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FIGLINA U FAŽANI I NJEZINA PREOBRAZBA U KASNOJ ANTICI

THE POTTERY WORKSHOP AT FAŽANA AND ITS TRANSFORMATION IN THE LATE ROMAN PERIOD

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Figlina u Fažani prvi se put spominje u stručnoj literaturi početkom XX. stoljeća. Proučavanje proizvoda i njihove distribucije na tržište te pitanje vlasništva figline intenzivira se kroz zadnja tri desetljeća prošlog stoljeća. Zaštitna arheološka istraživanja (2007. - 2009.) omogućila su prikupljanje više ili manje cjelovitih podataka o mikrolokaciji radioničkog kompleksa i keramičkih proizvoda. Ovaj prilog predstavlja pokušaj sistematizacije dostupnih podataka i njihov smještaj u povijesno - ekonomski kontekst.

The pottery workshop at Fažana was first mentioned in professional literature at the beginning of the 20th century. The study of products and their distribution on the market, and the question of ownership of the pottery workshop, intensifies during the last three decades of the last century. The rescue archaeological excavations (2007 - 2009) rendered possible the gathering of more or less comprehensive information about the micro-location of the workshop compound, and the range of pottery products. This article represents an attempt to systemize the available information and to put it into a historical - economical perspective.

KLJUČNE RIJEČI: *figlina, peć, vodosprema, amfora, tijesak*

KEY WORDS: *pottery workshop, kiln, water reservoir, amphora, press*

1. Uvod

Utemeljenjem kolonija rimskih građana i intenzivnim doseljavanjem Italika na samom kraju Republike, na istarskom poluotoku počinje dotad nezabilježena eksploatacija zemljišta, ali i komercijalizacija poljoprivrednih proizvoda na širem tržištu. S pojavom urbanih centara javlja se i novi način naseljavanja izvangradskog područja, s ruralnim arhitektonskim kompleksima kao jezgrom imanja i poljoprivredne proizvodnje. Temelj bogatstva senatorske i konjaničke aristokracije bila je zemlja. U timokratskom sustavu rimskog društva profitabilni zemljišni posjed bio je izvor političke moći, osobito nakon 218. g. pr. Kr., kada je zakonom *Lex Claudia* senatorskoj aristokraciji bilo ograničeno stjecanje bogatstva u prekomorskoj trgovini. U neraskidivoj vezi s poljoprivrednom proizvodnjom jesu figline, keramičarske radionice u kojima se, uz građevinski keramički materijal i razne utilitarne predmete, proizvodila ambalaža nužna za integraciju istarskih poljoprivrednih proizvoda u ekonomske tokove Carstva.

Epigrafski podaci pružaju osnovu za interpretaciju vlasničkih odnosa u Istri početkom Carstva, koje karakteriziraju posjedi najviših društvenih staleža (Tassaux, 1982, 227-269; Tassaux, 1983-1984, 193-229). Pojedinci koji su se bavili gospodarskom proizvodnjom i trgovinom velikih razmjera, zadržavajući monopol nad proizvodnjom amfora, u znatno većoj mjeri bili su pripadnici senatorskog i konjaničkog staleža nego lokalne municipalne aristokracije (Matijašić, 1998, 458-459). Tako je i figlina koja se nalazila oko 7 km sjeverozapadno od *Coloniae Iuliae Polae,* u današnjem naselju Fažana, tijekom I. st. bila u vlasništvu senatorske obitelji Lekanija, a u vrijeme Vespazijana prelazi u carsko vlasništvo (Baldacci, 1969, 34; Baldacci, 1972, 23; Bezeczky, 1987, 6-8; Gnirs, 1910, 84-86; Starac, 1997, 145-146; Tassaux, 1982, 262-263; Zaccaria, 1989, 481). U povijesnim pisanim izvorima iz I. i II. st., isticana je kvaliteta istarskog maslinovog ulja (Plin., *N. H.* 15.8; Mart., *Epigr.*, 12,63, 1-3; Paus., *Graec. descr.* 10, 32, 19), koje je u amforama iz istarskih figlina[1] izvoženo prvenstveno u sjevernu Italiju, Reciju, Norik i Panoniju.

Glavni predmet razmatranja u radu predstavljaju rezultati zaštitnog arheološkog istraživanja u staroj jezgri

[1] Pod izrazom "istarske figline" podrazumijevaju se one koje su dosad istraživane, u Fažani pokraj Pule i Loronu pokraj Poreča.

1. Introduction

With the establishment of colonies of Roman citizens and an intense immigration of Italics at the very end of the Republic, the Istrian Peninsula saw the beginning of an unprecedented exploitation of the land, and a commercialization of agricultural products on a wider scale. With the emergence of urban centers also came a new way of settlement in non-urban areas, featuring rural architectural complexes that represented the core of agricultural estates and agricultural production. The foundation of the wealth of the senatorial and equestrian aristocracy was land. In the timocratic system of Roman society, profitable land possessions were a source of political power, especially after 218 BC, when with the *Lex Claudia* law, the senatorial aristocracy was limited in the acquisition of wealth through overseas trade. Closely associated with agricultural production were figlinae, pottery workshops that, besides ceramic construction material and a variety of other utilitarian items, also produced the packaging necessary to incorporate Istrian agricultural products into the economic mainstream of the Empire.

Epigraphic data provide the basis for the interpretation of proprietary relations in Istria at the beginning of the Empire, which are characterized by estates that belonged to the highest social classes (Tassaux, 1982, 227-269; Tassaux, 1983-1984, 193-229). Individuals, who were engaged in large-scale economic production and trade, retaining their monopoly over the production of amphorae, were to a much larger degree members of the senatorial and equestrian class rather than members of the local municipal aristocracy (Matijašić, 1998, 458-459). This was also the case with the pottery workshop that was approximately 7 km to the northwest from *Colonia Iulia Pola*, in what to-day is the village of Fažana, which was during the 1st century owned by the senatorial family of Lecanius, only to become imperial property in the period of Vespasianus (Baldacci, 1969, 34; Baldacci, 1972, 23; Bezeczky, 1987, 6-8; Gnirs, 1910, 84-86; Starac, 1997, 145-146; Tassaux, 1982, 262-263; Zaccaria, 1989, 481). The quality of Istrian olive oil was emphasized in written historical sources from the 1st and 2nd century (Pliny, *N. H.* 15.8; M. Valerius Martialis, *Epigr.*, 12,63, 1-3; Pausanias, *Graec. descr.* 10,32, 19). The oil was exported in amphorae made in Istrian figlinae,[1] primarily to Northern Italy, Raetia, Noricum and Pannonia.

The main subject discussed in this article regards the results of the rescue archaeological excavation conducted

[1] Included under the term "Istrian figlinae" are those workshops that had been explored to date, in Fažana near Pula, and in Loron near Poreč.

Fažane, provedenog između 2007. i 2009. godine.[2] Nadamo se da ćemo u tekstu koji slijedi barem jednim dijelom uspjeti u pokušaju zadovoljavajućeg vrednovanja dostupnih podataka za bolje razumijevanje keramičarske proizvodnje južne Istre u antici.

1.1. Povijesno - ekonomski kontekst djelovanja figline

Nakon suzbijanja Panonsko-delmatskog ustanka u Iliriku, odnosno po rimsku državu neslavnog okončanja sukoba u Teutoburškoj šumi 9. g. pos. Kr., August je učvrstio svoju vlast i uspostavio stabilnu vojno-političku situaciju u Carstvu, koja je gotovo neprekinuto trajala do kraja 60-ih godina II. stoljeća. *Pax Romana* uvjetovala je opći društveni napredak pa tako i razvoj gospodarske proizvodnje. U takvim okolnostima predstavnici senatorske aristokracije, koje je često favorizirao sam car, u svojim su rukama zadržavali monopol nad keramičarskom proizvodnjom i opskrbom rimske vojske. Povoljni geografski smještaj istarskog poluotoka, kao dijela Sredozemlja najbližeg jugoistočno-alpskom i podunavskom području, gdje se od I. st., nalazio veliki broj rimskih vojnih postrojbi, pogodovao je u Istri razvoju ekonomija velikih mjerila. Ta je ekonomija prvenstveno bila bazirana na proizvodnji i izvozu, tada visoko cijenjenog, istarskog maslinova ulja. U amforama proizvedenim u fažanskoj radionici, kako potvrđuju žigovi Gaja Lekanija Basa, izvozilo se istarsko ulje na šire područje Panonskih provincija i Norika, na prostore današnjih država Mađarske, Austrije, Slovenije, zatim na zapad, u sjevernoitalske regije (*Regiones Decima, Regio Undecima*) duž Pada do Torina i Vercellija, te u druge dijelove Carstva pa i u sam Rim (Bezeczky, 1998, 48; Buchi, 1975, 435-438; Carre, 1985, 221; Degrassi, 1956, 104; Matijašić, 2009, 57-59; Starac, 1997, 150; Tassaux, 1982, 257-260; Tassaux, 2001, 518-523).

Po Robertu Matijašiću dva su glavna pravca trgovine istarskih proizvoda u I. i II. st., tzv. civilni pravac: duž sjevernojadranskoga luka, od Akvileje do Ravene i Riminija te duž Padske nizine, u većoj ili manjoj mjeri namirujući potrebe sjevernoitalskih gradova, i tzv. vojni

[2] Prva kampanja zaštitnog arheološkog istraživanja u Fažani obavljena je između siječnja i ožujka 2007. pod vodstvom mr. sc. Kristine Džin. Stručnu ekipu činili su arheolozi Ida Koncani Uhač i Davor Bulić te muzejski tehničar Ivo Juričić. Ida Koncani Uhač vodila je drugu kampanju između studenog 2007. i lipnja 2008. godine. Stručnu ekipu činila je arheologinja Aleksandra Paić, restauratorica Andrea Sardoz, student arheologije Elvin Zejnilhodžić te muzejski tehničari Ivo Juričić i Mario Devčić. Treća istraživačka kampanja obavljena je između listopada 2008. i veljače 2009. pod vodstvom Davora Bulića. Stručnu ekipu činili su arheologinje Ida Koncani Uhač i Aleksandra Paić, restauratorica Andrea Sardoz, student arheologije Elvin Zejnilhodžić te muzejski tehničar Mario Devčić.

in the old section of Fažana between 2007 and 2009.[2] We hope that in the text that follows, we will be at least partially successful in the attempt to conduct a satisfactory evaluation of the data available in order to facilitate a better understanding of pottery production in southern Istria during the Roman period.

1.1. The historical - economical context of operation of the figlina

After the suppression of the Delmato-Pannonian revolt in Illyricum, and the for the Roman state infamous end of the conflict in the Teutoburg forest in 9 AD, Augustus consolidated his hold on power and established a stable military-political situation in the Empire, which lasted almost uninterruptedly until the end of the sixties of the 2nd century. *Pax Romana* stipulated a general social progress, including the development of economic production. In such circumstances, the representatives of the senatorial aristocracy, which were often favored by the emperor himself, retained in their hands a monopoly over ceramic production and the supply of the Roman army. The favorable geographical position of the Istrian Peninsula, representing a part of the Mediterranean that was closest to the southeastern Alpine region and the Danube River basin, where from the 1st century onwards a large number of Roman troops were stationed, favored the development of large economies of scale in Istria. This economy was based primarily on the production and export of the then highly regarded Istrian olive oil. As was corroborated by stamps of Gaius Lecanius Bassus, Istrian olive oil was exported in amphorae manufactured in the workshop at Fažana. The oil was exported to the wider region that included the Pannonian provinces and Noricum, to territories that nowadays represent such states as Hungary, Austria, Slovenia, and then to the west, to the north Italic regions (*Regiones Decima, Regio Undecima*) along the Po River up to Torino and Vercelli, and into other parts of the Empire and Rome itself (Bezeczky, 1998, 48; Buchi, 1975, 435-438; Carre, 1985, 221; Degrassi, 1956, 104; Matijašić, 2009, 57-59; Starac, 1997, 150; Tassaux, 1982, 257-260; Tassaux, 2001, 518-523).

[2] The first campaign of the rescue archaeological excavation at Fažana was conducted between January and March of 2007 under the guidance of Kristina Džin MA. The professional team included the archaeologists Ida Koncani Uhač and Davor Bulić as well as the museum technician Ivo Juričić. Ida Koncani Uhač headed the second campaign between November of 2007 and June of 2008. The professional team included the archaeologist Aleksandra Paić, the restorer Andrea Sardoz, the archaeology student Elvin Zejnilhodžić as well as the museum technicians Ivo Juričić and Mario Devčić. The third excavation campaign was conducted between October of 2008 and February of 2009 under the guidance of Davor Bulić. The professional team included the archaeologists Ida Koncani Uhač and Aleksandra Paić, the restorer Andrea Sardoz, the archaeology student Elvin Zejnilhodžić as well as the museum technician Mario Devčić.

pravac: od Akvileje preko Julijskih Alpa do Norika i Panonije, kojim su distribuirani istarski proizvodi u vojne logore i utvrde u Podunavlju, ali i u gradove koji su se nalazili na putu između sjevernog Jadrana i Podunavlja: Ljubljanu (*Emona*), Ptuj (*Poetovio*), Szombathely (*Savaria*), Srijemsku Mitrovicu (*Sirmium*) (Matijašić, 2009, 57-59). Iako se fažanske amfore sporadično nalaze u Rimu i drugim dijelovima Sredozemlja, glavno se tržište nalazilo geografski razmjerno blizu, u sjevernoj Italiji, Reciji, Noriku i Panoniji. Razmjerna geografska blizina posve je logična, osobito s obzirom na činjenicu da je cijena poljoprivrednog proizvoda rasla proporcionalno sa svakim prijeđenim kilometrom, a to je poskupljenje bilo znatno veće ako se radilo o kopnenom transportu (Cato, De agr., 22, 3; Duncan-Jones, 1982, 366-369; Green, 1986, 39-40; Laurence, 2005, 125-143).

