov iznad Marine kod Trogira, koja također ima značajke svetišta, pronađena je reljefna helenistička keramika rađena u kalupu te keramika s crnim premazom koja se, kao i kod prije spomenutih lokaliteta, može povezati s isejskim radionicama (Piteša 2004, str. 245, 246). Isto vrijedi i za prostor Salone (Clairmont 1975, str. 41-45, 194-198, T. 34-36; Marin 2002, str. 415-418) i *Tragurija* (Kovačić 2002, str. 375-395).

Obalni pojas jasno pokazuje utjecaje i raširenost proizvoda isejskih lončarskih radionica, no koliko je isejska keramika prodrla u unutrašnjost srednje Dalmacije, valja tek istražiti. Ovdje spominjemo neka od relevantnih nalazišta na kojima je pronađen helenistički materijal. Isejski novac kovan u 3. st. pr. Kr. pronađen je u Plavnu kod Knina (Šeparović 2002, str. 545-547), helenistička keramika pronađena je u Dugišu kod Sinja (Marović 2002, str. 256, 294), ulomak keramike tipa *Gnathia* u Otišiću. Taj je ulomak izrađen od sive gline, crnopremazan je i izljubljen, te po svoj prilici predstavlja ulomak enohoje (inv. br. N 588 I). Tu spada i keramika s crnim premazom i reljefna keramika te keramika tipa *Gnathia* iz Ostrvice kod Bribira (Delonga, Burić 1998, str. 6). Za sada, međutim, ni za jedan ovdje spomenuti ulomak ne možemo s potpunom sigurnošću tvrditi da se radi o isejskom proizvodu, osim ulomka iz Otišića, koji bi odgovarao isejskoj keramici.

10 Cuomo di Caprio 2007, str. 29-44.

11 Barra Bagnasco 1996, str. 27.

12 Vickers, Gill 1994, str. 95.

13 Hemelrijk 1991, str. 238.

8 Kirigin, Marin 1985, pp. 52,53; Kirigin 1986, p. 123; Kirigin 2010, in press.

9 These sites belong to either shrines, such as Spila at Nakovana, on the Pelješac Peninsula (Forenbaher, Kaiser 2003) and on Cape Ploče near Rogoznica (Čače, Šešelj 2005, pp. 163-186), or to the Hellenistic settlement in Resnik (*Siculi*), (Bilich 1994, pp. 145-157; Brusić 2004). During more recent research in the cave named after Sts. Philip and James above Marina at Trogir - which also has the character of a shrine - Hellenistic relief pottery made in a mould was found, as well as black gloss ware which, as with the aforementioned sites, can be linked to the Issa workshops (Piteša 2004, pp. 245, 246). The same holds for the Salona area (Clairmont 1975, pp. 41-45, 194-198, P. 34-36; Marin 2002, pp. 415-418) and *Tragurium* (Kovačić 2002, pp. 375-395).

The coastal belt clearly indicates the influence and distribution of Issa pottery workshop products, although more research has to be done to ascertain just how deeply it penetrated into the Dalmatian interior. Noteworthy here are some of the relevant find sites at which Hellenistic materials have been discovered. Issa coins minted in the third century BC were found in Plavno at Knin (Šeparović 2002, pp. 545-547), Hellenistic pottery was found in Dugiš near Sinj (Marović 2002, pp. 256, 294), and a fragment of Gnathian ware was found in Otišić. This fragment was made of gray clay, with black gloss, and it is grooved, likely a fragment of an oenochoe (inv. no. N 588 I). There is black gloss, relief and Gnathian ware from Ostrvica near Bribir (Delonga, Burić 1998, p. 6). However, presently none of the fragments mentioned here can be said to be products of Issa with complete certainty, except for the fragment from Otišić, which would correspond to Issa ware.

10 Cuomo di Caprio 2007, pp. 29-44.

11 Barra Bagnasco 1996, p. 27.

12 Vickers, Gill 1994, p. 95.

13 Hemelrijk 1991, p. 238.

Arheološka istraživanja u posljednjih dvadesetak godina u južnoj Italiji, na području Velike Grčke (*Magna Graecia*), prostoru uz koji je Issa bila usko vezana u svojim trgovačkim i drugim doticajima, dala su niz dokaza o postojanjima većeg broja lončarskih radionica u okviru jednoga grada. Istraživanja u Lokri Epizefiri (*Locri Epizephyrii*), gradu na zapadnoj obali Jonskog mora, ponudila su jedinstvenu dokumentaciju o lončarskim radionicama. Naime, u blizini zidina grada pronađeni su ostaci *ergasteria*, s dvanaest keramičarskih peći različitih dimenzija. Peći s promjerom prostorije za pečenje do jednog metra, bile su specijalizirane za pečenje fine i kuhinjske keramike i malih statua, dok su one većih dimenzija, od oko 3,90 m i s visinom prefurnija oko 1,80 m, bile namijenjene pečenju p/d, amfora i građevinskog materijala.¹⁴ Na temelju dimenzija i kapaciteta proizvodnje svih pronađenih peći u Lokri Epizefiri, dobiven je podatak da je bilo potrebno 60 tisuća kilograma gline u jednoj sezoni proizvodnje (od svibnja do listopada), u koju je bilo uključeno oko 140 osoba, odnosno 6-7 obiteljskih jezgri, od kojih su najmanje tri bile izravno uključene u rad radionice. Ti su izračuni doveli do podatka da je na području keramičarske radionice, koja je imala i stambeni dio, živjelo oko 300 stanovnika.¹⁵

Namjena određenih keramičarskih peći, odnosno svojevrсна specijalizacija peći za određeni tip posuda dokumentirana je i u Herakleji Lukanskoj (*Herakleia Lucania*), gdje su se manje peći koristile za pečenje malih posuda, kuhinjske keramike i statua (pronađeno je oko 200 kalupa), a velike za pečenje posuda većih dimenzija i amfora.¹⁶

Pretpostavlja se da je *ergasteria* u Metapontu (*Metapontum*) utemeljena u 5. st. pr. Kr. te da se nalazila u perifernom dijelu grada, uz zidine u blizini gradskih vrata koja su vodila u horu (grč. *chora*).¹⁷ Lončarska radionica u tom gradu bila je poznata po proizvodnji crvenofiguralne keramike.¹⁸

Arheološkim je istraživanjima u Tarantu (*Taras*) posljednjih godina utvrđeno postojanje najmanje dviju lončarskih radionica na istočnoj periferiji grada, od kojih je jedna djelovala od arhajskog razdoblja do 1. st. pr. Kr., a druga od 4. do 1. st. pr. Kr.¹⁹ Prema arheološkoj dokumentaciji lončarska djelatnost u Tarantu bila je intenzivnija od ostalih lončarskih proizvodnja u Velikoj Grčkoj, prije svega po kontinuitetu, količini i osobitim svojstvima proizvoda.²⁰ Osim proizvodnje crvenofiguralne keramike, Taranto je razvio znatnu proizvodnju keramike tipa *Gnathia*.

Osim u južnoj Italiji, lončarske radionice helenističkog razdoblja potvrđene su i na području srednje Dalmacije. Posljednjih su godina i na prostoru Fara (*Pharos*) istraživanja

Over the past twenty years, archaeological research conducted in Southern Italy in the territory of *Magna Graecia* - an area to which Issa was closely tied in its trade and other contacts - has yielded a series of evidence on the existence of several pottery workshops within the framework of a city. Research in *Locri Epizephyrii*, a city on the western shore of the Ionian Sea, uncovered unique documentation on pottery workshops. Near the city walls, the remains of an *ergasteria* were found, within which twelve ceramic kilns of various dimensions were discovered. Kilns with a combustion chamber up to one meter in diameter were specialized for baking fine and kitchen ware, and small statues, while those with larger dimensions of roughly 3.9 m and a 1.8 m high praefurnium were used to fire p/d, amphorae and construction materials.¹⁴ Based on the dimensions production capacity of all of the kilns found in *Locri Epizephyrii*, it was ascertained that 60,000 kg of clay were required in a single production season (from May to October) which encompassed 140 persons, or 6-7 core families, out of whom a minimum of three were directly involved in the workshop's operations. These computations further yielded data according to which approximately 300 persons lived in the area of a pottery workshop, which also had a residential section.¹⁵

The function of specific pottery kilns, i.e. the specialization of kilns for specific pottery types, has also been documented in *Herakleia Lucania*, where smaller kilns were used to fire smaller vessels, kitchenware and statues (approximately 200 moulds were found), while large kilns were used for vessels with larger dimensions and amphorae.¹⁶

It is assumed that the *ergasteria* in Metaponto (*Metapontum*) was established in the first century BC and that it was in a peripheral part of the city, next to the walls near the city gate which led to the surrounding countryside (Gr. *chora*).¹⁷ The pottery workshop in this city was renowned for making red-figure ware.¹⁸

During archaeological research in Taranto (*Taras*) in recent years, the existence of two pottery workshops on the city's eastern periphery was noted, of which one operated from the Archaic period to the first century BC, while the other functioned from the fourth to first centuries BC.¹⁹ According to archaeological documentation, pottery activity in Taranto was more intense than in the other pottery plants in *Magna Graecia*, above all in its continuity and quantity and with characteristic product properties.²⁰ Besides production of red-figure ware, Taranto developed significant production of Gnathian ware.

Besides Southern Italy, Hellenistic-era pottery workshops have also been confirmed in the territory of Central Dalmatia. Research conducted in recent years in the area of Pharos has resulted in

14 Barra Bagnasco 1996, str. 27-34.

15 Barra Bagnasco 1996, str. 34.

16 Giardino 1996, str. 35-44.

17 Osanna 1996, str. 45.

18 Silvestrelli 1996, str. 400-403.

19 Dell'Aglio 1996, str. 65.

20 Dell'Aglio 1996, str. 64.

14 Barra Bagnasco 1996, pp. 27-34.

15 Barra Bagnasco 1996, p. 34.

16 Giardino 1996, p. 35-44.

17 Osanna 1996, p. 45.

18 Silvestrelli 1996, pp. 400-403.

19 Dell'Aglio 1996, p. 65.

20 Dell'Aglio 1996, p. 64.

rezultirala brojnim potvrdama lončarske djelatnosti.²¹ Katić iznosi mišljenje da je lončarska radionica utemeljena oko sredine 4. st. pr. Kr. te da su se ondje proizvodile stolne amfore, terakotne figure, skifi s prikazom sove, krovni crijep, amfore, koje naziva tipom *Faros 1*, i drugo.²² Dosad međutim nije pronađena ni jedna lončarska peć *in situ*. Dijelovi njezine konstrukcije pronađeni su u različitim dijelovima grada, te ti podatci nesumnjivo potvrđuju lončarsku djelatnost u Faru. Čini se da je farska lončarska radionica bila smještena u samom gradu, za razliku od Ise, gdje za sada takav slučaj nije zabilježen. Prema analogijama iz južne Italije (vidi gore) i Atene, lončarske radionice nalazile su se ili u perifernim dijelovima grada, što je slučaj u Tarantu, ili uz bedeme, kao što je u Metapontu, Herakleji Lukanskoj i u Ateni.²³

Postojanje lončarskih radionica potvrđeno je i u Resniku (*Siculi*). Ni ondje nisu locirana radionička mjesta, ali su pronađeni ulomci kalupa za proizvodnju reljefne helenističke keramike, što može upućivati na kasnohelenističku lončarsku djelatnost u Sikulima.²⁴ Na tom nalazištu pronađeni su bikonični kantari (*kantharoi*), za koje je L. Šešelj iznijela pretpostavku da su se i proizvodili u tom naselju.²⁵ Njihova brojnost i karakterističan smeđi premaz, samo potvrđuju te teze.²⁶ No za jasnu definiciju lončarske djelatnosti u Resniku potrebno je pričekati rezultate

numerous confirmations of pottery production.²¹ Katić expressed the view that a pottery workshop was established in roughly the mid-fourth century BC, and that they produced table amphorae, terracotta figures, skyphoi with images of owls, roof tiles, amphorae which he called *Pharos type 1* and others.²² However, thus far not one pottery kiln has been discovered *in situ*. Parts of this structure were found in different parts of the city. These data undoubtedly confirm pottery production in Pharos. It would appear that it was accommodated inside the city itself, as opposed to Issa, where such a case has not yet been recorded. According to analogies from Southern Italy (see above) and Athens, pottery workshops were also located in urban peripheries, which was the case in Taranto, but also inside the city walls, as in Metapontum, *Herakleia Lucania* and Athens.²³

The existence of pottery workshops has also been confirmed in Resnik (*Siculi*). The actual workshops sites were not pinpointed here, either, but fragments of moulds to make Hellenistic relief ware have been found, which may indicate Late Hellenistic pottery production in Siculi.²⁴ Biconical kantharoi were found at this site, and according to L. Šešelj's hypothesis, they were produced in this settlement.²⁵ Their number and characteristic brown slip, which was not that standard in Issa, only backs this hypothesis.²⁶ However, a clear definition of pottery activity in Resnik will have to

21 Kirigin 2004, str. 151-173; Katić 2001.

22 Katić 1999-2000, str. 49-58, skifi s prikazom sove (*glaux-skyphos*), koje autor navodi kao proizvode farske radionice, pripadaju atičkoj crvenofiguralnoj keramici. Njihovu tipologiju i kronologiju donosi u dva navrata Beazley (Beazley 1942; Beazley 1963), a nadopunjuju ga Sparkes, Talcott 1970, čiji se radovi i danas smatraju temeljima za proučavanje ove keramičke vrste. Osim u Ateni, takve vrste posuda pronađene su u Draču (Hidri 2005, br. 90), Tarantu (Maruggi 1984, T. XV/72), Metapontu (Burn 1998, str. 638), Herakleji (Pianu 1990, T. XXV/3), Brindisiju (Mannino 2006, str. 45, sl. 24), Oriji (Mannino 2006, str. 112, sl. 122) te na Palagruži (Kirigin, Katunarić, Miše 2005, str. 385).

Na istočnoj obali Jadrana olpe s vodoravno slikanim listovima na razrijeđenom premazu u boji gline pronađene su, osim u Faru, u Istri i na Kvarneru (Mihovilić 2002, str. 508, 509), na rtu Ploči (Šešelj 2010, str. 46, 47) u Budvi (Kondić 1974, str. 75; Đurović, Jelušić, Vrzic 2007, br. 52), gdje su datirane u 3. i 2. st. pr. Kr., u Donjem Hrasnu kod Neuma (Kirigin, Katunarić, Šešelj 2005, str. 15). Osim na istočnom Jadranu, ovaj motiv pojavljuje se na laginima (*lagynos*) nekropole u Patrasu, koji su datirani u kraj 3. i 2. st. pr. Kr. (Kyriakou 1994, str. 192, T. 135, T. 137) te na ulomcima lagina u Delu (*Delos*), datiranima u kraj 2. i početak 1. st. pr. Kr. (Zapheirou, Chatzidakis 1994, str. 244-246, T. 195, T. 199). Amfora s motivom tri vodoravna listića u smeđoj boji pronađena je u Tarantu u grobu datiranom u razdoblje od 100. do 50. g. pr. Kr. (Hempel 2001, T. 59. 3). Slični slikani motivi pronađeni su na laginima u Olbiji datiranima u 3. i 2. st. pr. Kr. (Parović-Pešikan 1974, str. 99).

23 Monaco 2000.

24 Bilich 1994, str. 145-157; Brusić 2004.

25 Šešelj 2005, str. 49-61.

26 Pregledom keramičkog materijala iz Resnika zamijećeno je da većina ulomaka bikoničnih kantara i posuda tipa *Gnathia* pokazuje iste značajke u fakturi i smeđem premazu. Zahvaljujemo Ivanki Kamenjarin i Ivanu Šuti, kustosima Muzeja grada Kaštela, koji su nam omogućili uvid u materijal.

21 Kirigin 2004, pp. 151-173; Katić 2001.

22 Katić 1999-2000, pp. 49-58, skyphoi bearing images of owls (*glaux-skyphos*) which the author cites as products of the Pharos workshop, belong to Attic red-figure ware. Their typology and chronology were covered twice by Beazley (Beazley 1942; Beazley 1963), and supplemented by Sparkes, Talcott 1970, and these works are today considered fundamental to the study of this type of pottery. Besides Athens, this type of vessel has also been found in Durrës (Hidri 2005, no. 90), Taranto (Maruggi 1984, P. XV/72), Metaponto (Burn 1998, p. 638), Herakleia (Pianu 1990, P. XXV/3), Brindisi (Mannino 2006, p. 45, Fig. 24), Orija (Mannino 2006, p. 112, Fig. 122) and Palagruža, (Kirigin, Katunarić, Miše 2005, p. 385).

On the eastern coast of the Adriatic, olpai with horizontally painted leaves on a diluted clay-colored slip have been found, besides Pharos, in Istria and Kvarner (Mihovilić 2002, pp. 508, 509), on Cape Ploče (Šešelj 2010, pp. 46, 47) in Budva (Kondić 1974, p. 75; Đurović, Jelušić, Vrzic 2007, no. 52), and Donje Hrasno near Neum (Kirigin, Katunarić, Šešelj 2005, p. 15), where they have been dated to the third and second centuries BC. Besides the Eastern Adriatic, this motif has also appeared on lagynoi in the necropolis in Patras, where they have been dated to the third and second centuries BC (Kyriakou 1994, p. 192, P. 135, P. 137) and on lagynos fragments in Delos, dated to the end of the second and early first centuries BC (Zapheirou, Chatzidakis 1994, pp. 244-246, P. 195, P. 199). Amphorae with the motif of three horizontal leaflets colored brown have been found in Taranto in a grave dated to the period from 100 to 50 BC (Hempel 2001, P. 59. 3). Similarly painted motifs have been found on lagynoi in Olbia dated to the third and second centuries BC (Parović-Pešikan 1974, p. 99).

23 Monaco 2000.

24 Bilich 1994, pp. 145-157; Brusić 2004.

25 Šešelj 2005, pp. 49-61.

26 During a review of the ceramics from Resnik, it was noted that most of the fragments of biconical kantharoi and Gnathian ware vessels exhibit the same features in facture and brown slip. We would like to thank the curators of the Kaštel Town Museum, Ivanka Kamenjarin and Ivan Šuta, for allowing us to examine these materials.



Slika 2.
Postolje terakote pronađene s vanjske strane istočnih bedema Ise



Figure 2.
Terracotta pedestal found on external side of Issa's eastern wall

cjelovite analize keramičkog materijala, eventualne nalaze keramičkog škarta i arheometrijske analize.

Ulomak kalupa za izradu te vrste keramike pronađen je i u Zadru (*Iader*). S obzirom na istovjetne motive na zadarskom primjerku i na resničkim primjercima, Brusić je pretpostavio da se u Zadru nalazio ogranak resničkih radionica.²⁷

Očekivati je da će se ostatci lončarskih radionica jednom identificirati i u Traguriju (*Tragurion*) i Epetiju (*Epetion*), ali za sada o tome nema dovoljno podataka.

Prostor uz istočni dio grada, Vlaška njiva

Već je spomenuto da prvi podatak o postojanju jedne lončarske peći s vanjske istočne strane isejskih zidina donosi korespondencija don F. Bulića s don S. Bonačićem iz godine 1921., gdje S. Bonačić spominje nalaz hodnika ili tunela visokog 1,5 m, koji ima neku vrstu prozorčića; po njegovu mišljenju - piše dalje, uz manju nerazumljivu skicu - radi se o lončarskoj peći.²⁸ Na žalost, danas ne možemo s potpunom sigurnošću reći je li interpretacija te arhitekture točna i gdje se ona točno nalazila (sl. 1).

S obzirom na Bonačićev opis, znamo samo da se nalazila u uvali Stonca, odnosno na prostoru između istočnih zidina grada i morske obale te istočne nekropole. U prostoru istraženog dijela nekropole nisu pronađeni njezini ostatci, što bi značilo da bi se oni eventualno mogli tražiti sjeverno ili zapadno od današnjeg hotela. Opis bi mogao odgovarati lončarskoj peći, vjerojatno je opisan nadsvođeni kanal, prefurnij, jer u Bonačićevu opisu stoji: *Taj hodnik ili tunel visok je metar 1 1/2, ima neku vrst kao prozorčića. Ako se zaista radi o*

await the results of a comprehensive analysis of ceramic materials, the possible discovery of discards and archaeometric analysis.

A fragment of a mould for this type of pottery was also found in Zadar (*Iader*). Given the identical motifs on the Zadar and Resnik examples, Brusić speculated that there was a branch of the Resnik workshops in Zadar.²⁷

It is to be expected that the remains of pottery workshops will also be identified in Tragurion and Epetion, but for now there is still insufficient data.

Area along eastern section of city, Vlaška njiva

Initially, the first mention of the existence of a pottery kiln on the outer eastern side of the Issa city walls was in the correspondence of Fr. Frane Bulić with Fr. S. Bonačić in 1921, wherein Bonačić mentioned the discovery of a corridor or tunnel 1.5 m high, which had some type of small window and, he wrote - next to a small indecipherable sketch - that he believed it was a pottery kiln.²⁸ Unfortunately, today we cannot say with complete certainty whether this interpretation of the architecture in question is accurate, and where its precise location was (Fig. 1).

Given Bonačić's description, we only know that it was in Stonca Cove, in the area between the eastern city walls and the seashore and the eastern necropolis. None of its remains were found in the explored part of the necropolis, which would mean that its possible remains were north or west of the present-day hotel. The description may correspond to a pottery kiln, as a vaulted channel, the praefurnium, is probably described, for Bonačić's description states: "This corridor or

27 Brusić 1999, str. 14.

28 Vidi bilj. 1, usporedi Čargo 2008, str. 195.

27 Brusić 1999, p. 14.

28 See note 1, cf. Čargo 2008, p. 195.



Slika 3.
Keramička školjka pronađena s vanjske strane istočnih bedema Ise

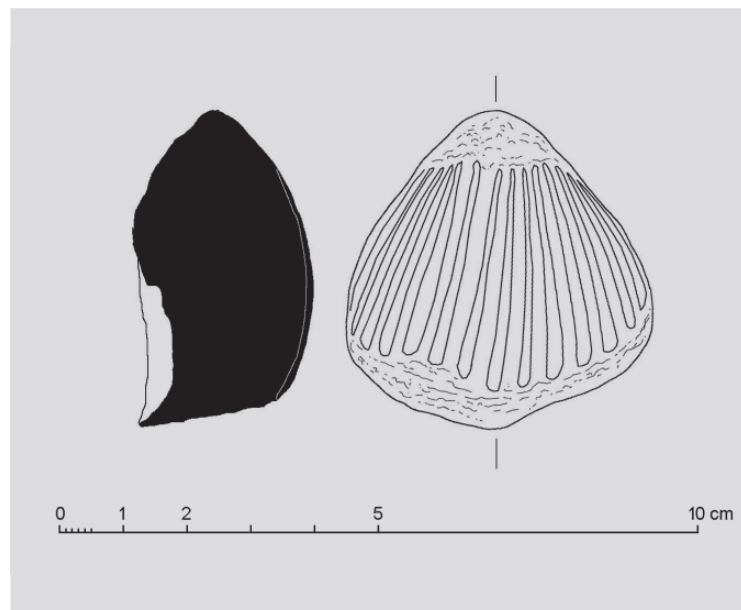


Figure 3.
Ceramic shell found on external side of Issa's eastern wall

prefurniju, onda je on bio prilično velik, sa 1,5 m visine, te je i prostor za pečenje bio velikog kapaciteta. Peć je bila dobro sačuvana, a ovdje se po svoj prilici radi o vertikalnoj dvodijelnoj peći.²⁹

Kiriginovim iskopavanjima helenističko-rimske nekropole godine 1983. na ovom prostoru, djelomično su istražene dvije velike krčevinske gomile u kojima se nalazilo mnoštvo keramičkih ulomaka, ponajviše amfora i keramičkog škarta.³⁰ Tolika količina keramičkih ulomaka pomiješanih sa škartom, koju spominje Kirigin, ne može biti slučajna, već sugerira postojanje jedne lončarske peći ili nekoliko njih.

Postojanje lončarske peći potkrjepljuje i nedavni nalaz ulomka terakotne figurice stojeće žene, od koje se sačuvalo samo postolje sa stopalima (sl. 2). Pronađena je prigodom obilaska prostora s vanjske strane istočnih zidina Ise, u njegovu sjeveroistočnu dijelu, na mjestu gdje se danas nalaze solari hotela Ise.³¹ Pečenjem ove terakote došlo je do sinteriranja gline; pri izgaranju, naime, može doći do zgušnjavanja i zastakljivanja, čime se pore zatvore te tako zadrže plinove u unutrašnjosti budućeg proizvoda, što uzrokuje bubrenje, vidljivo u mjehurima u strukturi keramike. Ulomak je zbog toga po površini poprimio zelenkastu boju, koja se mjestimice doimlje poput cakline. Zbog toga je terakota postala funkcionalno neupotrebljiva i odbačena je kao škart; nama je danas dragocjena jer pokazuje barem dio proizvodnog repertoara. Njezin pronalazak s ove strane grada upućuje na zaključak da je na

tunnel is $1\frac{1}{5}$ meters high, and has some type of small window." If this was truly a praefurnium, then it was rather large, 1.5 m, and this would therefore mean that the combustion chamber had a high capacity. The kiln was well-preserved, and it was probably a vertical dual-part kiln.²⁹

In Kirigin's excavations of the Hellenistic-Roman necropolis in this area in 1983, two large land-clearing mounds were examined, in which a multitude of potsherds were found, mainly amphorae and ceramic discards.³⁰ Such a quantity of potsherds mixed with discards cannot, as Kirigin noted, be coincidental, rather it suggests the existence of one or more pottery kilns.

Further evidence backing the existence of pottery kilns includes the recent find of a piece of figurine of a standing woman, of which only the base with feet has been preserved (Fig. 2). It was found during a tour of the area from the outside of the eastern wall of Issa in its northern section, at the site of today's solarium at the Hotel Issa.³¹ The firing of this terracotta until the clay sintered, i.e. combustion led to flocculation and vitrification, closing the pores and thereby retaining the gases inside the future product, causing swelling, which can be nicely seen as bubbles in the structure of the ceramic. The fragment has therefore assumed a greenish hue on its surface, which resembles enamel at places. Due to these processes, the terracotta became functionally useless and was discarded as waste, but today it is valuable because it demonstrates a part of the product line at the very least. Its

29 Općenito o lončarskim pećima vidi u Cuomo di Caprio 2007; Hasaki 2002; Šimić-Kanaet 1996. U tim djelima navedena je sva relevantna literatura za ovu problematiku.

30 Kirigin 1983, str. 27-29; Kirigin 1996, str. 152, 153; Kirigin 2010, u tisku; Kirigin, Katunarić, Šešelj 2005, str. 10, bilj. 29.

31 Čargo 2008, str. 191-195. U tom je radu pri opisu figurice izraz *sinteriranje* pogreškom otisnut kao *sinteriziranje*.

29 For more on pottery kilns in general, see Cuomo di Caprio 2007; Hasaki 2002; Šimić-Kanaet 1996. These works also cite all of the relevant source for this topic.

30 Kirigin 1983, pp. 27-29; Kirigin 1996, pp. 152, 153; Kirigin 2010, in press; Kirigin, Katunarić, Šešelj 2005, p. 10, note 29.

31 Čargo 2008, pp. 191-195. In the description of the figurine in this work, the expression *sinteriranje* (sintering) was published in the form *sinteriziranje* by mistake.



Slika 4.

Tlocrt sjevernog dijela Martvila, s ucrtanim položajem Abramićevih istraživanja 1948. te približnim položajem lončarske peći

Figure 4.

Ground plan of the northern part of Martvila, with locations of Abramić's 1948 research and the nearby sites of the pottery kiln indicated

toj strani i proizvedena. Nije vjerojatno da je na to mjesto dospjela u nekim kasnijim perturbacijama. Gotovo na istome mjestu pronađena je i jedna keramička školjka izrađena od smeđe gline s dosta kalcita. Ulomak je izrađen u kalupu izrađenom od školjke *cardites antiquatus*, a ovdje ga navodimo jer je sasvim sigurno dio proizvodnog repertoara isejskih lončarskih radionica (sl. 3).

Kao predmet pronađen izvan konteksta teško ga je datirati, a mogao bi biti rad radionica iz helenističkog, ali i kasnijega, rimskog razdoblja. Nije isključeno da je bio dijelom neke veće terakotne figure.

Na temelju rečenog držimo da je postojanje lončarske peći, jedne ili nekoliko njih, na ovom predjelu sasvim izgledno. Problem se, međutim, javlja pri određivanju razdoblja u kojemu je radionica djelovala. Za sada je na temelju preliminarnih podataka iz obrade keramičkih ulomaka sa spomenutih gomila, iznesena pretpostavka da su ovdje pečene amfore tipa *Lamboglia 2*, što bi značilo da je radionica djelovala u razdoblju od kraja 2. do 1. st. pr. Kr.³² S druge strane, odbačeni ulomak terakotne figurice, tipološki sličan ulomcima iz južne Italije, ponajprije iz zatvorenih grobnih cjelina u Tarantu, datiran je u razdoblje od kraja 3. do 2. st. pr. Kr.³³ Dakle, prihvatimo li te podatke kao mjerodavne za datiranje - a to nam se nužno nameće, jer čvršćeg oslonca nemamo - možemo pretpostaviti da je spomenuta lončarska radionica bila aktivna od kraja 3. st. pr. Kr., odnosno tijekom 2. i 1. st. pr. Kr.

Tek će analiza keramičkih ulomaka i keramičkog škarta iz uništenih krčevinskih gomila te temeljito terensko pretraživanje prostora između istočnih gradskih zidina i obalne linije u uvali Stonca, dati sigurnije odgovore o vremenu korištenja peći i keramičkom materijalu koji se na ovom prostoru proizvodio.

discovery in this side of the city indicates that it was also produced here. It is not likely that it came here during some subsequent movements. Almost at the same place, a ceramic shell made of brown clay with a considerable quantity of calcites was found. The fragment was crafted in a mould made from a *cardites antiquatus* shell, and it is mentioned here because it is certainly a part of the production line of the Issa pottery workshops (Fig. 3).

As an item found outside of context, it is difficult to date, but it may be the product of a workshop from the Hellenistic or later Roman period. The possibility of it being part of a larger terracotta figure cannot be excluded.

Based on the aforementioned, we believe that the existence of a pottery kiln, or several, in this part of the city was entirely probable. But a problem arises in ascertaining the period in which it operated. Based on the preliminary data garnered from analysis of the potsherds from the above-mentioned mounds, for now we hypothesize that *Lamboglia 2* type amphorae were fired here, which would mean the workshop operated from the end of the second to the first centuries BC.³² On the other hand, the discarded piece of a terracotta figurine has been dated from the end of the third to the second centuries BC based on typologically similar fragments from Southern Italy, primarily from closed grave units in Taranto.³³ Therefore, if these data are taken as authoritative for dating, and by necessity this option imposes itself (for there are no firmer grounds), then the pottery kiln in question was active from the end of the third century BC, i.e. during the course of the second and first centuries BC.

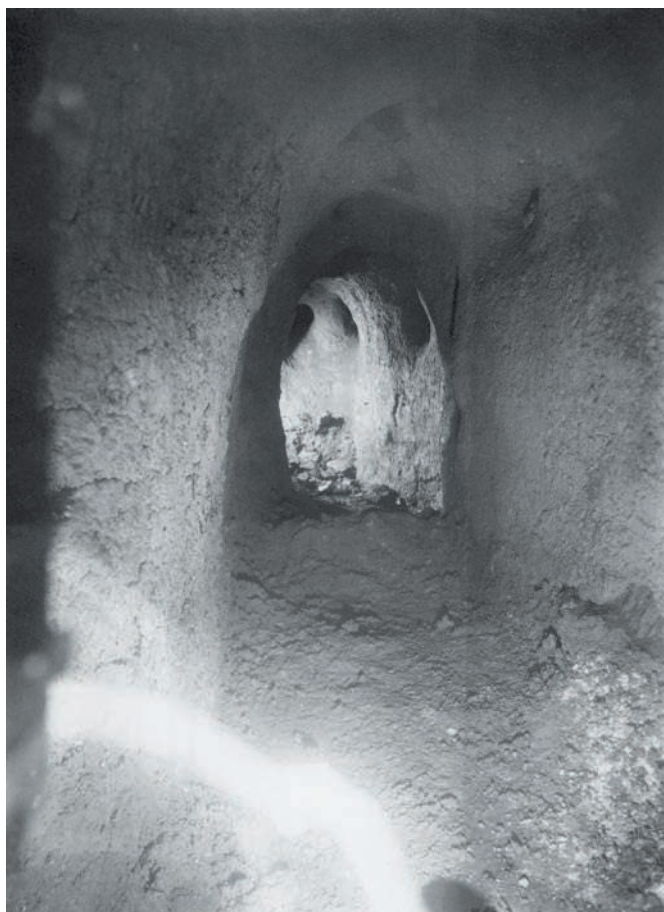
Only an analysis of the ceramic fragments and ceramic discards from the destroyed land-clearing mounds and a thorough field

32 Kirigin, Katunarić, Šešelj 2005, str. 10, 11; Kirigin 1996, 152. No unatoč iznesenoj pretpostavci o pečenju amfora tipa *Lamboglia 2* na tom predjelu, još nije objavljen ni jedan ulomak škarta ovog tipa amfora. N. Cambi je također pretpostavio proizvodnju tih amfora u Isi, no on ne spominje mjesto gdje su se izrađivale, Cambi 1991, str. 55-65.

33 Čargo 2008, str. 191-194.