Nalazi žigova, uvrštenih u kronološki niz, prikupljeni u tri kampanje zaštitnog istraživanja u Fažani (2007. - 2009.), kao i rezultati istraživanja na drugim lokalitetima,[3] upućuju na najveći intenzitet proizvodnje i izvoza fažanskih proizvoda tijekom prve polovice i sredine I. stoljeća. Najveći skok u proizvodnji i izvozu fažanskih amfora dogodio se u drugoj četvrtini I. st., u vrijeme prvog poznatog vlasnika, Gaja Lekanija Basa, koji je upravo tada, kao *praetor urbanus* 32. i *consul suffectus* 40. godine, obnašao visoke državne dužnosti, što je očito znao iskoristiti za razvoj svojih gospodarskih pogona. Racionalizam ekonomskog poslovanja i težnja za dokapitalizacijom bogatstva senatorske aristokracije u I. st., ogleda se i u ostacima rimske ruralne arhitekture na susjednom brijunskom otočju, koja je vjerojatno također bila u vlasništvu Gaja Lekanija Basa (Tassaux, 1982, 251; Bezeczky, 1998, 68). Na Brijunima se uz nekoliko rimskodobnih ruralnih zgrada uglavnom proizvodnog karaktera - Kolci, Val Madona, Sv. Nikola - nalazilo reprezentativno sjedište imanja, u uvali Verige (Begović, Schrunk, 2000, 425-439; Matijašić, 1988 43-46; Matijašić, 1998, 115-121, 129-133, 169-178). Rezidencijalna maritimna rimska ruralna arhitektura obično nije bila samostalni subjekt, već je češće predstavljala dio složenijeg organizma s glavnom zgradom te, ovisno o veličini imanja, određenim brojem satelitskih ruralnih zgrada uglavnom proizvodnog karaktera, kojima su mogli upravljati zakupnici (Marzano, 2007, 67, 70). Rezidencijalna arhitektura iz uvale Verige, s raskošnim arhitektonskim oblikovanjem, sasvim sigurno je barem u prvoj fazi bila u vlasništvu neke bogate senatorske obitelji poput Lekanija koji su posjedovali figlinu na susjednom kopnu, udaljenu svega 3 km zračne linije.

[3] Za Padovu usp. Cipriano, Mazzochin, 1998, 363-364, za Magdalensberg i ostala nalazišta usp. Bezeczky, 1998.

According to Robert Matijašić, there were two main trafficking routes for Istrian products in the 1st and 2nd century. There was the so-called civil route: along the Northern Adriatic arch, from Aquileia to Ravena and Rimini, and alongside the Po River valley, which more or less satisfied the needs of north Italic cities. And then there was the so-called military route: from Aquileia across the Julian Alps to Noricum and Pannonia, by which Istrian products were distributed to the military camps and fortifications in the Danube River basin, and also to the cities that stood along the way from the Northern Adriatic to the Danube River basin: Ljubljana (*Emona*), Ptuj (*Poetovio*), Szombathely (*Savaria*), Srijemska Mitrovica (*Sirmium*) (Matijašić, 2009, 57-59). Even though amphorae from Fažana appear sporadically in Rome and other parts of the Mediterranean, their main market was located relatively close geographically, in Northern Italy, Raetia, Noricum and Pannonia. The relative geographical vicinity is quite logical, especially considering the fact that the price of agricultural products increased proportionately with any additional kilometer, and that the price increase was much higher if it was a land transport (M. Porcius Cato, De agr., 22, 3; Duncan-Jones, 1982, 366-369; Green, 1986, 39-40; Laurence, 2005, 125-143).

The discovered stamps, placed into a chronological sequence, which were discovered during the three campaigns of rescue excavations in Fažana (2007 - 2009), as well as the results of explorations on other sites,[3] indicate that the greatest intensity of production and exportation of products from Fažana took place during the first half and middle of the 1st century. The biggest leap in the production and export of amphorae from Fažana occurred in the second quarter of the 1st century, during the period of time of the first known owner, Gaius Lecanius Bassus, who precisely at that time, as *praetor urbanus* in 32 AD and *consul suffectus* in 40 AD, held high government office, something which he obviously knew how to use to develop his own economic activities. Economic rationalism and an aspiration to recapitalize the wealth of the senatorial aristocracy in the 1st century is also reflected in the remains of Roman rural architecture on the neighboring Brioni Isles, which were probably also owned by Gaius Lecanius Bassus (Tassaux, 1982, 251; Bezeczky, 1998, 68). Likewise located on the islands, in addition to several rural structures from the Roman period which were mainly used for production purposes - Kolci, Val Madona, Sv. Nikola - was the representative seat of the estate in Verige Bay (Begović, Schrunk, 2000, 425-439; Matijašić, 1988, 43-46; Matijašić, 1998, 115-121, 129-133, 169-178). Roman maritime, rural residential architecture was usually comprised of more than one structure, often representing part of a more complex organism consisting

[3] For Padua compare Cipriano, Mazzochin, 1998, 363-364; for Magdalensberg and other sites compare Bezeczky, 1998.

Tamas Bezeczky temeljem skladišnog prostora brijunskih vila procjenjuje godišnju proizvodnju amfora u Fažani tijekom I. st. na između 10 i 12 tisuća primjeraka (Mange, Bezeczky, 2006, 433). Iako je proizvodnja fažanskih amfora u II. st. smanjena, raznolikost morfologije oblika amfora proizvedenih u Fažani ukazuje na razmjerno dugi kontinuitet trajanja radionice kroz prva tri stoljeća nakon Krista, a možda i nešto duže.[4]

Razdoblje sredine i druge polovine III. st. obilježeno je vojno-političkom krizom Carstva, karakteriziranom nestabilnošću državne vlasti i čestim promjenama na prijestolju. Ovakva se nestabilna politička situacija negativno manifestirala u gospodarskim, trgovačkim i novčanim sferama života. Upadi germanskih naroda preko dunavskog limesa, koji su započeli još u drugoj polovici II. st., nastavljaju se i u idućim stoljećima, a te su vojne invazije dodatno pogoršale tešku političku situaciju. Zasigurno su već 168. godine upadi germanskih naroda, predvođeni Markomanima, Kvadima i Jazigima, koji su prešli dunavski limes između Beča (*Vindobona*) i Budimpešte (*Aquincum*) i prodrli duboko u sjeveroistočnu Italiju, presjekli putove trgovine poljoprivrednim proizvodima prevoženim u fažanskim amforama. Nakon toga uslijedio je ratni sukob Rimljana i germanskih naroda, koji se do 178. većim dijelom vodio u Panonijama, odnosno na području koje je dotad bilo značajno tržište istarskog maslinovog ulja. U ovakvim povijesnim okolnostima treba promatrati početak kraja figline u Fažani.

1.2. Povijest istraživanja

Povijesne okolnosti uvjetovale su specifične tokove razvitka antičke historiografije Istre, a usporedno s tim i razvitak spoznavanja rimske ruralne arhitekture i njezina sagledavanja u sklopu ekonomske i socijalne povijesti rimske antike. Kraj XIX. i početak XX. st., obilježen je pojačanom graditeljskom aktivnošću na širem području grada Pule. Zahvaljujući djelovanju carsko-kraljevske Centralne komisije za istraživanje i zaštitu spomenika kulture, nadležne za Istru (*k. k. Zentral-Kommission für Erforschung und Erhaltung der Baudenkmale*), kroz tadašnja zaštitna ili sustavna istraživanja intenzivno su prikupljani podaci o nalazištima iz svih razdoblja prošlosti Istre. U tom kontekstu nezaobilazno je djelovanje Antona Gnirsa, čiji radovi predstavljaju polazišnu točku za veliki broj naknadnih arheoloških istraživanja prapovijesti i

[4] Neki od oblika amfora otkopanih u Fažani još nisu uvršteni u sustav suvremene tipologije amfora. Znatna devastiranost arheološke stratigrafije ispod ulica Fažane, kao i izuzetno mala zastupljenost drugih keramičkih nalaza, onemogućava preciznije kronološko određivanje pojedinih oblika amfora.

of the main building and, depending on the size of the estate, a certain number of satellite rural buildings that were used mainly for production purposes, which could have been managed by lease-holders (Marzano, 2007, 67, 70). The residential architecture from the bay of Verige, which featured a luxurious architectural design, was most certainly, at least in the first phase, owned by some wealthy senatorial family like the one of Lecanius Bassus, who owned the pottery workshop on the neighboring mainland that was only 3 km away by air.

On the basis of the available storage space in the villas from Brioni, Tamas Bezeczky made an estimate that between 10 and 12 thousand amphorae were produced annually at Fažana during the 1st century (Mange, Bezeczky, 2006, 433). Although the production of amphorae in Fažana decreased in the 2nd century, the diversity of the morphology of amphora forms produced at Fažana indicates a relatively long continuity of the workshop through the first three centuries AD, and perhaps even somewhat longer.[4]

The period of the middle and second half of the 3rd century was marked by a military-political crisis of the Empire, which was characterized by instability in the functioning of the state and frequent changes on the throne. Such an unstable political situation manifested itself negatively in economic, commercial and monetary spheres of life. The incursions by Germanic peoples across the Danubian limes, which started already in the second half of the 2nd century, continued in the following centuries, and military invasions additionally worsened the difficult political situation. Surely, already by 168 AD, the raids by Germanic peoples led by the Marcomanni, the Quadi and the Iazyges, who crossed the Danubian limes between Vienna (*Vindobona*) and Budapest (*Aquincum*), and penetrated deep into northeastern Italy, resulted in a breakup of commercial routes on which agricultural products were transported in amphorae from Fažana. This was followed by an armed conflict between Romans and the Germanic tribes, which was until 178 AD for the most part conducted in Pannonia, on a territory that has hitherto been a significant market for Istrian olive oil. It is in these historical circumstances that the beginning of the end of the pottery workshop at Fažana should be considered.

1.2. The history of exploration

Historical circumstances conditioned the specific courses of development of the ancient historiography of Istria, and parallel with it, a further comprehension of

[4] Some of the forms of amphorae excavated at Fažana were not included in the system of modern amphorae typology to date. The considerable devastation of archaeological stratigraphy beneath the streets of Fažana, and the very low proportion of other pottery finds, prevents us from making a more precise chronological determination of certain forms of amphorae.

povijesti istarskog poluotoka pa tako i ranocarske figline u Fažani.

Gnirs, tadašnji kustos državne arheološke zbirke u Puli, a nešto kasnije i pokrajinski konzervator za Austrijsko primorje, u listopadu 1909. prilikom postavljanja vodovodnih instalacija u današnjoj Ulici žrtava fašizma u Fažani zabilježio je debele i kompaktne slojeve ulomaka amfora te ostatke zapečenog zida od opeka koje je pripisao ostacima rimske keramičarske radionice (Gnirs, 1910, 80-81). Prozopografskom analizom žigova na amforama prepoznao je Gaja Lekanija Basa kao vlasnika radionice (Gnirs, 1910, 84-86).

Idućih 60-ak godina antička historiografija Istre nije pokazala naročit interes za figlinu u Fažani, a kako je riječ o nalazištu smještenom ispod suvremenih zgrada u naselju Fažani, sustavna terenska istraživanja nisu ni bila moguća. Iako se utemeljenjem Arheološkog muzeja Istre 1947. snažno razvija i istraživanje agera rimske kolonije Pule (*Colonia Pola)*, do 1972., kada je stara jezgra Fažane zaštićena kao kulturno dobro i upisana u Registar kulturnih dobara RH, građevinski su se radovi u Fažani obavljali bez arheološkog nadzora ili istraživanja. Razlozi takvom pristupu istraživanju, zaštiti i očuvanju kulturnog nasljeđa Fažane ogledaju se u općim društveno-političkim prilikama toga vremena, kada Brijuni postaju rezidencija Josipa Broza Tita, a sam pristup otočju i Fažani postaje ograničen i kontroliran. Pedesetih godina XX. st., arheološka su istraživanja šireg fažanskog područja usmjerena na iskopavanje antičkog i srednjovjekovnog nalazišta u uvali Madona na Brijunima (Begović, Schrunk, 2000, 427-429; Mlakar, 1956 - 1957, 22-25; Matijašić, 1998, 130-133, 173-176; Matijašić, 2009, 289-300). Međutim, s druge strane Fažanskog kanala, u naselju Fažana gradi se kanalizacijska infrastruktura te se pritom devastira arheološki kulturni sloj na većem dijelu stare jezgre Fažane, čime su izgubljeni arheološki podaci koji bi olakšali rekonstrukciju dijela rimske ekonomske i društvene povijesti istarskog poluotoka.