32 Kirigin, Katunarić, Šešelj 2005, pp. 10, 11; Kirigin 1996, 152. Despite the hypothesis on the baking of *Lamboglia 2* amphorae in this area, not one discarded piece of such an amphora has yet been published. N. Cambi also assumed these amphorae were produced in Issa, but he did not mention where they were made, Cambi 1991, pp. 55-65.

33 Čargo 2008, pp. 191-194.



Slika 5.
Abramićeva snimka unutrašnjosti
prefurnija lončarske peći na
Martvilu

Figure 5.
Abramić's photograph of the
praefurnium of the pottery kiln at
Martvilo

Prostor uz zapadni dio grada, Martvilo

Lončarska djelatnost znatno je bolje zasvjedočena na predjelu poznatom kao Martvilo, jugozapadno od zapadnih gradskih zidina. Prvi podatak o postojanju lončarske peći na ovom predjelu donosi Š. Stanić, napisavši da su neki seljani pronašli peć 1851. godine.³⁴ Uvodno je spomenuto da su u istraživanjima godine 1948. i 1980. pronađeni ostatci dviju keramičarskih peći, a novijim zaštitnim istraživanjima 2001. i 2002. pronađeni su skromni arhitektonski ostatci koji se mogu odrediti kao dio lončarske radionice.³⁵

Peć pronađena 1948. nalazila se na sjevernom dijelu Martvila, a u njezinoj neposrednoj blizini, sa sjeverne strane, izgrađena je velika cisterna, koja se ondje još uvijek nalazi.³⁶ Cisterna je nedvojbeno rimske gradnje, a s obzirom na blizinu lončarske peći, mišljenja smo da ta dva objekta treba promatrati u uzajamnoj vezi (sl. 4). Jedini konkretni podatak koji imamo o peći Abramićeva je fotografija izrađena tijekom istraživanja (sl. 5).

examination of the area between the eastern city walls and the coastline in Stonca Cove will provide certain answers to the question concerning the time of use of the kiln and the ceramics materials produced here.

Area along western side of city, Martvilo

The section known as Martvilo, south-west of the western city walls, has generated considerably better evidence of pottery production. The first data on the existence of a pottery kiln in this section was provided by Š. Stanić, when he wrote that some villagers found a kiln here in 1851.³⁴ As noted in the introduction, during research conducted in 1948 and 1980, the remains of two pottery kilns were found, while during more recent research in 2001 and 2002, modest architectural remains were found which may be designated as part of a pottery workshop.³⁵

The kiln found in 1948 was in the northern part of Martvilo, while a large cistern was built in its immediate vicinity, to the northern side, which can still be found there.³⁶ The cistern is without doubt a Roman structure, and given its proximity to the pottery kiln, it is our opinion that they should be considered mutually linked (Fig. 4). The only specific data that we have on this kiln is Abramić's photograph taken during research (Fig.5).

Part of a vaulted channel is visible in the photograph, with visible perforations leading toward a grill, which had obviously been preserved. The channel appears high and rather long, but it is difficult to estimate its height, for there are no reliable means to do so. Assuming that the width of the *praefurnium* was a minimum of a half-meter, then its height would have been roughly 1.5 m. These would be the minimum dimensions. The entry portion of the *praefurnium* appears somewhat wider than the actual corridor, which was sometimes done to make firing easier. At the bottom of the corridor, probably in the combustion chamber, light can be seen coming from outside, which means that the kiln was damaged on that side. Kirigin stated that this kiln had a diameter of 6-7 m, while Brusić mentioned that the diameter was roughly 5 m, although he did not cite the source of these data.³⁷ In any case, given the size of the vaulted channel, this was a kiln with a high firing capacity.

From the brief description of the kiln at Martvilo mentioned by Stanić, it is apparent that that one is similar to this, so it is probably the same one.³⁸ He stated, ... *alcuni contadini l'anno 1851 scopersero una specie di fornace destinata quanto pare, a liquefar pece od altro bitume. Un canale sotteraneo protendesì da essa verso il mare, comunicando probabilmente con qualche vasca o fossa, ove il recipiente era collocato.*³⁹

34 Stanić 1927, str. 93.

35 Vidi bilješke 3 i 4.

36 Kirigin, Marin 1985, str. 54, 55.

34 Stanić 1927, p. 93.

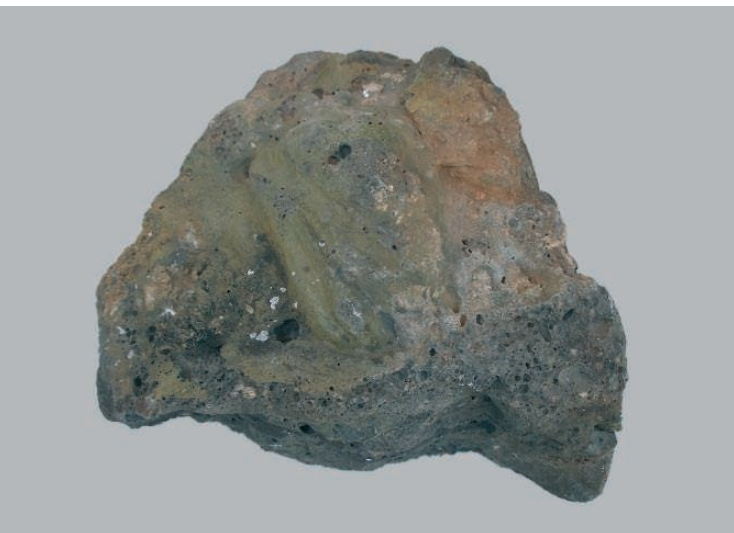
35 See notes 3 and 4.

36 Kirigin, Marin 1985, pp. 54, 55.

37 Kirigin 1996, p. 62; Brusić 1999, p. 14.

38 Stanić 1927, p. 93.

39 Stanić 1927, p. 93



Slika 6.
Ulomak zida lončarske peći

Figure 6.
Fragment of pottery kiln wall



Slika 7.
Ulomak zida lončarske peći

Figure 7.
Fragment of pottery kiln wall

Na slici je vidljiv dio nadsvođenog kanala, s vidljivim perforacijama koje vode k rešetki, koja je očito bila sačuvana. Kanal se čini visokim i prilično je dugačak, no visinu je teško procijeniti jer ne postoji pouzdan oslonac na temelju kojeg bismo to učinili. Ako pođemo od pretpostavke da je širina prefurnija bila barem pola metra, onda bi njegova visina bila po prilici 1,5 m. To bi bile minimalno postavljene dimenzije. Ulazni dio prefurnija čini se nešto širim negoli sam hodnik, što se katkada radilo radi lakšeg loženja. U dnu hodnika, po svoj prilici u prostoru za izgaranje, vidljivo je svjetlo koje dopire izvana, što znači da je peć s te strane bila oštećena. Kirigin za tu peć navodi da je bila promjera 6-7 m, a Brusić pak da joj je promjer bio oko 5 m; ni jedan ni drugi autor, međutim, ne navode odakle prenose te podatke.³⁷ U svakom slučaju, s obzirom na veličinu nadsvođenog kanala, ovdje se radi o peći s velikom kapacitetom pečenja.

Iz kraćeg opisa peći na Martvilu koji donosi Stanić, zaključujemo da je prilično slična ovoj peći, pa se po svoj prilici radi o istoj.³⁸ Stanić piše: ... *alcuni contadini l'anno 1851 scopersero una specie di fornace destinata quanto pare, a liquefar pece od altro bitume. Un canale sotterraneo protendesi da essa verso il mare, comunicando probabilmente con qualche vasca o fossa, ove il recipiente era collocato.*³⁹

Prema Stanićevu opisu i sačuvanoj fotografiji očito je da je bio dobro sačuvan dugi i visoki nadsvođeni kanal (*praeurnium*), koji je vjerojatno bio dijelom ukopan u zemlju s dobro očuvanim svodom. Peć je bila sačuvana barem do visine rešetke; čini se da je bila oštećena sa zapadne strane prostora za izgaranje, ali u donjem dijelu konstrukcije uglavnom je dobro sačuvana. Kupola, čini se, nije postojala. Stanić spominje postojanje jame ispred kanala; ovdje se radi o jami u kojoj se skupljao pepeo nastao

According to what Stanić wrote, and the preserved photograph, it is apparent that the long and highly vaulted channel (*praeurnium*) had been well-preserved, and it had probably been buried in the earth with the well-preserved channel vault. The kiln had been preserved at least to the level of the grill, and it would appear that it was damaged on the western side of the firing area, while the lower portion of the construction was generally well preserved. It would appear that there was no dome. Stanić mentioned the existence of a pit in front of the channel, here this means a pit used to collect the ash generated by firing. The channel was oriented in the east-west direction, or with some minor deviation from this orientation, for Stanić that it extends toward the sea. Given the assumed size of the kiln and the view posited here on its state of preservation, it is clear that its monumental size must have drawn attention. Stanić mentioned the existence of ceramic discards as well, which must have been there in large quantities, for it was a frequent practice that *praeurnium*, but also other parts of the kiln, were made of the remains of discarded and broken pottery.

From all of this it is clear that the kiln was vertical and dual-sectioned, but we do not know if its shape was round or rectangular. Like the kiln mentioned by Bonačić, this was also well preserved, and judging by its description, the dimensions were similar. It was destroyed during the 1950s, and its last remains were similarly devastated in 1986.⁴⁰ The two fragments of a kiln wall or grill found in the wider area of Martvilo were only a pale remainder of the former kiln (Fig. 6-7).⁴¹

40 Kirigin 1999, pp. 421, 423.

41 One fragment was found in the south-west part of Martvilo built into a stacked-stone wall, and held in the Issa Archeological Collection in Vis under inv. no. AMS-70681. Its dimensions are 27.5 cm x 25 cm, wid. 11 cm. Another is built into the fencing eastern wall of a present-day tennis court, dimensions if ca 35 x 30 cm, width unknown.

37 Kirigin 1996, str. 62; Brusić 1999, str. 14.

38 Stanić 1927, str. 93.

39 Stanić 1927, str. 93.



Slika 8.
Pogled na zidove 2 i 4, te shema situacije s položajem lončarske peći
pronađene na Martvilu 1980. g.

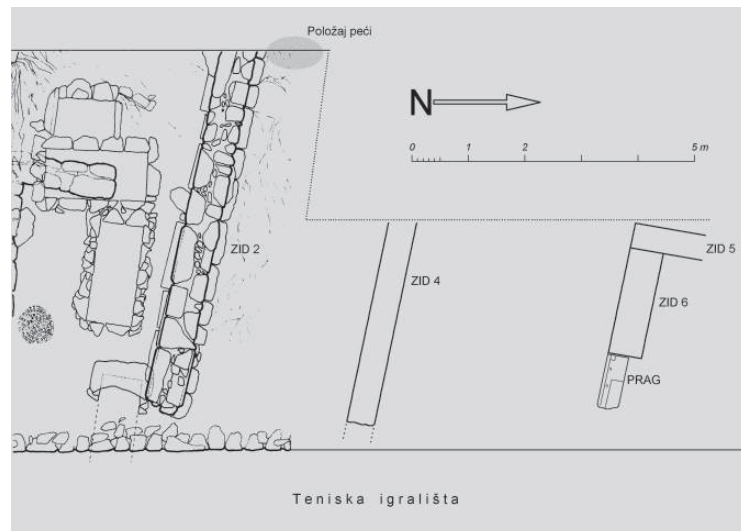


Figure 8.
View of walls 2 and 4, and diagram showing position of the pottery kiln
discovered at Martvilo in 1980

loženjem. Kanal je bio orijentiran u smjeru istok-zapad, ili s manjim odstupanjem od te orijentacije, jer Stanić piše da se pruža prema moru. S obzirom na pretpostavljenu veličinu peći i ovdje izneseno mišljenje o stanju njezine očuvanosti, jasno je da je morala plijeniti svojom monumentalnošću. Stanić spominje i postojanje keramičkog škarta, kojeg je moralo biti u većim količinama, jer je česta praksa da se prefurnij, ali i drugi dijelovi peći, grade od ostataka škarta i razbijene keramike.

Iz svega navedenog jasno je da je peć bila vertikalna i dvodijelna, no ne znamo je li bila kružnog ili četvrtastog oblika. Kao i peć koju spominje Bonačić, i ova je bila dobro sačuvana i, sudeći po njegovu opisu, sličnih dimenzija. Uništena je pedesetih godina prošlog stoljeća, a njezini posljednji ostatci 1986. godine.⁴⁰ Dva ulomka zida ili rešetke peći pronađena na širem prostoru Martvila samo su neznatan ostatak nekadašnje peći (sl. 6, 7).⁴¹

Ostatci druge peći pronađeni su tridesetak metara južnije od ove, neposredno uz zid 2, s njegove sjeverne strane (sl. 8). Sačuvao se samo dio za koji Kirigin drži da je dio vatrišta, čije su bočne stijenke građene od malih pravokutnih opeka (sl. 9).⁴² Peć se nalazila uz sjeverno lice zida 2, a na udaljenosti kojih 3 m prema sjeveru u ovim je istraživanjima pronađen zid 4, koji se pruža gotovo usporedno sa zidom 2 u smjeru istok-zapad. Kao i zid 2, i ovaj je građen bez veziva, u suho, a njegovo sjeverno lice zidano je od velikih kamenih blokova, kao što je to slučaj i sa zidom 2, dok je ono južno zidano od znatno manjih klesanaca. Dalje prema sjeveru, na udaljenosti od 3,7 m, pronađena su još dva zida

The remains of another kiln were found roughly thirty meters farther south of those mentioned above, immediately adjacent to wall 2 on its northern side (Fig. 8). A portion was preserved which Kirigin believed was part of the combustion chamber, with lateral walls made of small right-angled bricks (Fig. 9).⁴² The kiln was along the northern face of wall 2, while at a distance of approximately 3 m northward, wall 4 was found during this research, which extends almost parallel to wall 2 in the east-west direction. Like wall 2, this one was constructed without bonding material, dry, and its northern face is composed with large stone blocks as is the case with wall 2, while the southern face is made of considerable smaller dressed stones. Further north, at a distance of 3.7 m, two more walls made of smaller dressed stones were found.⁴³ Given the modest distance between walls 2 and 4, and the remains pressed against wall 2, here it is not plausible to expect a larger kiln, rather a considerably smaller one, and this is demonstrated by the modest preserved remains.

The entire surface was not researched in its entirety, and the preserved architecture does not afford any possibility for precise interpretation of its purpose, for only a smaller portion was examined. The architecture found continues on toward the western section, while in the southern section it was destroyed by the construction of a football field. Here one should not exclude the possibility that this constitutes the remains of a pottery workshop.

During the aforementioned research, but also during a more recent examination of the northern part of Martvilo, several moulds were found, as well as a considerable amount of ceramic discards, on which basis we can gain some insight into pottery production in this area (Fig. 1).

40 Kirigin 1999, str. 421, 423.

41 Jedan ulomak pronađen je na jugozapadnom dijelu Martvila uzidan u suhozid, a čuva se u Arheološkoj zbirci Iși u Visu pod inv. br. AMS-70681. Dimenzije su mu 27,5 cm x 25 cm, deb. 11 cm. Drugi je uzidan u istočni ogradni zid današnjih teniskih terena, dimenzija oko 35 x 30 cm, debljina je nepoznata.

42 Kirigin, Marin 1985, str. 52, 53, sl. 6; Kirigin 2010, u tisku.

42 Kirigin, Marin 1985, pp. 52, 53, Fig. 6; Kirigin 2010, in press.

43 Kirigin, Marin 1985, pp. 52, 53.



Slika 9.
Ostatci lončarske peći pronađene na Martvilu 1980. g.