Krajem 60-ih i početkom 70-ih, obično u sklopu širih rasprava o rimskodobnoj trgovini na sjevernoitalskom prostoru, sporadično se komentiraju proizvodi fažanske radionice (Baldacci, 1969, 7-50; Baldacci, 1972, 20-23), a u isto se vrijeme javljaju i prvi radovi o "istarskim" amforama (Zevi, 1967, 21-33). U zadnja tri desetljeća XX. st. u antičkoj historiografiji Istre intenzivira se zanimanje istraživača za figlinu u Fažani. Godine 1975. Ezio Buchi, nastavljajući rad Attilija Degrassija, napisao je još jedan prilog o trgovini istarskim amforama (Buchi, 1975, 431-445; Degrassi, 1956, 104-112). Francis Tassaux

Roman rural architecture and its perception within the framework of economic and social history of the Roman period. The end of the 19th and the beginning of the 20th century was marked by increased construction activities in the wider area of the city of Pula. Thanks to the work of the Imperial and Royal Central Commission for the Exploration and Protection of Cultural Heritage, which was responsible for Istria (*k. k. Zentral-Kommission für Erforschung und Erhaltung der Baudenkmale*), there was an intensive collection of data that was gathered through rescue or systematic explorations conducted at the time, which covered sites from all periods of Istrian history. The activities of Anton Gnirs cannot be overlooked in this context, as his work represents the starting point for a large number of subsequent archaeological explorations of the prehistory and history of the Istrian Peninsula, and with it the early imperial pottery workshop at Fažana as well.

Gnirs, the then curator of the state archaeological collection at Pula, and somewhat later the provincial conservator for the Austrian Littoral, in October of 1909, during the construction of a water supply system in what to-day is the Ulica Žrtava Fašizma in Fažana, recorded the thick and compact layers of amphorae fragments and remnants of a fired brick wall, which he attributed to the remains of a Roman pottery workshop (Gnirs, 1910, 80-81). With the help of a prosopographic analysis of the amphorae stamps he recognized Gaius Lecanius Bassus as the owner of the workshop (Gnirs, 1910, 84-86).

Approximately for the next 60 years, Roman historiography dealing with Istria showed no visible interest for the pottery workshop at Fažana, and because this is a site located underneath the modern buildings of Fažana, it was not possible to perform any systematic field explorations. Although the establishment of the Archaeological Museum of Istria, in 1947, resulted in a vigorous development of explorations of the ager of the Roman colony of Pola (*Colonia Pola*), it was until 1972, when the old core of Fažana was protected as cultural property and entered into the Registry of Cultural Goods of the Republic of Croatia, that all construction activities in Fažana were executed without any archaeological supervision or exploration. The reasons for such an attitude towards the exploration, protection and preservation of the cultural heritage of Fažana mirror themselves in the general socio-political circumstances of the time, when the islands of Brioni became a residence of Josip Broz Tito, and the mere access to the islands and to Fažana was limited and controlled. In the fifties of the 20th century, archaeological explorations of Fažana and its environs focused on the excavation of the Roman and Medieval site located in Madona Bay, on the Brioni Isles (Begović, Schrunk, 2000, 427-429; Mlakar, 1956 - 1957, 22-25; Matijašić, 1998, 130-133, 173-176; Matijašić, 2009, 289-300). However,

je 1982. objavio svoje djelo *Lecanii, Recherches sur une famille sènatoriale d' Istrie,* što je bio značajan doprinos poznavanju senatorske obitelji u čijem je vlasništvu bila radionica do flavijevskog razdoblja, ali i prozopografije na temelju žigova s fažanskih amfora (Tassaux, 1982, 227-269). Prilog poznavanju prvog poznatog vlasnika radionice dao je 1989. Claudio Zaccaria. Raspravljajući o prozopografiji na sjevernoitalskim amforama iznio je danas opće prihvaćeno mišljenje da je prvi poznati vlasnik fažanske radionice bio Gaj Lekanije Bas stariji, *consul suffectus* iz 40. godine, a ne, kako se dotad smatralo, njegov sin, koji je nosio isto ime , a konzulsku je dužnost obnašao 64. godine (Zaccaria, 1989, 481). Knjiga Tamasa Bezeczkog *The Laecanius Amphora Stamps and the Villas of Brijuni,* tiskana 1998., predstavlja najopsežniju sintezu o žigovima s fažanskih amfora, a izniman doprinos monografije je analiza fažanskih amfora pronađenih u databilnom kontekstu, čime je razrađen sustav relativne kronologije (Bezeczky, 1994, 162-163; Bezeczky, 1998). U istom razdoblju objavljuju se i drugi prilozi koji su u većoj ili manjoj mjeri posvećeni proizvodima i ekonomskim dosezima fažanske figline (Bezeczky, 1987, 6-21; Bezeczky, 1998; Bezeczky, 2001, 421-425; Carre, 1985, 207-245; Cipriano, Mazzocchin, 1998, 361-378; Matijašić, 1998, 380-382; Mazzocchin, Pastore, 1996 - 1997, 151-176; Starac, 1997, 145-146; Tassaux, 2001, 506-510, 518-519; Zaccaria, 1989, 469-488).

Usporedno s razvojem historiografskih istraživanja prikupljaju se i terenski podaci. Sudeći po izvještajima o zaštitnim arheološkim nadzorima, koje su obavili kustosi Arheološkog muzeja Istre, od 1972. sustavno se bilježe arheološki podaci prilikom građevinskih iskopa u staroj jezgri Fažane.[5] Prva značajnija količina nalaza fažanske keramičarske radionice, nakon njenog ubiciranja, sakupljena je 1992., prilikom nadzora na građevinskim iskopima.[6] Zbog izgradnje komunalne infrastrukture u staroj jezgri Fažane između 2007. i 2009. godine obavljena su zaštitna arheološka istraživanja (Džin, Koncani Uhač, Bulić, 2007, 61-73; Bulić, Džin, 2008, 191-99; Bulić, Koncani Uhač, 2009, 285-298; Bulić, 2011, 9-27), prilikom kojih su prvi put od ubiciranja radionice početkom XX. st. sustavno i kontrolirano skupljeni podaci o stratigrafiji nalazišta, topografiji radionice, tipologiji keramičkih peći i proizvoda. Ovi podaci predstavljaju znatan doprinos poznavanju figline u Fažani i čine okosnicu ovog rada.

[5] U pismohrani Arheološkog muzeja Istre čuvaju se izvještaji o zaštitnim arheološkim nadzorima u Fažani: br. izv. 681 od 18.4.1972.; br. izv. 681 od 11.3.1979.; br. izv. 747 od 20.11.1992.; br. izv. 773 od 30.11.1992.

[6] Nadzor su obavili Mira Pavletić i Anton Vitasović.

on the opposite site of the Fažana Channel, in the village of Fažana, a sewage disposal system is under construction, which results in a devastation of the archaeological culture layer extending over most of the area of the old section of Fažana. This meant that all the archaeological information that could have facilitated the reconstruction of a part of Roman socio-economic history of the Istrian Peninsula was irretrievably lost.

Towards the end of the sixties and at the beginning of the seventies, most often within the framework of broader discussions covering Roman commercial activities in the north Italic region, there are sporadic comments about the products coming out of the pottery workshop at Fažana (Baldacci, 1969, 7-50; Baldacci, 1972, 20-23), and at the same time we witness the appearance of the first works dedicated to "Istrian" amphorae (Zevi, 1967, 21-33). In the last three decades of the 20th century, the research community dealing with the Roman historiography of Istria has shown an intensified interest for the pottery workshop at Fažana. In 1975, Ezio Buchi, continuing thus the work of Attilio Degrassi, wrote another contribution dedicated to trade with Istrian amphorae (Buchi, 1975, 431-445; Degrassi, 1956, 104-112). Francis Tassaux published, in 1982, his work titled *Lecanii, Recherches sur une famille sènatoriale d' Istrie*, which was a significant contribution towards a better understanding not only of this senatorial family that owned the workshop until the Flavian period, but also of prosopography based on the stamps found on amphorae from Fažana (Tassaux, 1982, 227-269). In 1989, Claudio Zaccaria likewise gave a contribution aimed at a better understanding of the first known proprietor of the figlina. In his discussion about prosopography on north Italic amphorae, he presented what nowadays is the generally accepted opinion that the first known owner of the workshop at Fažana was Gaius Lecanius Bassus the Elder, the *consul suffectus* from 40 AD, and not, as was until then believed, his son, who had the same name, and was a consul in 64 AD (Zaccaria, 1989, 481). The book by Tamas Bezeczky titled *The Laecanius Amphora Stamps and the Villas of Brijuni*, printed in 1998, is the most comprehensive synthesis about stamps featured on amphorae from Fažana. A remarkable contribution of this monograph is the analysis of amphorae from Fažana, which were unearthed in a datable context, whereby a system of relative chronology was worked out in detail (Bezeczky, 1994, 162-163; Bezeczky, 1998). In the same period of time other contributions were likewise published, which were to a greater or lesser extent dedicated to the products and economic achievements of the pottery workshop at Fažana (Bezeczky, 1987, 6-21; Bezeczky, 1998; Bezeczky, 2001, 421-425; Carre, 1985, 207-245; Cipriano, Mazzocchin, 1998, 361-378; Matijašić, 1998, 380-382; Mazzocchin, Pastore, 1996 - 1997, 151-176;

Sl. 1 Areal rasprostiranja figline
Fig. 1 The area covered by the figlina.

2. Arhitektonski kompleks figline

2.1. Područje rasprostiranja

Temeljem arheoloških podataka, prikupljenih tijekom zadnjih zaštitnih arheoloških istraživanja u Fažani, utvrđeno je rasprostiranje figline na prostoru gotovo čitave povijesne jezgre. Arhitektonski kompleks figline pravokutne je forme čije su dijagonale usmjerene prema glavnim stranama svijeta. Obodni zidovi figline pod pravim se kutom sijeku na spoju trga Piazza Grande i Ulice Jurine i Franine, u blizini pročelja crkve sv. Marije Karmelske te u blizini pročelja župne crkve sv. Kuzme i Damjana. Iako položaj jugoistočnog ogradnog zida figline zasad nije utvrđen, njezine približne dimenzije iznose 80 x 60 m, odnosno rasprostire se na približnoj površini od 5.000 m² ili 2 rimska jugera. (sl.1, T. I)

2.2. Vodosprema

U primarnoj fazi tehnološkog procesa izrade keramičarskih predmeta, uz glinu kao sirovinu, kod koje se razlikuje nekoliko vrsta, ovisno o njenoj plastičnosti odnosno kemijskom sastavu (Zlatunić, 2005, 65-70), neizostavan je i najvažniji čimbenik voda. S obzirom na utvrđenu iznimnu količinu keramičkih proizvoda nužna je bila i povećana potreba za dobavom vode, što

Starac, 1997, 145-146; Tassaux, 2001, 506-510, 518-519; Zaccaria, 1989, 469-488).

Field data are collected in tandem with the development of historiographic research. Judging by reports dealing with rescue archaeological supervisions, published by curators of the Archaeological Museum of Istria, from 1972 onwards, all archaeological data obtained during construction works in the old section of Fažana have been systematically recorded.[5] The first significant quantity of finds from the pottery workshop at Fažana, after its location had been defined, was collected in 1992, during the supervision of construction works.[6] Between 2007 and 2009, we executed a series of rescue archaeological explorations in the old section of Fažana, due to the construction of municipal infrastructure there (Džin, Koncani Uhač, Bulić, 2007, 61-73; Bulić, Džin, 2008, 191-99; Bulić, Koncani Uhač, 2009, 285-298; Bulić, 2011, 9-27). This was the first time since the location of the workshop was discovered at the beginning of the 20th century, that we engaged in a systematic and controlled collection of data regarding the

[5] Reports about rescue archaeological supervisions in Fažana are kept in the archives of the Archaeological Museum of Istria: report no. 681 from April 18, 1972; report no. 681 from March 11, 1979; report no. 747 from November 20, 1992; report no. 773 from November 30, 1992.

[6] The supervision was performed by Mira Pavletić and Anton Vitasović.

je potvrđeno nalazom rimske vodospreme na južnom dijelu fažanske figline, ispod današnjeg Župnog trga.

Sama vodosprema do nedavno nije bila adekvatno interpretirana, zbog novovjekovnih preinaka, te se njena prava rimskodobna datacija mogla definirati tek nakon sustavne analize arhitektonske i terenske dokumentacije. Vodosprema je naime ucrtana još na katastarskoj karti Fažane iz 1874., upisana pod k.č. 50 u k.o. Fažana. Iz katastra je moguće izvući njene tadašnje dimenzije, koje iznose 10,2 x 30 m[7]. Njena je orijentacija u smjeru sjeveroistok - jugozapad (T. I.). Veći, jugozapadni dio cisterne nije mogao biti istražen zbog naknadne izgradnje zgrada koje su preslojile nalazište krajem XIX. i početkom XX. stoljeća. Arheološkim istraživanjima ukupno je istraženo nešto manje od polovine vodospreme. Kapacitet arheološki istraženog prostora vodospreme jest 185 m³, dok se po katastarskom planu iz XIX. st. može pretpostavljati ukupan kapacitet od oko 370 m³.

Na području Župnog trga (k.č. 50/1 u k.o. Fažana), 50 cm ispod današnjeg nivoa trga, dokumentirani su zidovi vodospreme (mnv = 2,18 - 3,4). Zidovi vodospreme građeni su od pravilno složenih, debljinom i obradom gotovo jednakih klesanaca, povezanih vapnenom žbukom, u tehnici *opus isodomum*. S unutrašnje strane zida je prilikom novovjekovne reutilizacije objekta vodosprema obložena slojem cementne žbuke. Današnja ukupna debljina vanjskih zidova tako iznosi 1,25 m. Istraženi dio vodospreme je pravokutnog oblika, uz sačuvanu visinu zidova od 1,84 m. Vanjska širina vodospreme iznosi 10,2 m, dok je unutarnja širina 7,70 m. Vodosprema je istražena u dužini od 13,75 m. Naime, od vodospreme je istražen sjeveroistočni zid te dijelom dva perimetralna uzdužna zida koja se pružaju prema jugozapadu ispod današnjih stambenih objekata. Arheološkim je istraživanjem s vanjske strane sjeverozapadnog i sjeveroistočnog zida vodospreme utvrđeno postojanje integralno vezanih kontrafora. Na sjeverozapadnom zidu istražena su tri kontrafora u visini od 1,32 m, (mnv = 1,99 - 0,73), a njihova međusobna udaljenost iznosila je 1,37 m (sl. 2). Širina kontrafora iznosi 83 cm. Dva kontrafora su trapezasto proširena prema dnu, s obzirom da hidrostatski tlak linearno raste s dubinom pa je i samo opterećenje veće na donjem dijelu vanjskih zidova. Treći, južni kontrafor četvrtastog je oblika, dimenzija 45 x 45 cm. Temeljem istraženosti vodospreme te na osnovu katastarskog stratigraphy of the site, the topography of the workshop, and the typology of pottery kilns and products. These data represent a significant contribution towards a better understanding of the pottery workshop at Fažana and are thus the backbone of this article.

2. The architectonic complex of the pottery workshop

2.1. The area of expansion

Based on archaeological data collected during the last rescue archaeological explorations in Fažana, we determined that the workshop extended itself on an area covering almost the entire historic section of Fažana. The architectonic complex of the figlina is rectangular in shape, its diagonals point in the north - south, east - west direction. The peripheral walls of the workshop intersect at a right angle at the junction of Piazza Grande and the Jurina and Franina Street, in the vicinity of the façade of the church of St. Mary Carmelite, and near the façade of the parish church of St. Cosmas and Damian. Notwithstanding the fact that we were not able to determine to date the position of the southeastern peripheral wall of the figlina, its approximate dimensions measure 80 x 60 m, which means that it extends on an approximate area of 5,000 square meters, which corresponds to 2 Roman jugers. (Fig. 1, T. 1)

2.2. The water reservoir

In the primary phase of the technological process of making ceramic items, along with clay as a raw material, of which several different kinds are known, depending on its plasticity and chemical composition (Zlatunić, 2005, 65-70), water is an indispensable factor of paramount importance. In view of the determined exceptional quantity of ceramic products, there was also an increased need for the supply of water, which was confirmed by the discovery of a Roman water reservoir in the southern section of the pottery workshop in Fažana, underneath the present day Parish Square.

The reservoir itself was inadequately interpreted until recently, which was due to modern day alterations, as it was possible to define its true Roman period dating only after a systematic analysis of the architectonic and field documentation. The water reservoir was already drawn onto the cadastral map of Fažana from 1874, under cadastral plot 50 in the cadastral commune of Fažana. From the cadastral register we can obtain the dimensions of the reservoir at the time, which measured 10.2 x 30 m[7]. Its orientation runs in the northeastern -

[7] Vodosprema je istraživana tijekom prve kampanje zaštitnih arheoloških radova, 2007. god., a za izvođenja građevinskih iskopa 2009. god. dopunjena je dokumentacija. Tom je prilikom utvrđen nastavak vanjskog južnog zida vodospreme koji se prostire ispod temelja današnje zgrade k.č. 50/2 u k.o. Fažana.

[7] The water reservoir has been explored in the course of the first campaign of rescue archaeological works in 2007, and during the execution of construction excavations in 2009, the documentation was complemented. On this occasion the continuation of the southern exterior wall of the water reservoir was determined, which runs underneath the foundations of a present day building on cadastral plot 50/2 in the cadastral commune of Fažana.

Sl. 2 Sjeverozapadni zid vodospreme
Fig. 2 The northwestern wall of the water reservoir.

plana iz 1874. god. može se pretpostaviti da su se na sjeveroistočnom zidu nalazila ukupno tri kontrafora, dok je na sjeverozapadnom zidu njihov broj veći od deset.

Tijekom istraživanja unutrašnjosti vodospreme dolazilo je do naviranja bočate vode pa su radovi iziskivali njeno crpljenje potopnom pumpom. Ovaj podatak mogao bi upućivati da smještaj ovakvog vodoopskrbnog objekta nije nasumce izabran, već je vodosprema izgrađena u neposrednoj blizini izvora slatke vode. Vodeći se ovim saznanjem, mogli bismo promišljati o postojanju dvaju ili više prostora, odnosno komore vodospreme, u funkciji prostora za kaptiranje izvorske vode. Primjer takve vodospreme, ali daleko volumenski manji, nedavno je istražen u maritimnoj vili u Pomeru (Džin, 2008, 172-173; Girardi Jurkić, 2007, 81-84).

Unutrašnjost vodospreme ovakvih dimenzija u rimsko je vrijeme morala biti uzdužno razdijeljena središnjim zidom s lukovima oslonjenim na stupove, koji je preuzimao opterećenje konstrukcije krovišta. To potvrđuje i nalaz unutrašnjeg središnjeg zida s lukovima iz novovjekovne faze vodospreme, kada je ponovljen isti sistem izgradnje (sl. 3). Ova novovjekovna rekonstrukcija vodospreme uključila je prethodno

southwestern direction (T. I). It was not possible to explore the larger southwestern section of the reservoir because of the subsequent construction of structures that were erected on the site during the end of the 19th and at the beginning of the 20th century. Somewhat less than half of the reservoir was in total encompassed by archaeological excavations. The volume of the archaeologically explored area of the reservoir measures 185 cubic meters, while in accordance with the cadastral map from the 19th century, a total volume of approximately 370 cubic meters can be assumed.

In the area of the Parish Square (cadastral plot 50/1 in cadastral commune Fažana), 50 cm underneath the present level of the square, the walls of the reservoir were documented (absolute depth = 2.18 - 3.4). The walls of the reservoir were masoned with regularly placed hewn stones that were almost identical as far as thickness and working are concerned, using a calcareous mortar, in the *opus isodomum* technique. The interior side of the wall of the reservoir was plastered with a coat of cement mortar, when the structure was reutilized in modern times. In this manner the present total thickness of the outer walls measures 1.25 m. The explored section of the reservoir is rectangular in shape, having a preserved height of the walls measuring 1.84 m. The outer width of the reservoir measures 10.2 m, while the interior width is 7.70 m. The water reservoir has been explored in a total length of 13.75 m. In other words, the northeastern wall of the reservoir has been explored together with two partially explored perimetral, longitudinal walls that extend themselves towards the southwest, underneath the present-day residential structures. Through archaeological explorations we also established the existence of integrally connected buttresses on the exterior side of the northwestern and northeastern walls of the reservoir. On the northwestern wall we explored three buttresses on a height of 1.32 m (absolute depth = 1.99 - 0.73), and they were placed at a distance of 1.37 m from one another (Fig. 2). The width of the buttress measures 83 cm. Two buttresses widen in a trapezoidal manner towards the base, bearing in mind that hydrostatic pressure increases linearly with depth, which means that the pressure is larger on the lower section of the external walls. The third, southern buttress is square in shape and measures 45 x 45 cm. Based on the level of exploration of the water reservoir, and on the basis of the cadastral map from 1874, we can assume that a total of three buttresses were located on the northeastern wall, whereas on the northwestern wall there were more than ten of them.

In the course of the exploration of the interior section of the water reservoir, there was a gushing forth of brackish water that had to be pumped out with the help of immersion pumps. This piece of information could also mean that the location for the water reservoir was not randomly chosen, but on the contrary, that it was chosen because it was located in the immediate vicinity

žbukanje cjelokupne unutrašnjosti (zidovi i dno) cementnim mortom. Taj zid s lukovima izgrađen je po središnjoj uzdužnoj osi vodospreme, od priklesanog kamenja. Širina zida iznosi 65 cm, a njegova visina na gornjoj površini iznosi mnv = 1,90 m. Ukupno su otkopana dva luka, svaki raspona 4,20 m. Ovaj je zid imao funkciju konstruktivnog elementa, koji se pružao uzdužno sredinom vodospreme i preuzimao opterećenje, odnosno nošenje krovne konstrukcije, koju su vjerojatno činila dva paralelna bačvasta svoda. Rasteretni lučni zid datira se u novije razdoblje, budući da je sagrađen nakon što je unutrašnjost cisterne već bila ožbukana. Ispod cementnog dna debljine 2,5 cm (mnv = 0,34), nalazila se podloga, sastavljena od pločastog i nepravilnog kamenja manje granulacije, pomiješana s usitnjenom opekom, također povezanom cementnom žbukom. S obzirom da je vodosprema prestala biti u upotrebi u XX. st., bila je zapunjena recentnom šutom (staklene boce, kamenje, ulomci tanjura). Iako arheološkim istraživanjem nije ustanovljeno da se s unutrašnje strane zidova nalazio *opus signinum* te kao što se sondiranjem cementnog dna nije uspjelo dokumentirati antičko dno vodospreme, po veličini objekta te po graditeljskoj izvedbi vanjskih zidova u tehnici *opus isodomum* vrijeme izgradnje vodospreme treba smjestiti u rimsko doba. U prilog tome ide i orijentacija vodospreme, koja je istovjetna rasteru ostalih rimskih arhitektonskih ostataka.[8] (T. I.) Na zapadnoj obali Istre, u Loronu kod Poreča, u tijeku je sustavno istraživanje figline, gdje je unutar većeg ograđenog dvorišta također postojala vodosprema većih dimenzija (D'Inca et al., 2010, 318-321).

Uz ove tehničke karakteristike, utvrđeno je da se od sjeveroistočnog zida vodospreme (prema crkvi sv. Marije Karmelske) u integralnoj vezi nastavlja zid koji zatvara pravokutni prostor (sl. 4), a unutar kojeg se nalazio intaktan rimski kulturni sloj. Slična je situacija i sa sjeverozapadne strane vodospreme, gdje se na najjužniji otkopani kontrafor naslanja zid rimskog objekta u intaktnom rimskom sloju, koji se sastojao od zemlje i ulomaka amfora, a to uz navedeno potvrđuje rimsku dataciju vodospreme.

[8] Slična reutilizacija antičke vodospreme u novovjekovnom razdoblju poznata je u još jednom, po našim saznanjima neobjavljenom primjeru, u zaseoku Betika, 9 km sjeverozapadno od Fažane. Oko 150 m sjeverozapadno od kasnoantičkog lokaliteta Sv. Agneza, s desne strane puta koji se pruža od Sv. Agneze prema sjeverozapadu, u visini od oko 0,5 m vidljivi su zidovi građeni od klesanaca povezanih cementnim mortom. Ovim je zidom obzidan antički opus signinum debljine 20 cm i obnovljen izvorni antički zid. Pri reutilizaciji antičke cisterne dimenzija 21 x 4,5 x cca 3 m s gornje su strane u novije doba postavljene betonske grede koje su nosile krovnu konstrukciju cisterne.

of a fresh water spring. Taking this possibility further, we could speculate about the existence of two or more areas, or chambers within the reservoir, which served to hold the fresh water from the spring. An example of just such a water reservoir, but with a far smaller volume, was recently explored in a maritime villa at Pomer (Džin, 2008, 172-173; Girardi Jurkić, 2007, 81-84).

In Roman times, the interior of a reservoir with these dimensions had to be longitudinally divided with a central wall featuring arches that rested on columns, which carried the load of the roof structure. This is corroborated by the discovery of the interior central wall with arches from the modern era phase of the water reservoir, when the same construction system was applied again (Fig. 3). This modern era reconstruction of the water reservoir also encompassed a prior plastering with cement mortar of the entire inner part of the reservoir (walls and base). This wall with arches was erected along the central longitudinal axis of the water reservoir, using roughly hewn stones. The width of the wall measures 65 cm; its upper surface is located at a height of 1.90 m above sea level. A total of two arches were excavated, each with a span measuring 4.20 m. This wall had a function of a constructive element, and it extended itself longitudinally down the middle of the reservoir, thus taking the load, which means that it supported the roof structure that probably consisted of two parallel barrel vaults. This arched relief wall was dated into a more recent period, as it was erected after the interior of the reservoir was already plastered. Located underneath the cement base that was 2.5 cm thick (absolute depth = 0.34), was a substrate that consisted of plate-shaped, irregular stones of a lesser granulation, admixed with crushed brick, and laid in cement mortar. The reservoir was filled with recent rubble (glass bottles, stones, fragments of plates) because it was no longer in use in the 20th century. Even though archaeological excavations failed to determine the use of the *opus signinum* technique on the interior side of the walls, and notwithstanding the fact that probes of the cement base likewise failed to document it as a Roman base of the reservoir, we can nonetheless date

Sl. 3 Rasteretni lučni zid u unutrašnjosti vodospeme
Fig. 3 The arched relief wall in the interior of the water reservoir.