Figure 9.
Remains of pottery kiln found at Martvilo in 1980



Slika 10.
Gornji dio kalupa za izradu pečatnih svjetiljki i odljev iz kalupa

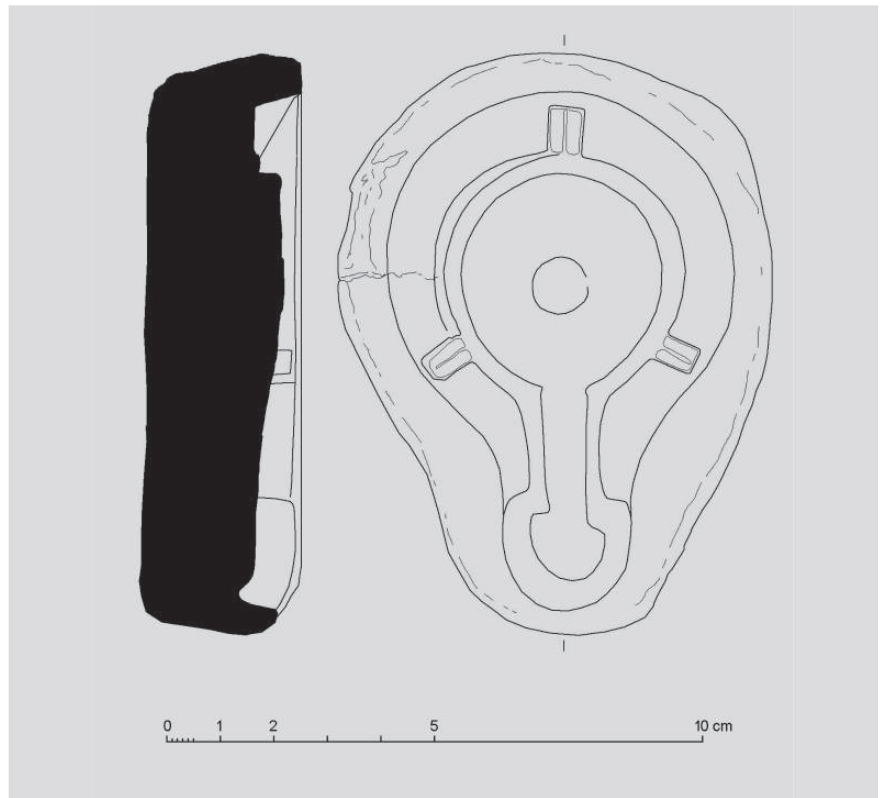


Figure 10.
Upper portion of mould to make stamped oil-lamps and a casting from the mould

građena od manjih klesanaca.⁴³ S obzirom na malu udaljenost između zidova 2 i 4, te prilipljene ostatke uz zid 2, ovdje nije moguće očekivati peč većih kapaciteta, nego znatno manju, na što ukazuju i sačuvani skromni ostatci.

Površina nije istražena u cijelosti, a sačuvana arhitektura ne pruža mogućnosti precizne interpretacije svoje namjene, jer je istražen manji dio. Pronađena arhitektura dalje se širi na zapad, dok je na južnom dijelu uništena gradnjom nogometnog igrališta. Ovdje se ne smije isključiti mogućnost da se radi o ostatcima lončarske radionice.

Tijekom spomenutih istraživanja, ali i novijeg pregleda sjevernog dijela Martvila, pronađeno je nekoliko kalupa i dosta ulomaka keramičkog škarta, na osnovi čega donekle možemo steći uvid u lončarsku proizvodnju na ovom predjelu (sl. 1).

Uz spomenute ostatke peći iz godine 1980. pronađen je gornji dio kalupa za izradu pečatnih svjetiljaka (*firmalampe*), te nekoliko ulomaka p/d od kojih su dva fragmenta sinterirala. Pronađeni gornji dio kalupa (sl. 10) služio je za izradu pečatnih svjetiljaka s otvorenim kanalom, tip *Loesche X, Ivany XVII, Buchi Xa*.⁴⁴ Kalup je prilično nevješto načinjen, s mnogim rupicama i pukotinama na sebi.⁴⁵ Rame diska svjetiljke nije jednako skošeno ni široko na suprotnim stranama, a ni nos svjetiljke nije simetričan. U sredini diska obilježeno je mjesto gdje treba izbušiti rupu za ulijevanje ulja, dok se ista takva oznaka jedva nazire na vrhu nosa, gdje treba biti rupa za fitilj. U kanalu također nije označena rupica za zrak. Na ramenu svjetiljke nalaze se tri bradavice s plitko urezanim linijom koja ih dijeli na dva dijela, a prstenasta vrpca koja uokviruje disk nije na svim mjestima jednako oštro izvedena. Cijeli gornji dio svjetiljke poprilično je rustičan, bez završne pomne obrade. Na njemu nema nikakvih ukrasa, koji su kod ovog tipa svjetiljke dosta česti, u obliku maski satira, robova, negroidnih maski i sl. Isejski primjerak kopirao je bolje sjevernoitalske uzorke, no nije ni izbliza tako pomno izrađen kako su to proizvodi iz najpoznatijih sjevernoitalskih radionica. Kalup se na temelju rečenih značajki može datirati u 1.-2. st. po. Kr. Time se može i datirati vrijeme korištenja peći.

Pronađen je i kipić muškarca sa štapom, oštećen i veoma rustično izrađen, bez uporabe kalupa. Izgledom i načinom izrade podsjeća na dječju igračku izrađenu brzim i nevještima potezima. Sasvim je sigurno lokalni rad, no više slični na *ad hoc* izradu negoli na kakvu serijsku proizvodnju. Gruba izrada i kruti ekspresionizam onemogućuju precizniju tipološku klasifikaciju i dataciju, no na temelju konteksta nalaza moglo bi se raditi o proizvodu iz 1.-2. st. po. Kr. (sl. 11).⁴⁶

Na istome mjestu pronađena su dva ulomka, dio trbuha i obod p/d, koji predstavljaju škart, jer su sinterirali (sl. 12, 13). Osim ovih ulomaka jedan ulomak trbuha pronađen je pregledom kamenih

Besides the aforementioned remains of the kiln from 1980, also found was the upper part of a mould for making *Firmalampen*, and several fragments of p/d of which two fragments are sintered. The discovered upper part of a mould (Fig. 10), served for the production of firma lamps with open canals, type *Loesche X, Ivany XVII, Buchi Xa*.⁴⁴ The mould was quite coarsely made with many small holes and cracks in it.⁴⁵ The shoulder of a lamp discus is not identically bevelled and wide on opposite sides, nor is the lamp nozzle symmetric. The place where the pouring hole was supposed to be made is indicated in the middle of the discus, while the same type of designation can barely be discerned at the tip of the nozzle, where the wick hole should be. The air hole is also not indicated in the canal. There are three small sculpted extensions on the lamp's shoulder, with a shallowly engraved line separating it into two parts, while the ring-like band which frames the discus is not rendered with uniform definition at all points. The entire upper portion of the lamp is rather rustic, without careful finishing work.

There are no ornaments on it which are otherwise common on this type of lamp, such as satirical masques, masques of slaves and Negroids, etc. The Issa example copies the better Northern Italic models, but it is not nearly so carefully rendered as the products of the best known Northern Italic workshops. The mould, based on these features, may be dated to the first/second centuries AD. The time of use of this kiln can also be dated in this manner.

During this research, a statuette of a man with a staff was also found, damaged and very rustically rendered without use of a mould. Its appearance and rendering recall a child's toy made rapidly by an unskilled hand. It is certainly a local work, but it more resembles an *ad hoc* piece rather than a product of serial production. Its coarse rendering and crude expressionism prevent any more precise typological classification and dating, but on the basis of its context it may be a product of the first/second centuries AD (Fig. 11).⁴⁶

Two fragments were found at the same site, part of the belly and rim of a p/d which are discards, for they are sintered (Fig. 12-13). Besides these fragments, a belly fragment was found during examination of a stone mound on the northern side of Martvilo (Fig. 14), and one larger belly fragment in 1954 on the eastern part of the playing field, without any more precise location known (Fig. 15).⁴⁷

All of these fragments are sintered, and only smaller pieces of them have been preserved; the thickness of the bodies varies, from 4.1 cm to 3.2 cm, which indicates that they belonged to p/d of different sizes. Kirigin stated, citing Noble, that the p/d were fired where they were made due to their weight and the danger of their cracking during transport, so the kiln was built around them.⁴⁸

43 Kirigin, Marin 1985, str. 52, 53.

44 Iványi 1935, str. 16-19, T. XLVIII; Vikić-Belanić 1975, str. 50-54; Buchi 1975, XXIII - XXVI.

45 Ulomak se čuva u splitskom Arheološkom muzeju, inv. br. AMS-70600.

46 Nardelli 1999, str. 60, br. 35, 107; Kirigin, Marin 1985, str. 52.

44 Iványi 1935, pp. 16-19, P. XLVIII; Vikić-Belanić 1975, pp. 50-54; Buchi 1975, XXIII-XXVI.

45 Fragment held in the Archeological Museum in Split, inv. no. AMS-70600.

46 Nardelli 1999, p. 60, no. 35, 107; Kirigin, Marin 1985, p. 52.

47 All fragments are held in the Archeological Museum in Split, inv. no. AMS-65934, AMS-70611, AMS-70612, AMS-70613.

48 Kirigin 2007, p. 137.



Slika 11.
Kipić muškarca pronađen na Martvilu u istraživanjima 1980. g.

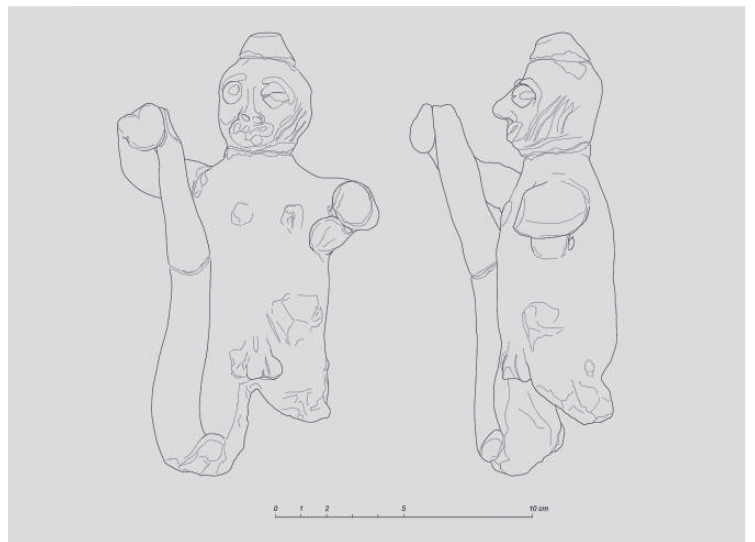


Figure 11.
Statuette of man found at Martvilo during research in 1980



Slika 12.
Škart ulomak trbuha dolija pronađen na Martvilu u istraživanjima 1980. g.

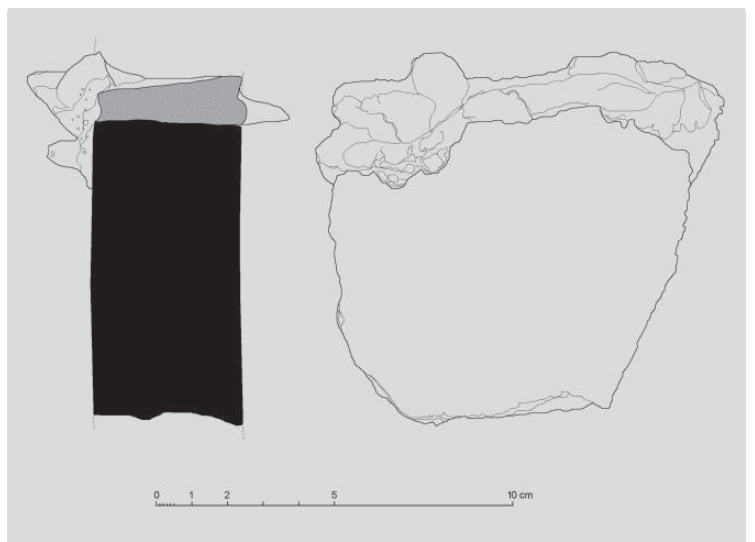
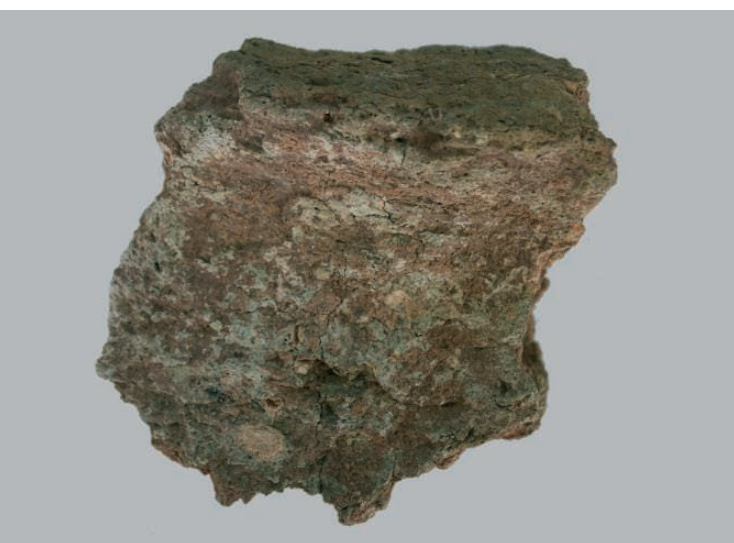


Figure 12.
Discarded fragment of dolium belly found at Martvilo during research in 1980



Slika 13.
Škart ulomak oboda dolija pronađen na Martvilu u istraživanjima 1980. g.

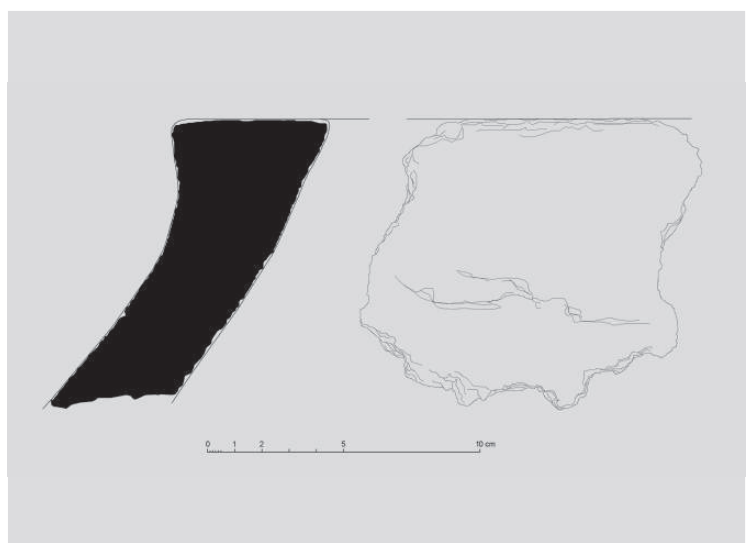


Figure 13.
Discarded fragment of dolium rim found at Martvilo during research in 1980



Slika 14.
Škart ulomak trbuha dolija pronađen prigodom obilaska sjevernog dijela Martvila 2008

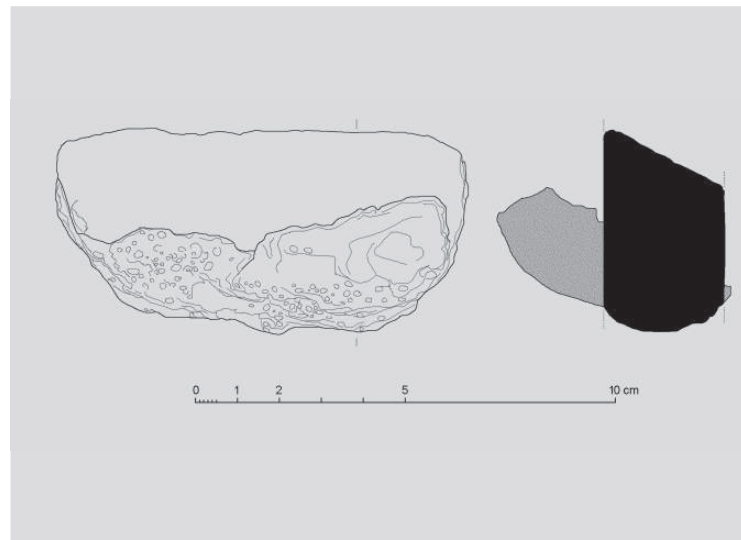


Figure 14.
Discarded fragment of dolium belly found during tour of northern part of Martvila in 2008



Slika 15.
Škart ulomak trbuha dolija pronađen na istočnom dijelu Martvila 1954. g.



Figure 15.
Discard fragment of dolium belly found during tour of eastern part of Martvila in 1954

gomila sa sjeverne strane Martvila (sl. 14), te jedan veći ulomak trbuha godine 1954. na istočnom dijelu igrališta, bez poznate preciznije lokacije (sl. 15).⁴⁷

Svi spomenuti ulomci su sinterirali i od njih su sačuvani samo manji dijelovi; debljine stijenki tijela su različite, variraju od 4,1 do 3,2 cm, dakle, pripadali su p/d različitih veličina. Pozivajući se na Nobla, Kirigin navodi da su se p/d pekli na mjestu gdje su se izrađivali, zbog težine i opasnosti da ne puknu pri prenošenju, te da se peć gradila oko njih.⁴⁸ Kako nam položaj njihova nalaska sugerira da su u blizini i izrađeni, ostaje pitanje možemo li

Since their position upon discovery suggests that they were made nearby, the question remains as to whether either of the two pottery kilns found can be linked to their production. A view which imposes itself is that this may have been the kiln from 1948, but in that same year pasted-together juglets were also found nearby with pieces of the kiln walls (more on these later), which points to the hypothesis that they were made in that kiln, so it is not realistic to assume that both juglets and p/d were fired in that kiln.

Production of p/d in Issa is also confirmed by how widespread they are at sites on Vis. If we assume that most of the p/d fragments found in the territory of Issa, *intra et extra muros*, and in the island's interior, where a total of 146 find-sites have been isolated, were produced in Issa, which is entirely certain, then we may assume that production was intense to meet the economic needs of Issa and, in our view, some of the surrounding islands and

47 Svi ulomci čuvaju se u splitskom Arheološkom muzeju, inv. br. AMS-65934, AMS-70611, AMS-70612, AMS-70613.

48 Kirigin 2007, str. 137.



Slika 16.
Ulomak s ostacima triju vrčića položenih jedan u drugom, pronađen na Martvilu u istraživanjima 1948. g.

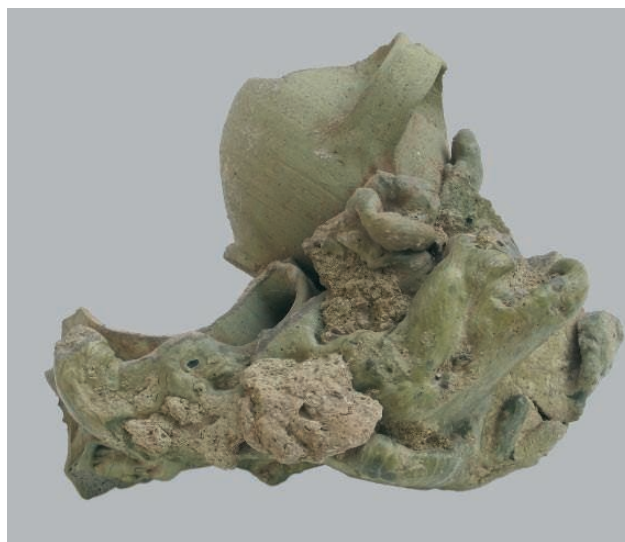
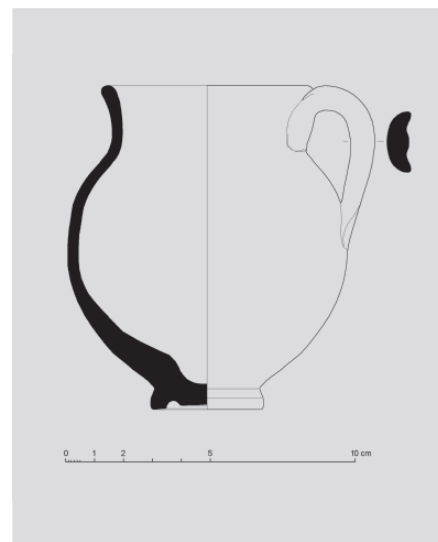


Figure 16.
Fragment with remains of three juglets placed inside each other, found at Martvilo during research in 1948



neku od dviju pronađenih lončarskih peći povezati s njihovom proizvodnjom. Nameće se mišljenje da bi to mogla biti peć iz godine 1948., no u njezinoj su blizini iste godine pronađeni i slijepjeni vrčići s dijelom stijenke peći (o tome dalje), što upućuje na pretpostavku da su rađeni u toj peći, a nije realno pretpostavljati da su se u istoj peći pekli i vrčići i p/d.

Proizvodnju p/d u Isi potvrđuje i brojnost njihove rasprostranjenosti na viškim lokalitetima. Pretpostavimo li da je većina pronađenih ulomaka p/d na području lse - *intra et extra muros*, te u unutrašnjosti otoka, gdje je ukupno izolirano 146 nalazišta - proizvedena u Isi, što je sasvim sigurno, možemo pretpostaviti da je ta proizvodnja bila intenzivna, kako bi zadovoljila potrebe isejskoga gospodarstva, a po našem mišljenju dijelom i okolnih otočnih i priobalnih područja.⁴⁹

Ono što za sada ostaje nejasno, jest preciznije određivanje vremena njihove proizvodnje. Materijali pronađeni u ovim istraživanjima sugerirali bi da se proizvodnja na Martvilu odvijala tijekom 1. i 2. st. po. Kr. No na pitanje kada je u Isi započela njihova prva proizvodnja i do kada je trajala, ovdje nije moguće odgovoriti.⁵⁰

Udaljenost između peći je kojih trideset metara, a prostor uokolo njih sa zapadne i sjeverne strane još uvijek je neistražen, pa ostaje mogućnost pronalaska i neke nove peći, što ne bi bilo iznenađujuće.

U blizini peći otkrivene godine 1948. M. Abramić je pronašao veliku cisternu za vodu.⁵¹ Cisterna je kvalitetno građena uporabom klesanaca, te kompaktnom žbukom kao vezivom koje u sebi sadrži

the nearby mainland coastal belt.⁴⁹

What remains uncertain for now is a more precise determination of the times of their production. The materials found during this research suggests that their production proceeded at Martvilo during the first and second centuries AD. However, the question as to when their production began in Issa and how long it endured cannot be answered here.⁵⁰

The distance between the aforementioned kilns is roughly thirty meters, and the areas around them to the west and north are still unexplored, so it is possible that some new kiln may be found, which would not be surprising.

Near the kiln discovered in 1948, M. Abramić found a large water cistern.⁵¹ The cistern exhibits high-quality construction with the use of dressed stone, and compact mortar as the bonding material, which contains a high quantity of crushed tegulae. This ensured better impermeability for the cistern. The cistern was certainly made during the Roman era, and its location right next to the kiln suggests that these two facilities should be seen as functionally connected, which would mean that the kiln is from this era as well.

It was noted above that the remains of pasted-together juglets with a single handle were found near the kiln (Fig. 16). Here it is also a case of a piece which had sintered and in which three small vessels placed one inside the other were preserved, pasted

49 Kirigin 2007, str. 140, 141. U novom radu o toj temi Kirigin donosi potpuniji popis nalazišta p/d na Visu te navodi da je registrirano više od 150 nalazišta p/d, Kirigin 2010, u tisku.

50 U studiji o toj temi Kirigin, obrađujući p/d s Visa i njegova arhipelaga, iznosi mišljenje da je njihova proizvodnja u Isi započela krajem 4. st. pr. Kr. te da je trajala do 3./4. st., Kirigin 2010, u tisku.

51 Abramić 1949, str. 14; Kirigin, Marin 1985, str. 54, 55.

49 Kirigin 2007, pp. 140, 141. In a new work on this topic, Kirigin presents a fuller list of find-sites of p/d on the island of Vis, and states that over 150 p/d find-sites have been recorded, Kirigin 2010, in press.

50 In a study of this topic, Kirigin, analyzing p/d from Vis and its archipelago, posits the view that their production in Issa began at the end of the fourth century BC, and endured until the 3rd/4th centuries AD, Kirigin 2010, in press.

51 Abramić 1949, p. 14; Kirigin, Marin 1985, pp. 54, 55.



Slika 17.
Škart ulomak s obodom vrča pronađen za obilaska sjevernog dijela Martvila
2008. g.

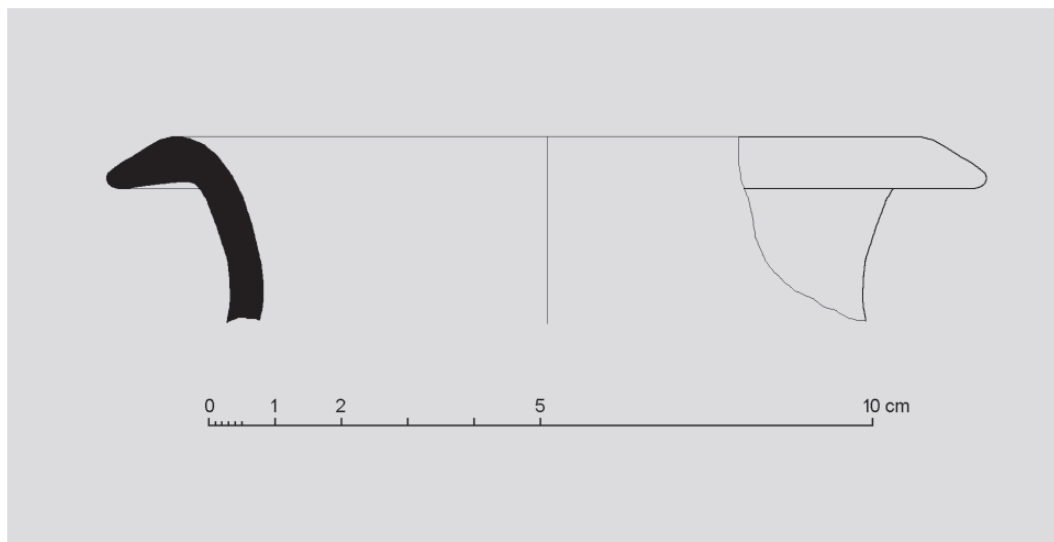


Figure 17.
Discarded fragment with jug rim found during of northern part of Martvilo in
2008

veliku količinu usitnjene tegule, što je pridonosilo nepropusnosti cisterne. Cisterna je nedvojbeno građena u rimskom razdoblju, a njezin položaj neposredno uz peć sugerira da ta dva objekta treba promatrati u funkcionalnoj uzajamnoj vezi, što bi značilo da je i spomenuta peć iz tog razdoblja.

Prije je rečeno da su u blizini peći pronađeni ostatci slijepljenih vrčića s jednom ručkom (sl. 16). I ovdje se radi o komadu koji je sinterirao i u kojem su se, slijepljene, sačuvale tri posudice složene jedna u drugoj.⁵² S njihove bočne strane slijepljen je veliki komad keramike, za koji možemo pretpostaviti da je dio stijenke kupole, na što upućuje i njegov blago zaobljeni oblik. Vrčići imaju oblik posudica kakve su se često izrađivale u razdoblju od 1. do 3. st. po. Kr. Pokazuju velike sličnosti s jednoručnim vrčevima nađenim u emonskim nekropolama.⁵³ Slični primjerci rađeni su u lončarskim radionicama Petovija (*Petovium*), gdje su također pronađeni u slijepljenoj formi.⁵⁴

Budući da su ovi vrčevi nađeni u blizini peći u kojoj su po svoj prilici i pečeni, oni su snažan dokaz da peć nije helenistička, nego rimska, a datacija vrčića ujedno bi bila i vrijeme kada je i peć djelovala. Neposredna blizina rimske cisterne osnažuje ovu tezu.

Jedan ulomak oboda vrča pronađen je prigodom pregleda gomila na sjevernoj strani Martvila (sl. 17). I ovaj ulomak je zapravo škart u kojem se raspoznaje obod vrča.⁵⁵ Vrčevi sličnih oboda pronađeni su tijekom istraživanja na Martvilu osamdesetih godina prošlog stoljeća, u najvećoj mjeri pripadaju kuhinjskoj keramici i imaju jednu ili dvije ručke s rebrom po sredini.

together.⁵² A large piece of ceramic is pasted to their lateral side, which may be assumed to have been part of the wall of the dome, which its lightly rounded form suggests. The shape of the juglets indicates an often made form of small vessels produced from the first to third centuries AD. They show a great similarity to the single-handled jugs found in the necropolises of Aemona.⁵³ Similar examples were made in the pottery workshops of Poetovio, where they were also found in pasted-together form.⁵⁴

Given that these jugs were found near the kiln in which they were probably fired, they constitute powerful evidence that this kiln was not only Hellenistic, but also Roman, and the dating of the juglets would also apply to the time when the kiln was operational. The immediate vicinity of the Roman cistern further reinforces this hypothesis.

One fragment of a jug's rim was found during an examination of the northern side of Martvilo (Fig. 17). This fragment is also a discard in which a jug rim can be discerned.⁵⁵ Jugs with similar rims were found during research at Martvilo in the 1980s, and they mostly belong to kitchenware, having one or two handles with a rib down the middle.

In the archaeological literature, amphora production in Issa has been mentioned together with the hypothesis of well-developed wine production in Issa.⁵⁶ Here, Lamboglia type 2

52 Vrčići se čuvaju u splitskom Arheološkom muzeju, inv. br. Fb 1418.

53 Plesničar-Gec 1977, str. 32, 34, T. 3.25., T. 11.4.

54 Tomanič Jevremov 2004, str. 95.

55 Ulomak se čuva u Arheološkoj zbirci Issa na Visu, inv. br. AMS-70614.

52 The juglets are held in the Archeological Museum in Split, inv. no. Fb 1418.

53 Plesničar-Gec 1977, pp. 32, 34, P. 3.25., P. 11.4.

54 Tomanič Jevremov 2004, p. 95.

55 The fragment is held in the Issa Archeological Collection on Vis, inv. no. AMS-70614.

56 Kirigin 1996, p. 152; Kirigin, Katunarić, Šešelj 2005, pp. 7-21. There is Agatharhides' oft-cited opinion of Issa wine as *the best in comparison to others*, Atheneus, I, 28, d (51), which is undoubtedly a nice confirmation of the quality of Issa wine.



Slika 18.
Škart ulomak oboda amfore, pronađen u Maloj bandi (krajnji južni dio Martvila)

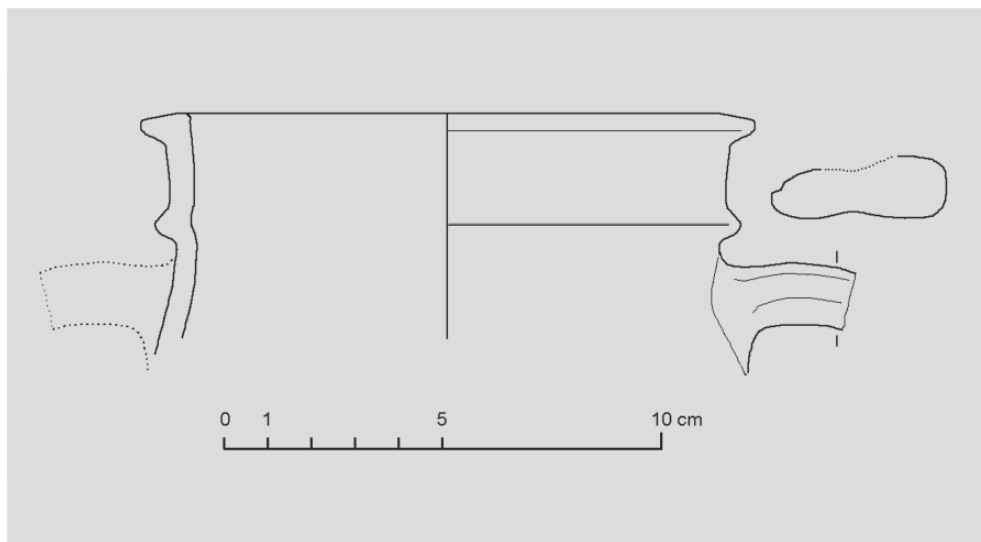


Figure 18.
Discarded fragment of amphora rim, found in Mala banda (extreme southern part of Martvilo)

U arheološkoj literaturi proizvodnja amfora u Isi spominjala se s pretpostavkom temeljenom na široko razvijenoj proizvodnji vina u Isi.⁵⁶ Pritom se u prvom redu razmišljalo o amforama tipa *Lamboglia 2* s kraja 2. i početka 1. st. pr. Kr., grčko-italskim amforama te amforama za koje Kirigin pretpostavlja isključivo funerarnu namjenu.⁵⁷ Nedavnim zaštitnim istraživanjem u vrtu jedne obiteljske kuće na širem prostoru Martvila, s njegove južne strane, pronađen je škart ulomak oboda amfore (sl. 18). Taj ulomak sasvim jasno potvrđuje proizvodnju amfora u Isi na zapadnoj strani grada. Sačuvao se samo obod koji se naslanja na vrat amfore i od kojeg ga dijeli blago ispupčeni prsten. Usna oboda blago je izvijena prema van, a sačuvani dio ručke pokazuje da je ona bila vrpčastog presjeka s rebrom po sredini. Taj tip isejske amfore služio je za transport i pohranu vina. Ulomak je pronađen prigodom čišćenja antičkog zida koji se na temelju nalaza keramike, tegula s pečatom SOLONAS, te keramičkih ulomaka može datirati u 1. i 2. st. po. Kr.⁵⁸

amphorae from the end of the second and early first centuries BC were considered, as well as amphorae which Kirigin believed had an exclusively funerary purpose.⁵⁷ Recent rescue research in the garden of a family home in the broader territory of Martvilo, to its south, yielded a discarded fragment of an amphora rim (Fig. 18). This fragment very clearly confirms amphora production in Issa in the western side of the town.

Only a rim resting on the neck of an amphora, separated from it by a lightly protruding ring, has been preserved. The actual mouth of the rim is slightly drawn outward, and the preserved part of the handle indicates that it had a ribbon-like cross-section with a rib down the middle. This type of amphora was used to transport and store wine. The fragment was found during cleaning of a Classical-era wall which has ceramics at its foundations; a tegula bearing the inscription SOLONAS, these ceramic fragments can be dated to the first and second centuries AD.⁵⁸

All of the aforementioned ceramic fragments were surface finds, which were discovered during field examination of the find-site, and their archaeological context has not been defined. Thus, archaeometric analysis was initiated for all pottery types for which there are clear indications that they were produced in workshops

56 Kirigin 1996, str. 152; Kirigin, Katunarić, Šešelj 2005, str. 7-21. Višekratno je citirano Agatharhidovo mišljenje o isejskom vinu, koje je u *usporedbi s drugima bolje*, Atheneus, I, 28, d (51), što je nesumnjivo lijepo svjedočenje o kvaliteti isejskog vina.