Sl. 4 Sjeveroistočni zid vodospreme
Fig. 4 The northeastern wall of the water reservoir.

Slojevi gline zabilježeni na više mjesta u staroj Fažani vjerojatno su deponirani u pretpostavljenim skladišnim prostorima figline. Otkriveni sloj gline uz sjeverozapadni zid vodospreme mogao bi upućivati i na hidroizolacijsko rješenje prema ostatku radionice, budući da su na ovom mjestu zabilježeni izvori boćate vode. Naime, glina je amorfni sediment vrlo sitnih koloidnih čestica, sastavljen od različitih minerala, među kojima prevladava kaolin. U doticaju s vodom ona postaje plastična i vodoodrživa pa takva može služiti i kao hidroizolacijski sloj (Ilakovac, 1980, 82-88).

2.3. Ostali radionički prostori

Sa sjeveroistočne strane vodospreme dokumentiran je ugao uže pravokutne prostorije između vodospreme i ostalih prostorija. Zidovi su bili u integralnoj vezi s vanjskim sjeveroistočnim zidom vodospreme. Unutar ovog manjeg pravokutnog prostora dokumentirano je nekoliko slojeva, od kojih je najdeblji pripadao kompaktnom naboju s ulomcima amfora, a koje su započinjale na mnv = 1,61, što odgovara situaciji intaktnih slojeva fragmentiranih amfora na cjelokupnom nalazištu. Nalazi amfora uglavnom pripadaju klasičnim formama Dressel 6 B iz I. stoljeća.

Sjeverno od tog prostora, još su 1992. god., prilikom arheološkog nadzora kod građevinskog iskopa kanala, koji su provodili arheolozi iz Nacionalnog parka Brijuni, dokumentirana tri antička poda, jedan iznad drugoga. Anton Vitasović navodi, a što je djelomično i vidljivo iz objavljene fotografije (Vitasović, 2007, 47-48), da je najviši pod bio izveden od malih keramičkih opeka složenih u obliku riblje kosti (*opus spicatum),* s plitkim uskim žlijebom. Središnji je pod bio mozaički, izveden od keramičkih tesera, dok je treći, najniži, također bio izveden u tehnici *opus spicatum* (iako ovaj pod nije vidljiv na objavljenoj fotografiji). Visine rimskih

the construction of this reservoir into the Roman period, based on the size of the structure, and the construction mode of the exterior walls that were erected in the *opus isodomum* technique. This is also backed by the orientation of the water reservoir, which is identical with the raster of other Roman architectonic remains.[8] (T. I) On the west coast of Istria, at Loron near Poreč, there are works in progress covering the systematic exploration of a pottery workshop, where there was likewise a water reservoir of greater dimensions located within a rather large enclosed courtyard (D'Inca et al., 2010, 318-321.)

Alongside these technical characteristics, we established that from the northeastern wall of the reservoir (towards the church of St. Mary Carmelite), there is an integrally connected wall that goes on to close a rectangular area (Fig. 4) within which was an intact Roman cultural layer. We are witnessing a similar situation on the northwestern side of the water reservoir, where there is a wall from a Roman structure, which was leant on the southernmost excavated buttress. This structure was located in an intact Roman layer that was made of earth and amphora fragments, which is ample evidence to be able to date the water reservoir to the Roman period.

The layers of clay that were recorded on several locations in the old section of Fažana were probably deposited in the presumed storage facilities of the pottery workshop. The layer of clay that was unearthed along the northwestern wall of the water reservoir could indicate that it was used for waterproofing purposes with respect to the rest of the workshop, as it was here that we discovered springs of brackish water. In other words, clay is amorphous sediment of very fine colloid particles, made up of different minerals, among which kaolin is prevalent. In touch with water it acquires a plastic quality and becomes watertight, and as such it can be used as a waterproofing layer (Ilakovac, 1980, 82-88).

2.3. Other workshop premises

From the northeastern side of the water reservoir we documented a corner of a narrower rectangular room located between the water reservoir and the rest of the premises. The walls were integrally connected with the exterior northeastern wall of the water reservoir. Within

[8] There is another similar example of reutilization of a Roman water reservoir in the Modern Age, at the hamlet of Betika, 9 km to the northwest from Fažana, which, according to our perception, has remained unpublished to date. Located approximately 150 m to the northwest from the Late Roman site of St. Agnes, on the right side of the road that stretches from St. Agnes towards the northwest, are the visible remnants of walls, roughly 0.50 m high, made of hewn stone and cement mortar. With this wall a Roman *opus signinum* that is 20 cm thick, was enclosed, and an original Roman wall was renewed. In reutilizing the Roman reservoir measuring 21 x 4.5 x approximately 3 m, concrete beams had been placed on the upper side in modern days, which were used to support the roof structure of the cistern.

podova koje su zabilježene prilikom nadzora 1992. god. nisu apsolutne pa je stoga ove podnice teže povezati s okolnim arhitektonskim objektima. Na približno istom mjestu 1992., zabilježeni su kameni prag i ožbukani zidovi manje prostorije[9], koji nažalost nisu geodetski snimljeni te ih nije moguće sagledati u međuodnosu s ostalim arhitektonskim ostacima figline.

Zaštitnim arheološkim istraživanjem, provedenim 2008., sjeverno od nalaza tri antička poda dokumentirani su ostaci dva zida prostorije, koji su vertikalno izlazili iz profila građevinskog kanala, istraženi u dužini od svega 1,2 m. Zidovi prostorije izvedeni su od pravilno složenih klesanaca, a unutar njih su definirane tri razine antičkih podnica. Nažalost, prema jugoistoku je nalazište kompletno uništeno ranijim prekopima, a ostala je sačuvana tek manja površina podnice od vapnene žbuke, na jednakoj dubini kao najniža podnica iz prethodno opisane prostorije. Zidovi ove prostorije, sjeveroistočni prostor uz vodospremu kao i sama vodosprema pružali su se u istoj orijentaciji.

Sl. 5 Ostatci figline u današnjoj Brionskoj ulici
Fig. 5 The remains of the figlina in present-day Brioni Street.

Jugozapadno od vodospreme, na križanju ispod današnje Brionske ulice i Ulice 8. marta, dokumentiran je ugao prostora, u kojem je moguće razlučiti dvije graditeljske faze (sl. 5). Iz prve faze potječu zidovi izvedeni od pravilno složenih klesanaca koji omeđuju prostor pod pravim kutom, a jedan od njih ujedno je i obodni zid figline s kasnije pregrađenim ulazom. U drugoj graditeljskoj fazi, uz pregrađivanje ulaza, s vanjske je strane napravljeno dodatno potporno ojačanje. Unutar prostora definiranog opisanim zidovima zabilježena je velika količina neuspjelih amfora, amfora s greškom, čiji je sloj započinjao na dubini od mnv =1,30 do 1,13.

Na ovom je mjestu definiran objekt elipsoidnog oblika koji je nastao u mlađoj fazi, budući da je bočnim zidom prislonjen na pregrađeni zid. U ranijoj

[9] Izvještaj Arheološkog muzeja Istre o zaštitnom arheološkom nadzoru u Fažani br. 773 od 30. 11. 1992.

this smaller rectangular area we documented several layers, the thickest of which belongs to a compact fill of earth with amphora fragments, and starts at an absolute depth of 1.61 that corresponds to the situation of intact layers of fragmented amphorae on the entire site. For the most part the discovered amphorae belong to the classical forms Dressel 6 B from the 1st century.

Three Roman floors, one above the other, were documented to the north from this area, already in 1992, during an archaeological supervision of channel excavation works, which was carried out by archaeologists from the Brioni National Park. As Anton Vitasović stated, and that is partially visible from the published photograph (Vitasović, 2007, 47-48), the uppermost floor was made of small ceramic bricks that were installed in a fishbone pattern (*opus spicatum*), with a shallow and narrow groove. The middle floor was a mosaic made of ceramic tesserae. The third floor that was at the same time the lowest one, was likewise executed in the *opus spicatum* technique (even though this floor is not visible on the published photograph). The heights of Roman floors that were recorded in 1992 during the archaeological supervision are not absolute, and it is therefore not easy to connect these floorings with the surrounding architectonic structures. The plastered walls of a smaller room and a threshold[9] were discovered in the approximately same area in 1992. As they were, unfortunately, not geodetically processed, it is impossible to look at them in an interrelationship with other architectonic remains of the pottery workshop.

During the rescue archaeological excavations that were carried out in 2008 to the north from the findspot of the three Roman floors, we documented the remains of two walls of a room, which were going out vertically from the profile of a construction channel, and were explored in a length measuring a mere 1.2 m. The room walls were masoned with properly layered hewn stones, and within them we defined three levels of Roman floors. Unfortunately, the site was completely ravaged to the southeast, due to previous excavations. Only a rather small area of a floor made of calcareous mortar was left, which was located at the same depth as the lowest flooring from the previously described room. The walls of this room, the northeastern room alongside the reservoir, as well as the reservoir itself, were all extending themselves in the same orientation.

To the southwest of the water reservoir, at the junction of present-day Brionska Ulica and Ulica 8. Marta, we documented the corner section of a room in which two separate construction phases were spotted (Fig. 5).

[9] An Archaeological Museum of Istria report covering the rescue archaeological supervision at Fažana, no. 773, dated November 30, 1992.

preliminarnoj objavi ovaj je objekt determiniran kao manja keramičarska peć (Bulić, Koncani Uhač, 2009, 287-288). Na ovo nas je mišljenje naveo nalaz tragova gorenja na dnu i obodnim zidovima formacije, a parcijalni arheološki iskop onemogućio je egzaktno determiniranje cjelovitog nalaza. Međutim, novim promišljanjima zaključujemo da nije riječ o peći, budući da su zidovi od kamena te nije sačuvan nikakav keramički termoizolacijski sloj s unutarnje strane, koji bi spriječio raspadanje vapnenca pri visokim temperaturama pečenja. Djelomična istraženost ne ostavlja prostora za donošenje konkretnih zaključaka o namjeni ove formacije.

Sedamnaest metara sjeveroistočno od ovog nalaza, u Brionskoj ulici, usporedno s jugoistočnim obodnim zidom figline pružao se zid koji je omeđivao ovaj prostor sa sjeveroistočne strane te je bio prislonjen na kontrafor vodospreme. Dio ovog zida je fotografiran 1992. prilikom iskopa građevinskog kanala (Vitasović, 2007, 42). Ovaj zid, u intaktnom antičkom sloju, potvrđuje da je vodosprema bila izgrađena prije ove prostorije ili pak u istom graditeljskom zamahu.

Jugoistočno od župne crkve sv. Kuzme i Damjana dokumentirani su zidovi koji su pripadali rimskom radioničkom kompleksu, ali istraženi su manjim dijelom, tako da je otežavajuće odrediti namjenu i veličinu prostora kojima su pripadali. Ispod današnje Ribarske ulice, sjeverno od župne crkve, dokumentiran je dio sjeverozapadnog ogradnog zida figline, u dužini od 5,50 m, orijentiran u pravcu sjeveroistok - jugozapad. Na trgu Piazza Grande otkopan je nastavak istog zida i njegov spoj sa sjeveroistočnim ogradnim zidom koji se prostire uzdužno današnjim trgom Piazza Grande, istražen u dužini od 18,50 m.

2.4. Keramičarske peći

U središnjem dijelu današnje stare Fažane (Ulica 8. marta, Ulica žrtava fašizma), nalazio se nukleus figline s keramičarskim pećima. Peć 1, u Ulici 8. marta, na k.č. 1366/1 (Bulić, Koncani Uhač, 2009, 286), istražena je u prednjem, južnom dijelu. Kasnija infrastruktura uništila je nalazište u gornjim slojevima, a stambeni objekti preslojili su sjeverni dio peći. Peć je istražena u širini od 4,5 i dužini od 3,4 m. Prednji dio peći imao je jedno ložište (*prefurnium*) (mnv = 0,71), nažalost uništeno recentnim iskopom, orijentacije u smjeru sjeverozapad - jugoistok. Centralni hodnik (SJ 020) širine je 90 cm, a istražen je u dužini od 1,5 m. Komora za sagorijevanje bila je izgrađena u tehnici suhozida od složenih tegula, širine 65 cm (SJ 003, mnv = 1,55 - 0,47). Ovakav način zidanja, izveden od složenih

From the first phase are the walls masoned with properly layered hewn stones, which enclose the area under a right angle, one of them also being the peripheral wall of the figlina, featuring an entrance that was reconstructed at a later date. Besides the reconstructed entrance, the second construction phase consists of an additional support reinforcement that was erected on the exterior side. Within the area defined by the described walls we recorded a vast amount of discarded amphorae, amphorae that were flawed, whose layer began at an absolute depth of 1.30 to 1.13.