57 Kirigin 1992, str. 41-51; Kirigin 1997, str. 69-78. Drukčije mišljenje o tome vidi, Katić 1999-2000, str. 50. Za grčko-italske, Kirigin 1994, str. 18, 19.

58 O namjeni objekta kojeg je ovaj zid sastavni dio, nije moguće govoriti, jer je istražen uzorak odveć malen. No na temelju postojećeg stanja i pronađenog arheološkog materijala, u prvom redu keramičkih i žbukanih ulomaka, pronađeni zid se ne može povezati s arhitekturom neke keramičke peći. Na pitanje kako je sinterirani ulomak oboda amfore dospio u nasip, za sada nije moguće odgovoriti, kao ni na pitanje da li se u blizini možda nalazi kakva keramička peć, što nije isključeno. Zid se nalazi na katastarskim česticama 957/2 i 6918/1.

57 Kirigin 1992, pp. 41-51; Kirigin 1997, pp. 69-78; For a different view, see Katić 1999-2000, p. 50. For the Graeco-Italic, Kirigin 1994, pp. 18, 19.

58 Nothing can be said of the purpose of the structure of which this wall is a component, for the examined section is too small. However, based on the existing status and the archeological materials found, in the first place ceramic and mortared fragments, the wall cannot be associated with the architecture of a pottery kiln. It is currently impossible to ascertain how the sintered amphora rim fragment ended up in the fill, nor whether there may have been a ceramic kiln nearby, although the latter possibility cannot be excluded. The wall is located on cadastral plots 957/2 and 6918/1.

Svi navedeni keramički ulomci površinski su nalazi, pronađeni prilikom terenskog pregleda nalazišta, te nemaju definiran arheološki kontekst. Stoga se pristupilo arheometrijskim analizama svih keramičkih vrsta za koje postoje jasne naznake da su se proizvodile u radionicama u *Isi*; držimo da ćemo tim rezultatima upotpuniti dosadašnja znanja o lončarstvu antičke *Ise*.⁵⁹

Geološki terenski pregled otoka *Visa*

Na temelju iznesenih arheoloških podataka o postojanju lončarskih radionica u *Isi*, u suradnji s Rudarsko-geološko-naftnim fakultetom u Zagrebu, tijekom godine 2007. i 2008. obavljen je geološki terenski pregled otoka *Visa*; cilj je bio pronaći lokalne pojave sirovina gline i primjesa (eng. *temper*) koje su se koristile u isejskoj lončarskoj proizvodnji.⁶⁰ Vrijedno je napomenuti da su keramičari znali koristiti glinu sa dva ili tri različita nalazišta i miješati ih kako bi postigli što kvalitetniju sirovinu. To potvrđuju etnološka istraživanja istočnoegejskih otoka, gdje je lončarska djelatnost bila osnovni izvor prihoda tijekom nekoliko posljednjih stoljeća.⁶¹

Potrebno je najprije upoznati geološku strukturu otoka *Visa*. Otok je antiklinala koja se približno pruža u smjeru istok-zapad i tone prema istoku u prosjeku desetak stupnjeva. Jezgru antiklinale čine klastiti s gipsom i magmatske stijene vjerojatno gornjojurske starosti, a krila kredni karbonati (vapnenci i dolomiti). Polja su smještena pretežito na kalcitičnim kalcitskim dolomitima. Gotovo cijela površina otoka je stjenovita, dok se crvenica pleistocenske starosti nalazi uglavnom u obliku manjih pojava (debljine do 1 m). Deblja crvenica nalazi se u području krških polja. Značajno je napomenuti da se uz karbonate na *Visu* nalaze i vulkanske stijene, koje su zanimljive za tematiku ovog rada zbog glina koje nastaju njihovim trošenjem. *Vis* je poznat i po pleistocenskim kvarcnim pijescima eolskog podrijetla na području *Zlopoja* te po zoni silifikacije gornjoalbske starosti u sjevernom dijelu otoka.⁶²

Budući da je geološka karta otoka *Visa* velikog mjerila (1:100000), lokalne pojave gline nisu nažalost zabilježene. Od velike pomoći pri pronalaženju izdanaka gline bilo je starije stanovništvo otoka, koje je u nedavnoj prošlosti iskorištavalo glinu za lončarsku djelatnost.⁶³

in *Issa*, and we believe that these results will supplement prior knowledge of the pottery industry of ancient *Issa*.⁵⁹

Geological field survey of the island of *Vis*

Based on the archaeological data above on the existence of pottery workshops in *Issa*, in cooperation with the Mining, Geology and Petrochemistry Faculty in Zagreb, a geological field survey of the island of *Vis* was conducted during 2007 and 2008, aimed at finding any local deposits of raw clay and temper used in *Issa's* pottery production.⁶⁰ It is worthwhile mentioning that ceramicists were apt to use clay from two or three different sites and mix them to achieve the highest possible quality of raw materials. This has been confirmed by ethnographic research of the eastern Aegean islands, where pottery was the basic source of income over the past several centuries AD.⁶¹

It is first necessary to become familiar with the geological structure of the island of *Vis*. The island extends roughly east-west anticlinally, descending eastward at an average of approximately ten degrees. The core of the anticline is composed of clastic rock with gypsum and magmatic rock probably of Jurassic age, while the wings are Cretaceous carbonates (limestone and dolomite). The fields are situated largely on calcite dolomites. Almost the entire surface of the island is rocky, while the terra rossa of Pleistocene age is in an area of karst fields. It is worthwhile noting that besides carbonates, there is also volcanic rock on *Vis*, which is interesting to the topic of this work due to the clay which results from their erosion. *Vis* is also known for its Pleistocene quartz sands of Aeolian origin in the *Zlopolje* area, and along the zone of silication of Upper Alb age in the northern part of the island.⁶²

Since the geological map of the island of *Vis* has a rather large scale (1:100000), local appearances of clay are not, unfortunately, recorded. The island's older residents provided great assistance in finding the clay deposits, as they used clay in the recent past to make pottery.⁶³

During a field inspection of the island, we observed several deposits of raw clay, terra rossa and quartz sands at various sections of the island. Terra rossa samples were taken, for we started with the hypothesis that this was the material for making coarse pottery, amphorae and p/d. Quartz sands and quartz

59 Prilikom pisanja ovog rada arheometrijske analize p/d, amfora i grube kuhinjske keramike još nisu bile završene; te ćemo rezultate objaviti na drugome mjestu.

60 Suradnja Arheološkog muzeja u Splitu, Filozofskog fakulteta Sveučilišta u Splitu i Rudarsko-geološko-naftnog fakulteta Sveučilišta u Zagrebu započela je godine 2007. Osim autora ovoga rada, u istraživanju su sudjelovali Marta Mileusnić i Ivan Glavaš.

61 Psaropoulou 1986.

62 Glavaš 2008, str. 25, 26; Milojević 1927, str. 111-124.

63 Na ovome mjestu zahvaljujemo stanovnicima *Visa* i *Komiže* na ljubaznosti i susretljivosti, što su nas upozorili i uputili na lokalne pojave više *gnjile* (gline) i *vore* (kvarcni pijesak).

59 During the writing of this work, archaeometric analysis of p/d, amphorae and coarse kitchenware had not yet been completed, and these results shall be published elsewhere.

60 Cooperation between the Archeological Museum in Split, the Faculty of Arts and Letters in Split and the Mining, Geology and Petrochemistry Faculty in Zagreb commenced in 2007. Besides the authors hereof, Marta Mileusnić and Ivan Glavaš also participated in the research.

61 Psaropoulou 1986.

62 Glavaš 2008, pp. 25, 26; Milojević 1927, pp. 111-124.

63 At this point we would like to thank the residents of *Vis* and *Komiža* for their kindness and hospitality, as they directed us in our research and showed us the local deposits of *Vis gnjile* (clays) and *vore* (quartz sand).

Terenskim pregledom otoka zamijetili smo nekoliko pojava sirove gline, crvenice i kvarcnog pijeska na različitim područjima otoka. Uzeli smo uzorke crvenice polazeći od pretpostavke da je ona bila sirovina za izradu grube keramike, amfora i p/d. Kvarcni pijesak i kvarcni sedimenti korišteni su za oplemenjivanje gline. Naime, kvarcni pijesak stavljao se u sirovu glinu kako bi smanjio njezinu plastičnost, odnosno kako bi omogućio lakše oblikovanje posude. Kvarc čini dio minerala pijeska te je uvijek prisutan u glini u varijabilnoj količini, a često je zanemaren u kontekstu interpretacije antičke keramičke proizvodnje.⁶⁴ Slijedeći tragove mogućeg izvorišta keramičke proizvodnje na Visu, uzorke kvarcnih sedimenta uzeli smo u rudnicima na području zaselka Kostirne, na brdu Bardorovica, na mjestu zvanom Ribinovo (sl. 19a).⁶⁵ Te je sedimente iskorištavala Venecija u drugoj polovici 18. st. za izradu stakla. Kvarcni je pijesak nakon iskopa prenošen u Vis, odakle je brodovima dalje prevožen u Murano.⁶⁶ U novije je vrijeme kvarcni pijesak iz ovih rudnika iskorištavala tvornica u Dugom Ratu kod Omiša, dok se danas ta ležišta ne koriste, a prilaz do njih otežan je zbog izrasle vegetacije.

Osim ovog nalazišta u Kostirni, jedno iscrpljeno ležište kvarcnog pijesaka pronađeno je i na sjeveroistočnom dijelu otoka, u Zlopoju, no za sada nije moguće reći kada se to dogodilo (sl. 19a. br. 6).

U nedostatku kvarcnog pijeska u glinu se za smanjenje plastičnosti mogao stavljati smrvljeni dolomit. Sloj dolomita pronađen je u samom gradu Visu, a proteže se po cijeloj dužini viške uvale, pa su se tom količinom i blizinom sredstva za oplemenjivanje gline vjerojatno koristili i isejski keramičari. Uzorkovani su i različiti produkti trošenja vulkanskih stijena s jugozapadnog dijela otoka, oko grada Komiže, koji su se također mogli dodavati glini u svrhu postizanja što kvalitetnije sirovine. Potrebno je međutim obaviti detaljnije mineraloške i kemijske analize koje bi potvrdile ovu pretpostavku.

Osim uzoraka sirovog materijala analizirani su i ulomci pojedinih keramičkih vrsta, među njima i ulomci keramike tipa *Gnathia*.⁶⁷ Keramika tipa *Gnathia* proizvodila se najprije u grčkim kolonijama, a poslije i u domorodačkim naseljima u južnoj Italiji od sredine 4. do kraja 3. st. pr. Kr. te predstavlja prvu helenističku keramičku vrstu koja se u velikoj količini izvozila izvan matičnog središta proizvodnje. Posude ove keramičke vrste pronađene su na brojnim nalazištima duž istočne jadranske obale i u njezinoj neposrednoj unutrašnjosti. Prema dosadašnjim spoznajama,

sediments were used to refine the clay. For quartz sands were added to raw clay to reduce its plasticity, i.e. to enable make it easier to form a given vessel. Quartz is a sand mineral always present in clay in variable quantities, and it is often neglected in the context of interpreting ancient ceramic products.⁶⁴ Following the traces of possible sources of ceramic production on Vis, samples of quartz sediments were taken in the mines near the hamlet of Kostirna, on Bardorovica Hill at a site called Ribinovo (Fig. 19a).⁶⁵ These sediments were used by Venice in the latter half of the eighteenth century to make glass. These quartz sands, after excavation, were taken to the town of Vis and then transported on to Murano by ship.⁶⁶ In more recent times, the quartz sand from these mines was used by the factory in Dugi rat near Omiš, while today these deposits are not in use, and access to them is difficult due to overgrown vegetation.

Besides this site in Kostirna, an exhausted quartz sand deposit was also found in the north-east part of the island in Zlopolje, but currently it is impossible to say when this occurred (Fig. 19a. no. 6).

In the absence of quartz sand, crushed dolomite could be added to clay to reduce its plasticity. A layer of dolomite was found in the town of Vis itself, and it extends along the entire length of the bay in Vis. This quantity and proximity of resources to refine clay was probably exploited by the Issa ceramicists. Various products of erosion of volcanic rock around the town of Komiža were also sampled, as they also may have been added to the clay to achieve the highest possible quality of raw materials. However, more detailed mineralogical and chemical analysis will be needed to confirm this hypothesis.

Besides the samples of raw materials, fragments of individual pottery types were also analyzed, among them fragments of Gnathian ware.⁶⁷ Gnathian ware was first produced in the Greek colonies, and later it was also made in the indigenous settlements in Southern Italy from the mid-fourth to the end of the third century BC, and it is the first Hellenistic pottery type which was exported outside of its core production centre in large quantities. Vessels of this type were found at numerous sites all along the Eastern Adriatic coastal belt and in the immediately adjacent interior. According to current knowledge, most Gnathian type vessels were found in Vis. Kirigin was the first to speculate on the existence of local Issa production of Gnathian ware based on the characteristic morphology and iconography on vessels.⁶⁸ Following

64 Cuomo di Caprio 1985, str. 52; Carlton 1988, str. 113.

65 Kvarcni sedimenti nalaze se na nekoliko mjesta na otoku: sjeverno od Komiže, iznad Kostirne, na predjelu brda Barščan, gdje se ležište javlja sve do brda Bardorovice. Jedan manji izdanak pronađen je i u samom gradu Visu. Zonalno pružanje naslaga je u smjeru istok-zapad, Marković 2002, str. 289, 290.

66 Novak 1962, str. 6, 7, 18; Fisković 1968, str. 233.

67 Za analizu su uzeti i dijelovi keramičkog škarta amfora, p/d, kuhinjske keramike, te dijelovi sinterirane keramike iz rimskog razdoblja, no za sada su analize načinjene samo na ulomcima keramike tipa *Gnathia*.

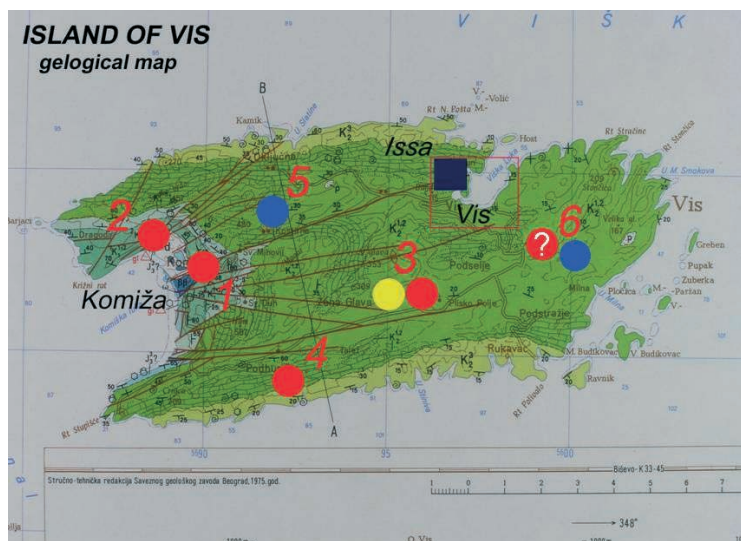
64 Cuomo di Caprio 1985, p. 52; Carlton 1988, p. 113.

65 Quartz sediments can be found at several places on the island; north of Komiža, above Kostirna, in the area of Barščan Hill, where the deposit appears up to Bardarovica Hill. A smaller offshoot was found in the town of Vis itself. The zonal extension of deposits lies in the east-west direction, Marković 2002, pp. 289, 290.

66 Novak 1962, pp. 6, 7, 18; Fisković 1968, p. 233.

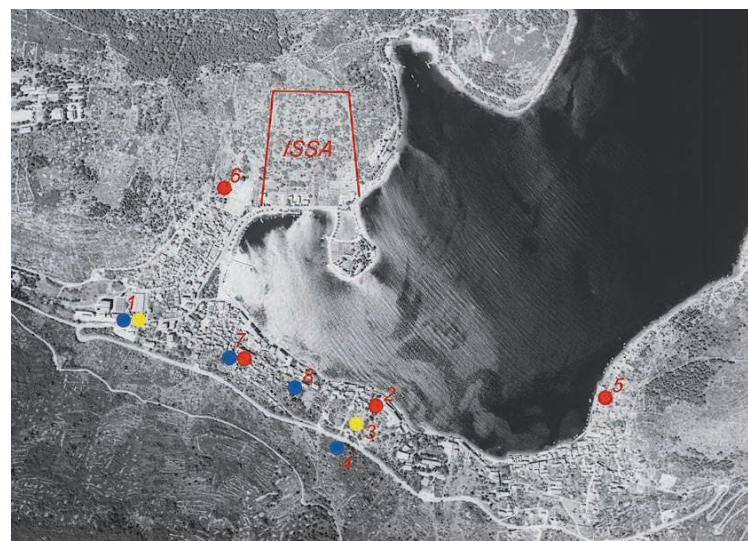
67 Pieces of ceramic amphora discards, p/d, kitchenware and pieces of sintered Roman-era ceramic were taken for analysis, but thus far only fragments of Gnathian ware have been analyzed.