It is here that we defined a structure with an ellipsoidal shape, which was erected in a younger phase, as its lateral wall was leant onto the reconstructed wall. In an earlier preliminary publication, this structure was determined to be a potter's kiln of lesser proportions (Bulić, Koncani Uhač, 2009, 287-288). It was the discovery of traces of burning at the bottom and on the peripheral walls of the formation, which led us to this conclusion, while the partial archaeological excavation made it impossible to exactly define this discovery as a whole. However, rethinking the matter we came to the conclusion that it was not a kiln after all, because the walls were made of stone and there were no traces of any ceramic thermo-insulating layer on the interior side, which would prevent the disintegration of limestone as a result of the high temperatures needed for baking clay. As the formation was only partially explored, we are not in a position to come up with concrete conclusions regarding its purpose.

Seventeen meters to the northeast from this find, in Brioni Street, and running parallel with the southeastern peripheral wall of the figlina, was a wall that enclosed this area from the northeastern side, which was leant onto one of the buttresses of the reservoir. A section of this wall was photographed in 1992 during the excavation of a construction channel (Vitasović, 2007, 42). This wall, situated in an intact Roman layer, corroborates that the reservoir was erected before this room, or at the very least during the same construction process.

To the southeast from the parish church of St. Cosmas and Damian, we documented walls that belonged to a Roman workshop compound but were explored only to a lesser degree, which as a consequence means that it is much harder to determine the purpose and size of the area they belonged to. Underneath the present-day Ribarska Street, to the north from the parish church, we documented a section of the northwestern enclosure wall of the pottery workshop, which was 5.50 m long and was oriented in the northeast - southwest direction. On Piazza Grande Square, we excavated the continuation of that same wall and its juncture with the northeastern enclosure wall that extends longitudinally across the present-day Piazza Grande, and explored it in a length of 18.5 m.

Sl. 6 Peć 1
Fig. 6 Kiln 1.

tegula, ima analogiju s keramičarskom peći figline na lokalitetu Ermedas u Kataloniji, gdje je u istovjetnoj tehnici izveden zid komore za sagorijevanje, datiran u I. na II. st. (Tremoleda, Castanyer, 2001, 149). Po otkopanom dijelu, vanjska širina peći iznosila bi oko 5,4 m, dok bi unutarnja širina iznosila oko 4,1 m. (sl. 6, T. II., T. III)

U unutrašnjosti komore za sagorijevanje otkopana su tri poprečna rebra, građena od zapečenih opeka. Dimenzije opeka iznose 43 x 27,5 x 12 cm. Širina rebara je 27 cm, a nalazila su se na udaljenosti od 25 cm. Iznad rebara nisu zabilježeni tragovi rešetke peći. Prvo rebro, uz jugozapadni zid komore, sačuvano je u visini od 37 cm (SJ 018, mnv = 0,89 - 0,52), drugo rebro sačuvano je u visini od 23 cm (SJ 028, mnv = 0,75 - 0,52), a sačuvana visina trećeg rebra, koje ulazi u profil prema sjeverozapadu, iznosi 18 cm (SJ 029, mnv = 0,70 - 0,52).

Komora za sagorijevanje s jugozapadne strane bila je prislonjena na zid (SJ 004, mnv = 1,37 - 0,5), građen od pravilno složenih klesanaca povezanih vapnenom žbukom, otkopane dužine od 5,1 m. Zid, širine 45 cm te sačuvane visine 54 cm, nastavljao se u jugoistočnom i sjeverozapadnom profilu iskopa. Možemo pretpostaviti da je predstavljao ogradni zid prostora unutar kojeg su

2.4. Pottery kilns

Located in the central section of the old part of present-day Fažana (Ulica 8. Marta, Ulica Žrtava Fašizma) was the core of the pottery workshop featuring the kilns. Kiln 1, situated in Ulica 8. Marta, on cadastral plot 1366/1 (Bulić, Koncani Uhač, 2009, 286), was explored in its front, southern part. Subsequent infrastructure destroyed the site in the upper layers, while residential buildings were erected over the northern side of the kiln. The kiln was explored in a width of 4.5 m and in a length of 3.4 m. The front side of the kiln had a single firebox (*prefurnium*) (absolute depth = 0.71) that was, unfortunately, destroyed by a recent excavation, and oriented in the northwest - southeast direction. The central corridor (Stratigraphic Unit 020) is 90 cm wide and it was explored in a length of 1.5 m. The firing chamber was erected in the form of a drywall made of tegulae, with a width of 65 cm (SU 003, absolute depth = 1.55 - 0.47). This mode of laying tegulae, executed with properly layered tegulae, has an analogy in the potter's kiln from the figlina at the site of Ermedas in Catalonia, where a wall of the firing chamber was executed in the same technique; it is dated to the transitional period from the 1st to the 2nd century (Tremoleda, Castanyer, 2001, 149). In accordance with the excavated part, the outer width of the kiln measured

se nalazile keramičarske peći. S južne strane ogradnog zida u drugoj je fazi prislonjen zid širine 45 cm, u funkciji ojačanja (SJ 025, mnv = 1,2 - 0,56). Ovaj je zid vidljiv uz sjeverozapadni profil iskopa u dužini od 35 cm. U profilu iznad zida komore za sagorijevanje i perimetralnog zida prostora s pećima nalazio se sloj sivozelene gline s primjesom pepela (SJ 009), a iznad kojeg se nalazio sloj ulomaka zapečene opeke pomiješane s pepelom (SJ 015). Zid komore za sagorijevanje, kao i oba vanjska perimetralna kamena zida, temeljena su direktno na kamenu živcu (SJ 017, mnv = 0,3), na kojem su se uočavali tragovi gorenja. Uslijed visokih temperatura tijekom loženja peći, kamen živac je u površinskom sloju razmrvljen.

Prostor unutar peći, od sačuvane visine zidova peći do visine poprečnih rebara, bio je ispunjen zapunom u sastavu smeđe-crvene zemlje, ulomaka zapečene opeke te manje količine ulomaka amfora. Između rebara peći do razine dna komore (SJ 026, mnv = 0,52) definiran je sloj nagorjele zemlje s ulomcima amfora manjih dimenzija.

Djelomično istraženi prednji dio peći, s jednim ložištem i centralnim hodnikom koji se proteže uzdužno kroz komoru za sagorijevanje, određuje je kao tip II b (Cuomo di Caprio, 1972, 429-435). Razmjerno mala površina na kojoj je istražena peć onemogućava njezinu cjelovitu rekonstrukciju. Ostaje nepoznata ukupna dužina peći, a time i broj poprečnih rebara. Također, zbog djelomične sačuvanosti poprečnih rebara nemoguće je utvrditi visinu na kojoj je centralni hodnik bio presvođen lukom.

Desetak metara sjeveroistočno od Peći 1, u Ulici žrtava fašizma djelomično je istražena Peć 2, koja također pripada tipu II b (Bulić, Koncani Uhač, 2009, 289-292). Dio peći koji je istražen definiran je širinom suvremene ulice, budući da je sjeveroistočni i jugozapadni dio peći preslojen zgradama. Njeni su arhitektonski elementi u velikoj mjeri uništeni prilikom postavljanja vodovodne cijevi 1909. i izgradnje kanalizacijske infrastrukture krajem 50-ih godina XX. stoljeća (sl. 7). Širina centralnog hodnika iznosi 1,1 m, a s njegove sjeveroistočne i jugozapadne strane prostire se ostatak komore za sagorijevanje, u širini od 1,45 m. Ukupna unutarnja širina peći iznosila je 4 m, dok su vanjske dimenzije 11,16 x 6,7 m. (T. IV, T. V) Uzdužni, jugozapadni dio arhitekture peći sastoji se od višeslojnih vertikalnih arhitektonskih konstruktivnih elemenata. S krajnje jugozapadne strane dokumentiran je zid od uslojenih tegula (SJ 028), čiju konačnu širinu i dubinu zbog preslojenosti suvremenim stambenim objektom nije bilo moguće utvrditi. Ovaj je zid otkopan u širini approximately 5.4 m, while the inner width would be approximately 4.1 m (Fig. 6, T. II, T. III).

In the interior of the firing chamber, three transverse ribs made of fired bricks had been excavated. The bricks measure 43 x 27.5 x 12 cm. The width of the ribs measures 27 cm and they were at a distance of 25 cm from one another. There were no traces of a kiln grate above these ribs. The first rib, located alongside the southwestern wall of the chamber, was preserved up to a height of 37 cm (SU 018, absolute depth = 0.89 - 0.52), the second rib was preserved up to a height of 23 cm (SU 028, absolute depth = 0.75 - 0.52, while the preserved height of the third rib that enters into the profile towards the northwest, measures 18 cm (SU 029, absolute depth = 0.70 - 0.52).

From the southwestern side, the firing chamber was leant onto a wall (SU 004, absolute depth = 1.37 - 0.5) executed with properly layered hewn stones bound with calcareous mortar, whose excavated length measured 5.1 m. A wall 45 cm wide, with a preserved height of 54 cm, continued in the southeastern and northwestern profile of the excavation. We can assume that it represented the enclosure wall of an area within which the pottery kilns were situated. In the second phase, a wall 45 cm wide was leant as a reinforcement from the southern side of the enclosure wall (SU 025, absolute depth = 1.2 - 0.56). This wall is visible alongside the northwestern profile of the excavation, in a length of 35 cm. Located in the profile above the wall of the firing chamber, and the perimetral wall of the area containing the kilns, was a layer of gray-green clay with an admixture of ashes (SU 009), above which was a layer of fragments of fired bricks admixed with ashes (SU 015). The wall of the firing chamber, as well as the two exterior perimetral walls made of stone, had their foundations placed directly on live rock (SU 017, absolute depth = 0.3) that was still marked with traces of burning. The surface of the live rock was crumbled due to the high temperatures produced when the kiln was in use.

The area within the kiln, from the preserved height of the kiln walls to the height of the transverse ribs, was filled with red-brown earth, fragments of crumbled fired bricks and a smaller quantity of amphora fragments. Between the ribs of the kiln and up to the level of the base of the chamber (SU 026, absolute depth = 0.52), we defined a layer of burned earth containing amphora fragments of smaller dimensions.

The partially explored front side of the kiln, with a single firebox and a central corridor that extends longitudinally through the firing chamber, defines it as type II b (Cuomo di Caprio, 1972, 429-435). The relatively small surface on which the kiln was excavated prevents its complete reconstruction. The total length of the kiln remains unknown and this is also the case with the number of transverse ribs. It is likewise not possible to determine the height at which the central corridor was vaulted with an arch, because the transverse ribs are only partially preserved.

Sl. 7 Peć 2
Fig. 7 Kiln 2.

od 70 cm. Neposredno uza zid od tegula prostire se zid građen od priklesanog kamenja povezanog vapnenom žbukom, širine 45 cm (SJ 004, mnv = 2,21 - 0,94). Između zida od priklesanog kamenja i jugozapadnog zida komore za sagorijevanje nalazi se termoizolacijski sloj masne, crvene glinovite zemlje, širine 45 cm (SJ 002). Jugozapadni zid komore za sagorijevanje čini konstrukcija od zapečenih opeka koje su zabilježene u dvije dimenzije: 43 x 27,5 x 12 cm i 28 x 27,5 x 13,5 cm. Unutar komore za sagorijevanje otkopani su ostaci poprečnih rebara, (SJ 003, mnv = 2,12 - 1,3) građeni od zapečenih opeka, koji su zbog građevinskih iskopa iz XX. st., sačuvani samo u segmentima. Ukupno je otkopano dvanaest djelomično sačuvanih rebara debljine 27,5 cm, koji su se nalazili na prosječnom međusobnom razmaku od 24 cm.

Sjeverozapadni poprečni perimetralni zid komore za sagorijevanje (mnv = 2,06 - 1,3) razlikuje se od prethodno opisane jugozapadne, uzdužne arhitekture peći. Građen je naizmjeničnim uslojavanjem zapečenih opeka i tegula, širine 85 cm, a sačuvan je u dužini od 80 cm. Zbog suvremene zgrade, koja je temeljena na ostacima rimske peći, sjeveroistočni uzdužni zid komore za sagorijevanje dokumentiran je u dužini od svega 35 cm.