68 Kirigin 1990, pp. 58-65.



Slika 19. a
Zemljovid Visa s ležištima
gline pronađenim terenskim
obilascima 2007. i 2008. te
ležištima kvarcnog pijeska.
Legenda:
• prirodne pojave gline
• crvenica
• kvarcni pijesak i kvarcni
sedimenti

Figure 19. a
Map of Vis showing clay deposits
found during field tours in 2007
and 2008, and quartz sand
deposits.
Legenda:
• naturally-occurring clay
• terra rossa
• quartz sand and quartz
sediments



Slika 19. b
Zemljovid viške uvala s ležištima
gline pronađenim terenskim
obilascima 2007. i 2008. g., te
ležištima kvarcnog pijeska.
Legenda:
• prirodne pojave gline
• crvenica
• kvarcni pijesak i kvarcni
sedimenti

Figure 19. b
Map of coves on Vis with clay
deposits found during field tours
in 2007 and 2008, and deposits of
quartz sand.
Legenda:
• naturally-occurring clay
• terra rossa
• quartz sand and quartz
sediments

najviše posuda tipa *Gnathia* pronađeno je u Visu. B. Kirigin je prvi, na temelju karakteristične morfologije i ikonografije na posudama, pretpostavio postojanje lokalne isejske proizvodnje keramike tipa *Gnathia*.⁶⁸ Slijedeći te pretpostavke, smatramo da bi arheometrijske analize ovih vrsta posuda mogle ponuditi jasniju sliku isejske proizvodnje i kronološki odrediti njezin početak.

Prve analize sirove gline i ulomaka keramike tipa *Gnathia* s otoka Visa provedene su metodom rendgenske difrakcije, kojom se može utvrditi mineralni sastav sirove gline, te metodom optičke mikroskopije, kojom su se izdvojili izbrusci keramičkih ulomaka⁶⁹ (vidi dalje).

Na ovome mjestu usporedili bismo podatke sakupljene na otoku Visu s etnološkim podacima s otoka Iža, gdje je zabilježena kontinuirana keramička proizvodnja grube keramike od željeznog doba do danas.⁷⁰ Premda je otok Iž površinom jedan od manjih otoka (ukupne površine oko 19 kilometara četvornih; za usporedbu, površina otoka Visa iznosi oko 90,3 kilometara četvornih), ondje je uspostavljena komercijalna proizvodnja keramičkih posuda. Specijalizirano zanimanje keramičara na Ižu prvi put je zabilježeno godine 1753., a do godine 1940. četrdeset je obitelji bilo angažirano

this hypothesis, we believe that archaeometric analysis of these types of vessels may generate a clearer picture of Issa production and a chronological point of departure.

The first analyses of raw clay and fragments of Gnathian ware from the island of Vis were encompassed by the method of X-ray diffraction, which may ascertain the total mineral composition of raw clay, and the optic microscopy method, which is used to separate filings of ceramic fragments⁶⁹ (see below).

We shall now compare the data gathered on the island of Vis with the ethnographic data from the island of Iž, where continuous ceramic production from the Iron Age to the present has been recorded.⁷⁰ Even though the island of Iž is one of the smallest in terms of surface area (total surface of approximately 19 km², in comparison to the island of Vis, with approximately 90.3 km²), commercial production of pottery was established. The specialized occupation of ceramicist was first recorded on Iž in 1753, and up to 1940, forty families were involved in ceramic production.⁷¹ Unfortunately, since that time, their numbers have decline considerably. The ceramicists of Iž used local natural clay deposits from a "mine" which was 3 km away from the

68 Kirigin 1990, str. 58-65.

69 Rezultati analiza predstavljeni su na međunarodnim kongresima u Poljskoj i Italiji, Mileusnić, Miše, Čargo 2008a, Mileusnić, Miše, Čargo 2008b.

70 Carlton 1988, str. 101.

69 The results of analysis were presented at the international conferences in Poland and Italy, Mileusnić, Miše, Čargo 2008a, Mileusnić, Miše, Čargo 2008b.

70 Carlton 1988, p. 101.

71 Carlton 1988, p. 105.

u keramičarskoj proizvodnji.⁷¹ Na žalost, od tog razdoblja broj im se znatno smanjuje. Iški keramičari koristili su se lokalnom prirodnom pojavom gline iz "rudnika", koji je 3 km udaljen od mjesta Veli Iž. Za oplemenjivanje sirove gline upotrebljavali su smrvljeni kalcit iz vapnenačkih stijena, koji bi ili mrvili, koristeći se batom, ili bi ga žarili.⁷² Svakako valja napomenuti da je otok Vis jedini otok u Jadranskom moru koji ima prirodne sedimente kvarcnog pijeska, koji nije potrebno prethodno žariti da bi se dodao glini.⁷³

Govoreći o jednoj intenzivnoj proizvodnji, valja razmišljati i o vremenu potrebnom za izradu jedne posude, čaše ili vrča. Ponovno se pozivamo na etnološke podatke s istočnog Egejskog mora, gdje je zabilježeno da dobar keramičar može načiniti oko 100 vrčeva u jednom danu, a vještiji i do 130 komada.⁷⁴

Rezultati arheometrijske analize ulomaka keramike tipa *Gnathia*

Kako je već spomenuto, arheometrijske analize su u tijeku te rezultati tih analiza za sve vrste keramike i keramičkih oblika još nisu dostupni. Ono što je do sada napravljeno, odnosi se samo na ulomke keramike tipa *Gnathia* te sakupljene uzorke prirodnih pojava glina i drugih sedimenata.⁷⁵

Metodom rendgenske difrakcije i metodom optičke mikroskopije analizirani su ulomci keramičkih predmeta pronađenih na području antičke Ise kao i moguće sirovine za njihovu izradu uzorkovane na otoku Visu. Uzorci potencijalnih sirovina žareni su 2 sata pri temperaturi od 900°C, s nakonom uočavanja promjena u mineralnom sastavu te usporedbe s mineralnim sastavom keramičkih ulomaka. Temperatura od 900°C odabrana je na temelju dosadašnjih spoznaja o načinu proizvodnje helenističke keramike.⁷⁶

Ulomci fine keramike pečeni su na višoj temperaturi od onih grube keramike, te temperature nisu prelazile 1000°C. Općenito se može zaključiti da se kao najčešći produkti pečenja ovih keramičkih ulomaka pojavljuju piroksen, hematit i magnetit, bez obzira radi li se o gruboj ili finoj keramici. Hematit i magnetit, ovisno o tome u kojoj su mjeri zastupljeni, ukazuju na atmosferu koja prevladava za vrijeme pečenja. Ako se radi većinom o oksidacijskoj atmosferi, uzorak sadrži više hematita, dok u redukcijijskoj prevladava magnetit.

Dosadašnje analize keramike tipa *Gnathia* načinjene su na devet ulomaka (dalje u tekstu donosimo njihov kataložki opis), za koje se na temelju tipoloških značajki (oblik stope, način urezivanja kanelura) pretpostavlja da pripadaju isejskim,

settlement of Veli Iž. They used crushed calcite from limestone rock to refine the raw clay, using a club to crush it, or they would fire it.⁷² It is certainly worth noting that Vis is the only island in the Adriatic Sea which has natural quartz sand sediments, which does not require heat treating prior to being added to clay.⁷³ Speaking of intense production, it is worth considering the time required to make a single vessel, cup or jug. Once more we refer to ethnographic data from the Eastern Aegean Sea, where it was recorded that a good ceramicist could make approximately 100 jugs in a single day, while an even more skilled craftsman could make up to 130.⁷⁴

Results of archaeometric analysis of ceramic fragments of *Gnathian ware*

As already mentioned in the text, archaeometric analyses are currently under way and the results of these analyses for all types of pottery and pottery forms are still not available. What has been done thus far pertains only to the fragments of *Gnathian ware* and the collected samples of naturally-occurring clay and other sediments.⁷⁵

X-ray diffraction and optic microscopy methods were used to analyze the ceramic fragments found in the territory of ancient Issa, and the possible raw materials for their production on the island of Vis was sampled. The samples of potential raw materials were heated for two hours at 900°C with the intention of observing changes in the mineral composition, and comparison with the mineral composition of ceramic fragments. The temperature of 900°C was selected on the basis of previous knowledge on the method of production of Hellenistic pottery.⁷⁶

Fragments of fine ceramic were fired at a higher temperature than that of coarse ceramic, and the temperatures did not exceed 1000°C. The general conclusion is that the most frequent products of firing of these ceramic fragments is pyroxene, haematite and magnetite regardless of whether it is coarse or fine ceramic. Haematite and magnetite, depending on the extent to which they are present, indicate the prevailing atmosphere during firing. If it is more of an oxidation atmosphere, the sample contains more haematite, while in a reduction atmosphere magnetite predominates.

Analysis of *Gnathian ware* was thus far conducted on nine fragments (a catalogue description may be found below), which on the basis of typological features (shape of foot, method of engraving flutes) are assumed to have belonged to Issa or

71 Carlton 1988, str. 105.

72 Carlton 1988, str. 106.

73 Šušnjara *et al.* 1969; Šušnjara, Ščavničar, Ivanović 1971.

74 Psaropoulou 1986, str. 184.

75 Metodologiju rada i zaključne misli prenosimo iz diplomskog rada I. Glavaša (Glavaš 2008), koji je izrađen pod mentorstvom M. Mileusnić.

76 Cuomo di Caprio 1984, 1985, 2007; Noble 1984; Hemelrijk 1991.

72 Carlton 1988, p. 106.

73 Šušnjara *et al.* 1969; Šušnjara, Ščavničar, Ivanović 1971.

74 Psaropoulou 1986, p. 184.

75 The work methodology and concluding thoughts are taken from the undergraduate thesis of I. Glavaš (Glavaš 2008), which was completed under the mentorship of M. Mileusnić.

76 Cuomo di Caprio 1984, 1985, 2007; Noble 1984; Hemelrijk 1991.

odnosno južnoitalskim oblicima.⁷⁷ Usporedbom mineralnog sastava importirane južnoitalske i lokalne isejske keramike tipa *Gnathia* zamjetljiva je razlika između njih. Importirane posude sadrže magnetit, dok ga u lokalnim isejskim posudama nema. To bi moglo ukazivati na razliku u tehnologiji pečenja, odnosno o trajanju redukcijske i oksidacijske faze kod južnoitalske i kod isejske keramike tipa *Gnathia*.⁷⁸ Za daljnje zaključke valja napraviti analize na većem broju uzoraka te pričekati rezultate kemijskih analiza, koje prilikom pisanja ovog rada još nisu bile dovršene.

Dobiveni rezultati potvrdili su arheološke pretpostavke o lokalnoj isejskoj proizvodnji posuda tipa *Gnathia*, te su svakako poticaj za buduća istraživanja isejske keramičarske proizvodnje.

Zaključak

Na temelju iznesenog jasno je da su na prostoru Ise djelovale lončarske radionice smještene izvan grada, u neposrednoj blizini istočnoga i zapadnoga gradskog bedema. Nalaz odbačenog dna terakote, datiran u kraj 3. i 2. st. pr. Kr. poslužio je kao oslonac za određivanje vremena djelovanja peći uz istočne gradske zidine. Sama peć nije pronađena, no spominju je arhivski podatci, na temelju kojih zaključujemo da je bila većeg kapaciteta pečenja. S obzirom na to, pretpostavke da su se na ovoj strani grada pekle amfore tipa *Lamboglia 2* dobivaju na snazi. Ono što je za sada sigurno, jest da su se ovdje izrađivale terakotne figure tipa *Tanagra*.

Na zapadnoj strani arheološki je znatno bolje dokumentirana lončarska djelatnost. Pronađene su dvije peći, od kojih je jedna bila velikog kapaciteta pečenja. Na temelju nalaza keramičkog škarta vrijeme korištenja tih peći stavlja se u 1.-2. st. po. Kr. Lončarska proizvodnja na ovoj strani grada zasvjedočena je, međutim, mnogo ranije, u 2. st. pr. Kr. Na perifernom dijelu Martvila, na padinama brda Bandirice, pronađeni su ostatci helenističke arhitekture i veći broj ulomaka keramičkih kalupa za izradu reljefne helenističke keramike, lucerni i malih podmetača za keramiku u pećima.⁷⁹ Time je nedvojbeno utvrđena lončarska djelatnost na zapadnoj strani grada. Radionički prostori s vremenom su se širili, te danas njihove ostatke nalazimo na širokom području od Male bande do sjevernog dijela Martvila (sl. 1). Na ovoj strani grada proizvodila se reljefna helenistička keramika i lucerne, zatim p/d, amfore, vrčevi, pečatne svjetiljke (*firmalampe*), a arheološki je dokumentirana i proizvodnja veoma rustično izrađene ljudske figure. No za nju je teško vjerovati da je postojala kakva serijska proizvodnja, prije će to biti *ad hoc* izrađena dječja igračka.

Obje velike peći pronađene na različitim stranama grada spadaju u tip dvodijelnih vertikalnih peći s velikim kapacitetom

Southern Italic forms.⁷⁷ The difference between the mineral composition of the imported Southern Italic and local Issa Gnathian ware is apparent when they are compared. The imported vessels contain magnetite, while it is absent in the Issa vessels. This may indicate a difference in the firing technology, i.e. in the duration of the reduction and oxidation phases of for the Southern Italic and Issa Gnathian ware.⁷⁸ Further conclusions will require analysis of a larger number of samples, and the results of chemical analysis, which were not done as of the writing of this manuscript.

The results obtained confirmed the archaeological hypotheses on local Issa production of Gnathian ware, and constitute an impetus for future research of Issa ceramic production.

Conclusion

Based on the facts delineated above, it is clear that pottery workshops were active in Issa outside of the city in the immediate vicinity of its eastern and western city walls. The find of a discarded terracotta vessel base, dated from the end of the third to the early second century BC, served as a foundation to determine the time of operation of the kiln along the city's eastern wall. The kiln itself has not been found, but it is mentioned in archival records on which basis it is apparent that it had a considerable firing capacity. In this regard, the hypothesis that *Lamboglia 2* type amphorae were fired on this side of the city is reinforced. What is certain is that *Tanagra* type terracotta figures were made here.

Pottery activity is much better documented on the western side. Two kilns have been found, of which one had a large firing capacity. The time of use of this kiln has been placed in the first/second centuries AD based on the finds of ceramic discards. However, there is evidence of pottery production in this side of the of city even earlier, in the second century BC. In the peripheries of Martvilo, on the slopes of Bandirica Hill, the remains of Hellenistic architecture and a high number of ceramic mould fragments for making Hellenistic relief pottery, oil lamps and small mats for pottery in kilns were found.⁷⁹ Pottery activity in the western side of the city was thereby confirmed without doubt. The workshop facilities expanded with time, and today their remains can be found in the wider area from Mala banda to the northern section of Martvilo (Fig. 1). In this side of the city, Hellenistic relief ceramic and oil-lamps, followed by p/d, amphorae, jugs, and firma lamps were produced, and there is archaeological documentation testifying to production of a very rustically made human figure. But it is difficult to believe that the latter was the result of serial production, for it is more likely that it was a child's toy made *ad hoc*.

Both large kilns, found at different sides of the city, are dual-part vertical kilns with a large firing capacity. However, it is

77 Te su razlike zamijećene tijekom izrade tipologije isejske keramike tipa *Gnathia* i bit će posebno objavljene.

78 Glavaš 2008, str. 50-56.

79 Vidi bilj. 5

77 These differences were observed during compilation of the Issa pottery typology of Gnathian ware and will be separately published.

78 Glavaš 2008, pp. 50-56.

79 See note 5.

pečenja. No o točnom kapacitetu zasad je teško govoriti, s obzirom da nisu sačuvane. Možemo zaključiti da su obje lončarske radionice, smještene na suprotnim stranama grada, bile aktivne u isto vrijeme, od razdoblja kasnog helenizma, s time da lončarska djelatnost na istočnoj strani nije zabilježena tijekom ranocarorskog razdoblja.

Kada je točno započela keramička proizvodnja u Isi, zasad je teško sasvim pouzdano reći. Prema arheološkim podacima ona se može pratiti od 3. st. pr. Kr., dok za njezinu raniju proizvodnju za sada još nema arheoloških potvrda.

Eventualna masovna keramičarska proizvodnja u Isi podrazumijevala bi niz čimbenika: prirodna ležišta gline na otoku i količinu dostatnu za intenzivnu višestoljetnu proizvodnju. Terenskim pregledom otoka pronađene su lokalne pojave sirove gline u prirodi na nekoliko lokacija. Gline su pronađene i u neposrednoj blizini antičkoga grada, pa čak i na samom Martvilu, no ta ležišta su iscrpljena. Njihovim uzorkovanjem potvrđeno je da se radi o kvalitetnoj glini, koja se koristila za keramičarsku proizvodnju.

Preliminarni rezultati arheometrijskih analiza posuda keramike tipa *Gnathia* iz Ise pokazali su razlike u načinu pečenja između uvezenih i lokalnih primjera, te i to potvrđuje postojanje lokalne proizvodnje keramike tipa *Gnathia*.

Osim o sirovoj glini, valja razmišljati i o potrebnom gorivu za keramičke peći, odnosno gorivu za intenzivniju proizvodnju. Je li otok Vis u antičkom razdoblju imao dovoljnu količinu drva, koja je mogla zadovoljiti svakodnevne potrebe kućanstava i obrtničkih postrojenja?

Iz svega je razvidno da smo tek počeli sagledavati kompleksnost ove problematike, te da će u budućnosti trebati nastaviti s interdisciplinarnim pristupom njezinu razrješavanju. Mnogo pitanja još čekaju odgovore. Naša istraživanja tek su u počecima, te se nadamo da smo ovim radom stručnoj javnosti barem donekle približili isejske lončarske radionice i uspjeli izdvojiti dio proizvodnog repertoara. Vjerujemo da će buduća arheološka istraživanja i arheometrijske analize keramičkih ulomaka upotpuniti sliku cjelokupnoga isejskog lončarstva.*

currently difficult to say anything about this capacity given that they have not been preserved. We may conclude that both pottery workshops located at opposite sides of the city were active at the same time from the Late Hellenistic period, although pottery activity was not recorded in the eastern side of the city during the early imperial period.

For now it is difficult to with any precision when ceramic production in Issa began. According to archaeological data, it can be followed from the third century BC, while there is not enough archaeological evidence for any earlier production.

In considering mass pottery production in Issa, it is worthwhile bearing in mind a series of facts: the quantity of naturally-occurring clay and whether there was enough for intense production spanning centuries. Field inspections of the island have yielded local naturally-occurring clay at a number of sites on the island. Clay was also found in the immediate vicinity of the ancient city, and in Martvilo itself, although these deposits have been exhausted. Their sampling has confirmed that this is high-quality clay, which was used for pottery production.

The preliminary results of archaeometric analysis of Gnathian ware from Issa has demonstrated differences in the firing methods between imported and local examples, which also testifies to the existence of local production of Gnathian ware.

Besides raw clay, also worth consideration is the need for fuel for pottery kilns, i.e. the fuel required for intense production. Did the island of Vis have a sufficient quantity of trees during ancient times which could meet the everyday needs of households and crafts workshops? All of this indicates that the full complexity of this problem is only now perceived in its entirety, so that the interdisciplinary approach to solving it will have to continue in the future. Many questions remain unanswered. Our research is only beginning, and we hope that this work has familiarized the professional public with Issa pottery workshops to a modest degree at the very least, and that we have succeeded in distinguishing a portion of the range of production. We believe that future archaeological research and archaeometric analyses of ceramic fragments will provide a clearer picture of the Issa pottery industry in its entirety.*

* Zahvaljujemo kolegama B. Penđeru, Z. Podrugu i I. Prpi Stojanac, koji su izradili crteže za ovaj rad i načinili odljeve iz kalupa, te T. Seseu i B. Kiriginu, koji su napravili fotografije. Dio fotografija izradili su i autori teksta. Posebno zahvaljujemo kolegi B. Kiriginu, koji je dopustio objavljivanje dijela materijala sa svojih istraživanja na Martvilu godine 1980.

* At this point, we would like to convey our gratitude to our colleagues who drafted the sketches for this work and rendered the copies from the moulds: B. Penđer, Z. Podrug, I. Prpa-Stojanac, and T. Seseu, and also B. Kirigin, who took the photographs. Some of the photographs were also taken by the authors. Special thanks go to B. Kirigin, who permitted the publication of a part of the materials from his own research at Martvilo in 1980.



Slika 20a.
Skif (skyphos), M1

Figure 20a.
Skyphos, M1



Slika 20b.
Skif (skyphos), M1

Figure 20b.
Skyphos, M1

Katalog analiziranih ulomaka keramike tipa *Gnathia*

Ulomci fine keramike podijeljeni su na lokalnu isejsku i uvoznu apulsku keramiku tipa *Gnathia*. Podjela na ove dvije skupine načinjena je na temelju tipologije i dekoracije ukrasa.

Isejska keramika tipa *Gnathia*

1. Skif (*skyphos*), M1 (sl. 20a, b)
Dimenzije: vis. 5,4 cm, šir. 5,8 cm, deb. 0,6 cm.
Opis: Sačuvan je ulomak stope i donjeg dijela trbuha skifa. Na donjem dijelu skifa široko su urezane kanelure, žljebovi, koje završavaju dvjema vodoravno urezanim crtama. Stopa je profilirana, s konkavnim dnom.
Opis fature: Blijedožuta (oker) do narančasta, pročišćena glina s vidljivim tragovima primjesa (smeđe partikule).
Opis premaza: Premaz je izvana prilično dobro očuvan, dok je iznutra dijelom otpao. Na vanjskim stijenkama tamnosmeđi premaz ide preko kanelura i završava kod vodoravno urezanih crta. Stopa je nepremazana. Na unutrašnjim stijenkama premaz je svijetlosmeđe do čokoladne boje.
2. Skif, M2 (sl. 21a, b)
Dimenzije: vis. 4,4 cm, šir. 3,8 cm, deb. 0,6 cm.
Opis: Sačuvan je dio stope i donjeg dijela trbuha skifa. Stopa je konična, s profilacijom na vrhu, a s unutrašnje strane je konkavna. Stijenke posude šire se prema trbuhu.
Opis fature: Glina je blijedožuta, fino pročišćena, bez okom vidljivih tragova primjesa.
Opis premaza: Premaz je izvana prilično dobro očuvan, dok je iznutra prilično oštećen (otpao je). Vidljiv je na vanjskim

Catalogue of analyzed fragments of *Gnathia* ware

Fragments of fine pottery were divided into local Issa and imported Apulian *Gnathia* ware. The division into these two groups was based on the typology and decoration of ornaments.

Issa *Gnathia* ware

1. Skyphos, M1 (Fig. 20a, b)
Dimensions: ht. 5.4 cm, wid. 5.8 cm, thk. 0.6 cm.
Description: fragment of foot and lower portion of skyphos belly preserved. Widely engraved fluted grooves on lower part of skyphos ending in two horizontal lines. Foot is articulated with concave base.
Description of fature: pale yellow (ochre) to orange, refined clay with visible traces of temper (brown particles).
Description of slip: slip preserved quite well on outside, while it has fallen off inside. On external sides the dark brown slip runs over the fluting and ends at the horizontally engraved lines. Base is coated. On interior walls, slip is dark brown to chocolate in colour.
2. Skyphos M2 (Fig. 21a, b)
Dimensions: ht. 4.4 cm, wid. 3.8 cm, thk. 0.6 cm.
Description: fragment of foot and lower portion of skyphos belly preserved. Foot is conical with articulation at top, while inside is concave. Sides of vessel expand toward belly.
Description of fature: clay is pale yellow, superbly refined without apparent traces of temper.
Description of slip: slip is rather well-preserved on exterior, while rather damaged inside (fallen off). It can be seen on external



Slika 21a.
Skif, M2

Figure 21a.
Skyphos, M2



Slika 21b.
Skif, M2

Figure 21b.
Skyphos, M2



Slika 22.
Enohoja (oinochoe), M3

Figure 22.
Oenochoe, M3

stijenkama sačuvanoga donjeg dijela trbuha, a u tragovima crne boje vidljiv je na unutrašnjim stijenkama. Stopa je nepremazana.

sides of preserved lower belly, while it is visible in black traces on interior walls. Foot is not coated.

3. Enohoja (oinochoe), M3 (sl. 22)

Dimenzije: vis. 5 cm, šir. 5,2 cm, deb. 0,4 cm.

Opis: Sačuvan je ulomak donjeg dijela trbuha posude na kojemu se vide urezane kanelure.

Opis fature: Glina je oker do sive boje (siva boja u presjeku), fino pročišćena, bez okom vidljivih tragova primjesa.

Opis premaza: Crni premaz je prilično oštećen, a ide preko kanelura. Unutrašnje stijenske nisu premazane.

3. Oenochoe, M3 (Fig. 22)

Dimensions: ht. 5 cm, wid. 5.2 cm, thk. 0.4 cm.

Description: fragment of lower portion of belly of vessel preserved, on which engraved fluting is visible.

Description of fature: the clay is ochre to grey (grey at cross-section), superbly refined without apparent traces of temper.

Description of slip: black slip is rather damaged, and runs over fluting. Interior walls not coated.

4. Enohoja, M4 (sl. 23)

Dimenzije: vis. 4,8 cm, šir. 4,6 cm, deb. 0,5 cm.

Opis: Sačuvan je ulomak trbuha posude. Na vanjskoj stijenci ulomka su guste i plitko urezane kanelure. Na unutrašnjoj stijenci nalaze se tragovi vrtnje na kolu.

4. Oenochoe, M4 (Fig. 23)

Dimensions: ht. 4.8 cm, wid. 4.6 cm, thk. 0.5 cm.

Description: fragment of vessel belly preserved. Thick and shallowly engraved flutes engraved on exterior side. Traces of turning on wheel visible on interior sides.



Slika 23.
Enohoja, M4

Figure 23.
Oenochoe, M4



Slika 24.
Ulomak stope posude, M5

Figure 24.
Fragment of vessel foot, M5



Slika 25a.
Enohoja/pelike, Inv. br. Fb 1690a

Figure 25a.
Oenochoe/pelike, Inv. no. Fb 1690a



Slika 25b.
Enohoja/pelike, Inv. br. Fb 1690a

Figure 25b.
Oenochoe/pelike, Inv. no. Fb 1690a

Opis fature: Glina je svijetlosiva, fino pročišćena, bez okom vidljivih tragova primjesa.

Opis premaza: Premaz je otpao, ali su vidljivi njegovi tragovi crne boje na unutrašnjoj i vanjskoj stijenci.

Description of fature: clay is light grey, superbly refined without apparent traces of temper.

Description of slip: slip has fallen off, but its black traces are visible on internal and external walls.

5. Ulomak stope posude, M5 (sl. 24)

Dimenzije: vis. 2,5 cm, šir. dna 0,68 cm.

Opis: Stopa stožastog oblika s konkavnim udubljenjem s unutrašnje strane.

Opis fature: Prilično mekana, dobro pročišćena blijedožuta (oker) glina s tinjcem.

Opis premaza: Premaz je otpao, ali se vide tragovi narančastog premaza na vanjskoj i unutrašnjoj stijenci stope.

5. Fragment of vessel foot, M5 (Fig. 24)

Dimensions: ht. 2.5 cm, wid. of base 0.68 cm.

Description: conical foot with concave depression on internal side.

Description of fature: rather soft, well refined pale yellow (ochre) clay with mica.

Description of slip: slip has fallen off, but traces of orange slip visible on external and internal walls of foot.

6. Enohoja/pelike, inv. br. Fb 1690a (sl. 25a,b)

Dimenzije: vis. 4,8 cm, šir. 8,6 cm, deb. 0,6 cm.

Opis: Sačuvan je ulomak trbuha posude. Na vanjskoj stijenci

6. Oenochoe/pelike, Inv. no. Fb 1690a (Fig. 25a, b)

Dimensions: ht. 4.8 cm, wid. 8.6 cm, thk. 0.6 cm.

Description: fragment of vessel belly preserved. Widely



Slika 26a.
Enohoja/pelike, Inv. br. Fb 1690b

Figure 26a.
Oenochoe/pelike, Inv. no. Fb 1690b

ulomka široko su urezane kanelure koje završavaju dvjema urezanim vodoravnim crtama. Na unutrašnjim stijenkama nalaze se tragovi vrtnje na kolu.

Opis fature: Glina je blijedožuta, pročišćena, s vidljivim tragovima primjesa (smeđe partikule).

Opis premaza: Crni premaz prilično je dobro očuvan i ide preko kanelura i urezanih vodoravnih crta. Unutrašnje stijenke nisu bile premazane.

7. Enohoja / pelike, inv. br. Fb 1690b (sl. 26a,b)

Dimenzije: vis. 7,5 cm, šir. 5,2 cm, deb. 0,6 cm.

Opis: Sačuvan je ulomak trbuha posude. Na vanjskoj stijenci urezane su kanelure koje se po sredini ulomka prekidaju s dvije vodoravno urezane crte. Sredina ulomka je bez kanelura, koje se ponovno nastavljaju pri dnu ulomka počevši s dvije vodoravno urezane crte. Po sredini ulomka vidljivi su tragovi slikanja crnom bojom, no ukras je otpao te je teško reći o kojem se tipu ukrasa radilo.

Opis fature: Glina je blijedožuta (oker), fino pročišćena, bez okom vidljivih tragova primjesa.

Opis premaza: Premaz je prilično oštećen. Na vanjskim stijenkama premaz je crne boje, ali je na pojedinim dijelovima vidljiva narančasta boja, posebno na mjestima gdje je bio ukras. Premaz na unutrašnjoj stijenci je tamnosmeđe boje.

Napomena: br. 6 i 7 vjerojatno pripadaju istoj posudi.

Južnoitalska keramika tipa Gnathia

1. Ulomak trbuha, inv. br. Fb 1763a (sl. 27)

Dimenzije: vis. 5 cm, šir. 5,9 cm, deb. 0,4 cm.

Opis: Na vanjskoj stijenci su duboko i široko urezane kanelure koje su omeđene vodoravno urezanim crtama na vrhu i dnu.

Opis fature: Dobro pročišćena, mekana oker glina s tinjcem.

Opis premaza: Crni premaz je prilično oštećen na vanjskoj



Slika 26b.
Enohoja/pelike, Inv. br. Fb 1690b

Figure 26b.
Oenochoe/pelike, Inv. no. Fb 1690b

engraved fluting ending in to engraved horizontal lines on external wall. Traces of turning on wheel visible on internal walls.

Description of fature: clay is pale yellow, refined with visible traces of temper (brown particles).

Description of slip: black slip rather well-preserved, running over fluting and engraved horizontal lines. Internal walls not coated.

7. Oenochoe/pelike, Inv. no. Fb 1690b (Fig. 26a, b)

Dimensions: ht. 7.5 cm, wid. 5.2 cm, thk. 0.6 cm.

Description: fragment of vessel belly preserved. Fluting engraved on external wall of vessel which is intersected by two horizontal lines. Middle of fragment has no fluting, which once more resumes at bottom of fragment beginning with two horizontally engraved lines. Traces of painting in black visible in middle of fragment, but ornament has fallen off so it is difficult to say what type of ornament was involved.

Description of fature: clay is pale yellow (ochre), superbly refined without apparent traces of temper.

Description of slip: slip is rather damaged. On external walls slip is black but at some places orange is visible, particularly where the ornament was. Slip on internal wall is dark brown.

Note: no. 6 and 7 probably belonged to the same vessel.

Southern Italic Gnathian ware

1. Fragment of belly, Inv. no. Fb 1763a (Fig. 27)

Dimensions: ht. 5 cm, wid. 5.9 cm, thk. 0.4 cm.

Description: deeply and widely engraved fluting on external walls bordered by engraved horizontal lines at top and bottom.

Description of fature: well refined, soft, ochre clay with mica.



Slika 27.
Ulomak trbuha, Fb 1763a

Figure 27.
Fragment of belly, Fb 1763a

stijenci, dok se na unutrašnjoj vide samo njegovi tragovi.

2. Enohoja, inv. br. Fb 1763b (sl. 28)

Dimenzije: vis. 7,8 cm, šir. 5 cm, deb. 0,9 cm.

Opis: Sačuvan je donji dio trbuha posude. Na vanjskoj stijenci nalaze se široko urezane kanelure koje završavaju s vodoravno urezanom crtom.

Opis fature: Dobro pročišćena narančasta glina s tinjcem.

Opis premaza: Premaz je prilično oštećen. Na vanjskoj stijenci nalaze se tragovi narančastoga i crnog premaza, dok na unutrašnjoj stijenci postoje samo tragovi premaza.



Slika 28.
Enohoja, Fb 1763b

Figure 28.
Oenochoe, Fb 1763b

Description of slip: black slip rather damaged on external wall, while on inside it can be seen that its traces have fallen off.

2. Oenochoe, Inv. no. Fb 1763b (Fig. 28)

Dimensions: ht. 7.8 cm, wid. 5 cm, thk. 0.9 cm.

Description: lower portion of vessel belly preserved. Widely engraved fluting engraved on external side ending with engraved horizontal line.

Description of facture: well refined orange clay with mica.

Description of slip: slip rather damaged. Traces of orange and black slip visible on external wall, while only traces of slip on internal wall.

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