Approximately ten meters to the northeast from Kiln 1, in Ulica Žrtava Fašizma, we partially explored Kiln 2 that also belongs to type II b (Bulić, Koncani Uhač, 2009, 289-292). The explored part of the kiln is defined by the width of a modern road, because there are structures over the northeastern and southwestern section of the kiln. Its architectonic elements were to a large degree destroyed during the placement of a water supply tube in 1909, and the construction of a sewage disposal system towards the end of the fifties in the 20th century (Fig. 7). The width of the central corridor measures 1.1 m; on its northeastern and southwestern side it is flanked by the remainder of the firing chamber, in a width measuring 1.45 m. The total interior width of the kiln measured 4 m, the exterior dimensions being 11.16 x 6.7 m (T. IV, T.V). The longitudinal, southwestern section of the kiln architecture is made of multi-layered, vertical, architectonic constructive elements. A wall made of tegulae was documented on the extreme southwestern side (SU 028); it was not possible to establish its final width and depth because a modern residential structure was erected over it. This wall was excavated to a width of 70 cm. A wall made of roughly hewn stones and calcareous mortar, 45 cm wide, was erected immediately alongside the wall made of tegulae (SU 004, absolute depth = 2.21 - 0.94). Located between the wall made of roughly hewn

Dno peći sagrađeno je od različito uslojenih keramičkih i glinenih slojeva u komori za sagorijevanje te u prostoru između uzdužnog zida komore i perimetralnog zida od priklesanog kamenja (T. V). Dno komore za sagorijevanje čine u vertikalnom slijedu od gore prema dolje dva reda zapečenih opeka debljine 24 cm (SJ 027a), sloj masne gline zelene boje, debljine od 9 do 11 cm (SJ 031c), i sloj nabijene razlomljene zapečene opeke, debljine 20 cm (SJ 027b). U centralnom hodniku komore za sagorijevanje najgornji sloj ne čine zapečene opeke već lug (SJ 025), sastavljen od mješavine pepela, gline te komadića drvenog ugljena ukupne debljine 12 cm. Donji slojevi u sastavu nabijene razlomljene pečene opeke i gline imali su hidroizolacijsku funkciju, sprječavajući prodor podzemnih voda u komoru za sagorijevanje (Cuomo di Caprio, 1972, 389), dok je gornji sloj zapečenih opeka onemogućavao znatniji gubitak topline iz komore za sagorijevanje.

Dno između uzdužnog zida komore za sagorijevanje i zida od priklesanog kamenja, kao i dno ispod samog zida komore od zapečenih opeka, različito je uslojeno od prethodno opisanog dna. Ovdje se dno, u vertikalnom slijedu od gore prema dolje, sastoji od sloja tegula debljine 2,5 cm, sloja fragmentiranih amfora debljine 2 cm, sloja masne gline zelene boje, debljine 11 cm, nakon čega se inverzno ponavljaju slojevi fragmentiranih amfora debljine 2 cm i tegula debljine 2,5 cm. Ovaj segment poda peći završava uz perimetralni kameni zid čija je najniža točka 20 cm niža od donjeg facijesa poda.

Razmjerno tanki slojevi tegula i fragmentiranih amfora debljine od 2 do 2,5 cm, koji čine pod ispod uzdužnog zida komore za sagorijevanje, uz hidroizolacijsku funkciju omogućuju i određenu dinamičnost konstrukcije uvjetovane velikim temperaturnim promjenama. Mišljenja smo da je namjera antičkog graditelja bila smanjiti koeficijent dinamičke krutosti konstrukcije, omogućujući, uslijed čestih promjera temperature prilikom loženja[10] (Mange, Bezeczky, 2006, 439) i hlađenja peći, neznatne horizontalne pomake konstrukcije bez kojih bi se pojavile pukotine na konstrukciji ili njeno iskrivljenje. Iako je opeka materijal s razmjerno velikom otpornošću na temperaturne promjene, na antičkim se keramičarskim pećima uočava, kako navodi Nina Cuomo di Caprio, da su se tadašnji graditelji peći često suočavali s popravcima uzrokovanim termičkim

[10] Petrografskim analizama amfora iz fažanske radionice potvrđeno je da su pečene na temperaturi od 750 -900°C, dok je temperatura u komori za sagorijevanje bila veća.

stones, and the southwestern wall of the firing chamber, is a thermo-insulating layer of fatty, red, clayish earth, 45 cm wide (SU 002). The southwestern wall of the firing chamber is made of a structure built with fired bricks that were made in two dimensions: 43 x 27.5 x 12 cm and 28 x 27.5 x 13.5 cm. Within the firing chamber we excavated the remains of transverse ribs (SU 003, absolute depth = 2.12 - 1.3) that were made of fired bricks of which only segments are preserved due to construction activities that were executed in the 20th century. A total of twelve partially preserved ribs, 27.5 cm thick, were excavated, located at an average distance of 24 cm from one another.

The transverse northwestern perimetral wall of the firing chamber (absolute depth = 2.06 - 1.3) differs from the previously described southwestern longitudinal architecture of the kiln. It was masoned with alternate layers of fired bricks and tegulae, it is 85 cm wide, and the preserved section is 80 cm long. A mere 35 cm of the northeastern longitudinal wall of the firing chamber has been documented, because a modern building has its foundations on the remains of the Roman kiln.

The base of the kiln was built of different layers of pottery and clay in the firing chamber, and in the area between the longitudinal wall of the chamber and the perimetral wall made of roughly hewn stones (T. V). The base of the firing chamber is made up of, in vertical succession from top to bottom, two rows of fired bricks 24 cm thick (SU 027a), a layer of fatty green clay, from 9 to 11 cm thick (SU 031c), and a compressed layer of broken fired bricks, 20 cm thick (SU 027b). The uppermost layer in the central corridor of the firing chamber is not made up of fired bricks but, rather, of lye (SU 025) composed of a mixture of ashes, clay and small pieces of wooden coal, all of which is 12 cm thick. The nether layers that are made up of compressed, broken fired bricks and clay, had a waterproofing function, preventing the penetration of groundwater into the firing chamber (Cuomo di Caprio, 1972, 389), while the upper layer of fired bricks prevented any major heat loss from the firing chamber.

The base between the longitudinal wall of the firing chamber and the wall made of roughly dressed stones, and the base underneath the wall of the chamber made of fired bricks, are built in a different manner when compared with the previously described base. Here the base consists of, in vertical succession from top to bottom, a layer of tegulae 2.5 cm thick, a layer of fragmented amphorae 2 cm thick, a layer of fatty green clay 11 cm thick, after which there is an inverse repetition of layers of fragmented amphorae 2 cm thick, and tegulae 2.5 cm thick. This segment of kiln flooring ends along the perimetral stone wall, whose lowest point is 20 cm lower than the nether side of the flooring.

The relatively thin layers of tegulae and fragmented amphorae, from 2 to 2.5 cm thick, which constitute the floor underneath the longitudinal wall of the firing

procesima (Cuomo di Caprio, 1972, 377).[11] Iako su građeni u istom graditeljskom zamahu, poprečna rebra u komori za sagorijevanje nisu u organskoj vezi s uzdužnim zidom komore, čime se također nastojala osigurati dinamičnost zida komore za sagorijevanje. Upravo ovakav pod sastavljen od višeslojnih keramičkih ploča, odnosno fragmentiranih tegula i amfora, kao i organska nepovezanost zida komore za sagorijevanje s ostatkom peći, omogućuju horizontalno pomicanje zida komore i sprječavaju pojavu pukotina i drugih nepravilnosti na konstrukciji.

Na peći u Ulici 8. marta zabilježen je drugačiji oblik smanjenja dinamičke krutosti konstrukcije. Zid komore za sagorijevanje nije građen od zapečenih opeka, već od pravilno uslojenih keramičkih ploča (tegula) bez čvrstog veziva, u širini 65 cm. Time je onemogućena pojava pukotina na konstrukciji jer sama struktura zida uslijed termičkih promjena osigurava horizontalne pomake konstrukcije. Na ovoj peći nije bilo nužno konstruirati pod od višeslojnih keramičkih ploča (fragmentiranih tegula i amfora) pa je graditelj sagradio uzdužni zid komore za sagorijevanje na kamenu živcu. Dinamička krutost konstrukcije bila je smanjena samom činjenicom da poprečna rebra nisu bila u organskoj vezi sa zidom komore. Graditelji peći ovim su tehničkim rješenjima u znatnoj mjeri otklonili mogućnost pojave deformacija na konstrukcijama peći.

Prostor unutar komore za sagorijevanje Peći 2 bio je ispunjen slojem smeđe i crveno-smeđe zemlje (mnv = 2,08 - 1,07) s ulomcima zapečene opeke, tragovima pepela i izuzetno velikom količinom fragmentiranih amfora. Riječ je o sloju koji nije intaktan, već predstavlja materijal koji je na ovom mjestu, kao i u većem dijelu Ulice žrtava fašizma, otkopan i zatim ponovno vraćen u kanale prilikom postavljanja instalacija 1909. i 1958. godine. Osim amfora, unutar komore pronađena je i manja količina keramičkih pločica (*spicae*). Amfore pronađene u ovoj peći, kao i one iz Peći 1, manjih su dimenzija te su uz primjere zasad tipološki neodređenih oblika zastupljene forme koje se tipološki mogu odrediti kao Fažana 1 i Fažana 2. Djelomično sačuvani uzdužni perimetralni zidovi te sjeverozapadni poprečni perimetralni zid pružaju podatke o širini komore za sagorijevanje, odnosno o širini centralnog hodnika peći koji dijeli komoru za sagorijevanje na dva jednaka dijela. Konačna dužina, odnosno broj rebara peći, kao i smještaj vatrišta (*praefurnium*), ostaje - zbog suvremenih zgrada koje preslojavaju rimsku keramičarsku radionicu - nepoznat.

[11] *"Inoltre il vero padrone, il fuoco, ne è il consumatore e il distruttore più temibile: le escursioni termiche provocano fessure e fenditure nelle pareti che richiedono continue riparazioni e parziali rifacimenti; spesso i muri si gonfiano, si curvano."*

chamber, except for their waterproofing function, also allow a certain amount of dynamism of the structure, which is conditioned by the great temperature changes. We are of the opinion that the intention of the Roman constructor was to lessen the coefficient of the dynamic rigidity of the structure, thus allowing, as a result of frequent changes in temperature during the firing[10] (Mange, Bezeczky, 2006, 439) and cooling of the kiln, insignificant horizontal dislocations of the structure, without which the structure would either crack or warp. Even though brick is a material that is highly resistant to temperature changes, on Roman pottery kilns can be observed that the ancient kiln constructors were often busy with repairs that were caused by thermal processes, as was suggested by Nina Cuomo di Caprio (Cuomo di Caprio, 1972, 377).[11] Although they were built at the same time, the transverse ribs in the firing chamber are not organically connected with the longitudinal wall of the chamber, which also sought to ensure the dynamism of the wall of the firing chamber. It is precisely this kind of flooring, composed of multi-layered ceramic plates, or fragmented tegulae and amphorae, and the organic disconnect between the wall of the firing chamber and the rest of the kiln, that allow the horizontal dislocation of the wall of the chamber, thus preventing the appearance of cracks and other anomalies on the structure.

A different approach to lessen the dynamic rigidity of the structure was used on the kiln located in Ulica 8. Marta. The wall of the firing chamber was not masoned with fired bricks, but rather, with properly layered tegulae without any solid binding material, and was 65 cm wide. This prevents the appearance of any cracks on the structure, as the fabric of the wall itself ensures a horizontal dislocation of the structure due to thermal changes. For this kiln it was not mandatory to build flooring composed of multi-layered pottery plates (fragmented tegulae and amphorae), so the constructor of the kiln erected the longitudinal wall of the firing chamber on live rock. The dynamic rigidity of the structure was lessened by the mere fact that the transverse ribs were not organically connected with the wall of the chamber. With these technical solutions the kiln constructors avoided, to a large degree, the possibility of deformations occurring on the structure of the kilns.

The area within the firing chamber of Kiln 2 was filled with a layer of brown and red-brown earth (absolute depth = 2.08 - 1.07) with fragments of fired bricks, traces of ashes, and an incredibly large quantity of fragmented amphorae. This is a layer that is not intact; it represents the material that was excavated on this location and then

[10] Petrographic analyses of amphorae from the Fažana workshop confirmed that they were fired at a temperature of 750 -900 °C, while the temperature in the firing chamber was even higher.

[11] *"Inoltre il vero padrone, il fuoco, ne è il consumatore e il distruttore più temibile: le escursioni termiche provocano fessure e fenditure nelle pareti che richiedono continue riparazioni e parziali rifacimenti; spesso i muri si gonfiano, si curvano."*

Obje opisane peći orijentirane su u smjeru sjeverozapad - jugoistok te su određene tipom II b, koji karakterizira lučno nadsvođeno vatrište u centralnom dijelu peći i hodnik u funkciji vatrišta, koji se pruža uzdužno kroz komoru za sagorijevanje. Rešetke su se oslanjale na poprečna rebra, odnosno prezide u komorama peći (Federhofer, 2007, 33-35, T. 18). Zanimljivo je da nisu pronađeni elementi rešetaka peći. Vjerojatno su rešetke uklonjene nakon napuštanja peći, u cilju nivelacije terena. Ovaj tip keramičarske peći poznat je na istarskom poluotoku u Červaru (Jurkić, 1979, 263-268) i Loronu (D`Inca et al., 2010, 315-318) pokraj Poreča. Temeljem nalaza amfora u fažanskim pećima vrijeme njihove zadnje upotrebe treba smjestiti od sredine II. do kraja III. stoljeća.

Mogli bismo pretpostaviti da su se u bližoj okolici dviju peći nalazile i druge keramičarske peći. Vjerojatno se između dviju istraženih peći, koje su međusobno udaljene 10,7 m, nalazila treća, ali zbog suvremenih zgrada zasad ju je nemoguće locirati.

2.5. Proizvodi

Keramičarski predmeti koji su u procesu izrade bili deformirani deponirani su unutar figline, a razmjerno debeli i kompaktni slojevi s ulomcima neuspjelih keramičarskih proizvoda, zabilježeni na većem dijelu područja koje se istraživalo, kao i oblici amfora otkopani u pećima, u određenoj mjeri pružaju nam mogućnosti sagledati repertoar i količinu pojedine vrste proizvoda. Otežavajuću okolnost u pokušaju interpretacije preciznije kronologije proizvoda predstavlja činjenica da je na području čitave figline stratigrafija arheoloških slojeva izmiješana zbog ranijih prekopavanja fažanskih ulica. U ovom će se odlomku sasvim sažeto interpretirati proizvodi fažanske figline, dok je njihova sustavnija valorizacija predviđena za buduće djelo monografskog karaktera.

Glavninu proizvoda činile su amfore za maslinovo ulje (*oleariae*), pod konvencionalnim nazivom poznate kao Dressel 6 B. U raznorodnosti oblika fažanskih amfora, kao i istovrsnih iz Lorona pokraj Poreča (Marion, Starac, 2001, 113-125), sagledava se razvoj oblika Dressel 6 B kroz gotovo čitavo razdoblje principata (Bezeczky, 1998, 6-9). Temeljem prozopografskih podataka sa žigova fažanskih amfora pronađenih na drugim lokalitetima, T. Bezeczky izradio je sustav relativne kronologije fažanskih amfora (Bezeczky, 1998), u kojem su vremenski određeni oblici amfora iz I. st., i to u razmjerno kratkim vremenskim odsječcima od jednog ili dva desetljeća. Nešto mlađe forme fažanskih amfora imaju velike morfološke sličnosti sa

re-used to fill the channels that were dug for infrastructural purposes in 1909 and 1958, as was also the case with the major section of this street (Ulica Žrtava Fašizma). Besides amphorae, a small quantity of little pottery plates (*spicae*) was likewise unearthed within the chamber. The amphorae discovered in this kiln, as is also the case with those from Kiln 1, are of lesser dimensions. Along with specimens of typologically unidentified forms, we also have those that can be typologically defined as Fažana 1 and Fažana 2. The partially preserved longitudinal perimetral walls, and the transverse northwestern perimetral wall, offer information regarding the width of the firing chamber, and the width of the central corridor of the kiln, which divides the firing chamber into two equal parts. The total length, the number of ribs of a kiln, and the location of the firebox (*praefurnium*), remain unknown due to a number of modern buildings that were erected over the Roman pottery workshop.

The two described kilns were oriented in the northwest - southeast direction and were determined as type II b, which features a vaulted firebox in the central section of the kiln, and a corridor that performs the function of a firebox and extends itself longitudinally through the firing chamber. The grates were leant onto the transverse ribs, and the partitions in the chambers of the kiln (Federhofer, 2007, 33-35, T. 18). It is interesting to note that no kiln grate elements were unearthed. The grates were most probably removed after the kilns were abandoned, in order to level the terrain. This type of pottery kiln is already known on the Istrian Peninsula from Červar (Jurkić, 1979, 263-268) and Loron (D`Inca et al., 2010, 315-318) in the vicinity of Poreč. Based on the discovery of amphorae that were in the Fažana kilns, we can date their last usage into the period from the middle of the 2nd to the end of the 3rd century.

We could assume that still other pottery kilns were in the immediate vicinity of these two kilns. It is probable that a third kiln was located between these two explored kilns that were separated by a distance of 10.7 m; however, for the time being it is not possible to locate it because of the modern buildings that were erected.

2.5. Products

The pottery products that were deformed in the course of the manufacturing process were deposited within the workshop. The relatively thick and compact layers of fragments of unsuccessful pottery products, which were recorded on most of the explored area, and the amphora forms that were unearthed in the kilns, enable us, to a certain degree, to gain an insight into the repertoire and the production quantities of individual products. The fact that the stratigraphy of archaeological layers was mixed on the entire area of the workshop as a consequence of earlier excavations performed on the streets of Fažana represents an aggravating circumstance when trying to interpret

sjevernojadranskim tipom amfora s ljevkastim obodom. Ovaj oblik, često ukrašen jednostrukom valovnicom ispod oboda, vremenski je određen nalazom iz Fažane sa žigom cara Hadrijana (Starac, 1997, 145). Analogni se oblici u Loronu, gdje je zabilježena gotovo istovjetna evolucija oblika Dressel 6 B kao i u Fažani, datiraju od druge polovice Domicijanove vladavine do Hadrijana (Marion, Starac, 2001, 121). Žigovi se na fažanskim amforama javljaju do Hadrijanova vremena, dok one mlađe, manjih dimenzija, nisu obilježene žigovima. U komorama peći 1 i 2 pronađene su amfore koje su manjih dimenzija od onih iz I. stoljeća. Bezeczky ove oblike ne smatra tipom Dressel 6 B, već ih tipološki imenuje Fažanom 1 i Fažanom 2, a datira ih u drugu polovicu II. i početak III. st., (Bezeczky, 1998, 9). S druge je strane izraženo mišljenje da je tip Fažana 1 nastavak evolucije oblika Dressel 6 B iz početka II. st., s kojima pokazuje morfološke sličnosti u oblikovanju ljevkastog oboda i jajolikog tijela (Marion, Starac, 2001, 123). Tip Fažana 2 predstavlja daljnje smanjivanje zapremine fažanskih amfora u odnosu na tip Fažana 1. Obod je s unutrašnje strane konkavan, drške su izduženije, dok je tijelo amfore također jajolikog oblika. Ove amfore manjih dimenzija tvrde su fakture, s vidljivim tragovima vrtnje na lončarskom kolu na vanjskoj stjenci trbuha. Peć 1 sadržavala je amfore koje se razlikuju od prethodno opisanih i još nisu uvrštene u sustav suvremene tipologije. Riječ je o obliku koji s unutrašnje strane ima blago konkavno profiliran i s gornje strane ravan obod. Pojedini primjerci imaju naglašen prelazak vrata u trbuh amfore, čime tijelo dobiva trbušasti oblik. Oblikovanje gornjeg dijela amfore moglo bi upućivati na razvojne sličnosti s amforom iz Lorona, koja spada u podskupinu kasnih formi amfora, u varijantu 2. Amfora istih morfoloških karakteristika otkopana je u datiranom kontekstu iz druge polovice III. ili početka IV. st. u Akvileji (Marion, Starac, 2001, 118). Veći broj nalaza ravnih dna upućuje na mogućnost proizvodnje amfora s ravnim dnom. Sumarna tipološka analiza fažanskih amfora dopušta nam općenit zaključak o proizvodnji amfora na ovoj lokaciji kroz prva tri stoljeća naše ere, s promjenljivim intenzitetom proizvodnje, koji je, kako je već rečeno, bio najveći tijekom prve polovice i sredine I. stoljeća.

Uz amfore i poklopce amfora, što je činilo glavninu proizvodnog repertoara namijenjenog za distribuciju istarskog ulja na šire tržište Carstva, u figlini su se proizvodili i predmeti građevinskog i uporabnog karaktera. Unutar Peći 2 osim amfora i njihovih poklopca nalazile su se i *spicae*, a o proizvodnji tegula svjedoče primjeri na Brijunima i iz Pule, sa žigom

a more precise product chronology. In this section we will briefly interpret the products made at the Fažana workshop. A more systematic valorization is planned within the framework of a future monograph.

The main bulk of the products consisted of amphorae that were used to store olive oil (*oleariae*), which are conventionally known as Dressel 6 B. Through the diversity of forms of the amphorae from Fažana, and of those same ones from Loron near Poreč (Marion, Starac, 2001, 113-125), we can follow the development of the Dressel 6 B form almost through the entire period of the Principate (Bezeczky, 1998, 6-9). Based on prosopographic data from stamps of amphorae coming from Fažana but discovered elsewhere, T. Bezeczky developed a relative chronology system for amphorae from Fažana (Bezeczky, 1998), in which the time-specific forms of amphorae from the 1st century are listed in relatively short time intervals of one or two decades. The somewhat younger forms of amphorae from Fažana feature great morphological similarities with the Northern Adriatic type of amphorae with a funnel-shaped rim. This form that was often decorated with a single wavy line underneath the rim is chronologically defined by a find from Fažana that bears the stamp of Emperor Hadrian (Starac, 1997, 145). Analogous forms at Loron, where an almost identical evolution of the Dressel 6 B form was recorded in comparison with the one in Fažana, are dated from the second half of the reign of Domitian to Hadrian (Marion, Starac, 2001, 121). The amphorae from Fažana were provided with stamps up to the period of Hadrian, whereas the younger ones, of lesser dimensions, were not marked by stamps. Smaller amphorae, as compared with those from the 1st century, were unearthed in the firing chambers of Kilns 1 and 2. Bezeczky believes that these forms are not of the Dressel 6 B type, and he names them typologically as Fažana 1 and Fažana 2, dating them into the second half of the 2nd and the beginning of the 3rd century (Bezeczky, 1998, 9). On the other hand there is also the opinion that the Fažana 1 type is a continuation of the evolution of the Dressel 6 B form from the beginning of the 2nd century, with which it shows morphological similarities in the design of the funnel-shaped rim and ovoid body (Marion, Starac, 2001, 123). The Fažana 2 amphora type represents a further reduction in volume of amphorae from Fažana with respect to the Fažana 1 type. The rim is concave on the interior side, the handles are more elongated, while the body of the amphora is likewise ovoid. These small-sized amphorae have a hard fabric, with visible traces of working on the potter's wheel, which are apparent on the outer wall of the belly. Kiln 1 contained amphorae that are different as compared with the ones previously described, and which were not included into a modern typology system yet. We are talking about a form, whose rim is mildly concavely profiled from the inner side and flat on the upper side. Some specimens have an emphasized transition from the neck

Gaja Lekanija Basa (Gnirs, 1910, 85). U Fažani je 1909. pronađen gornji dio keramičkog kalupa za izradu "Firmalampen" svjetiljke, poznatog kao tip Loeschke IX-X (Gnirs, 1910, 82). Tegule s Lekanijevim žigom pronađene na razmjerno ograničenom području u blizini figline upućuju na zaključak da se ova vrsta proizvoda, za razliku od amfora, proizvodila u malim serijama koje su zadovoljavale potrebe imanja latifundističkog tipa, s većim brojem zgrada smještenim na različitim, često fizički nepovezanim dijelovima.[12] Očito je da su vlasnici figlina, uključeni u komercijalno iskorištavanje poljoprivrede, osim proizvoda namijenjenih trgovini proizvodili i one čija je svrha bila zadovoljavanje potreba samih imanja.

3. Preobrazba figline u kasnoj antici

Razdoblje kasne antike vrijeme je okarakterizirano preobrazbama koje se manifestiraju u gotovo svim segmentima života rimskog društva. Društveno-politička kriza III. stoljeća reflektirala se i na ekonomski život Istre, a znatnim su dijelom ekonomsko-političke okolnosti karakteristične za kasnoantičko razdoblje uvjetovale i preobrazbe rimske ruralne arhitekture, osobito one čija je namjena uključivala određene gospodarske sadržaje (Begović, Schrunk, 2001, 157-162; Jurkić, 1981; Matijašić, 1988, 99-104; Matijašić, 1988a; Matijašić, 1997; Matijašić, 2009, 59-69). Rimska ruralna arhitektura u Fažani, koja je u ranocarskom razdoblju bila namijenjena proizvodnji keramičkih predmeta, u prvom redu amfora kao neophodnog sredstva za komercijalizaciju istarskog maslinova ulja, u kasnoantičkom razdoblju doživljava preobrazbe, kako u proizvodnoj djelatnosti, tako i u arhitektonskom konceptu. Na mjestu nekadašnje figline, koja je svoj vrhunac dosegla u I. st., smješta se postrojenje za preradu maslina ili grožđa, s odstupanjem u orijentaciji naspram prve graditeljske faze.[13]

Kameni elementi tijeska na trgu Piazza Grande jesu: podložak vertikalnih nosača grede tijeska (*lapis pedicinus*), podložak vertikalnih nosača vitla (*stipites*) i manji kvadratni blok u funkciji podloška pomoćnog nosača horizontalne grede tijeska. Ti nalazi potvrđuju promjene proizvodnog karaktera nalazišta.

[12] Slična se situacija može pratiti i u figlini senatorske obitelji Sestii iz druge polovice I. st. pr. Kr., nedaleko od Cose u Etruriji. Luciju Sestiju se pripisuje poznata rimska ruralna arhitektura na lokalitetu Settefinestre zahvaljući upravo žigovima na tegulama, s njegovim imenom, koje su osim na ovom mjestu zabilježene još samo u Rimu. S druge strane, dobro je poznata široka distribucija njegovih amfora vinaria u Galiji (Greene, 1986, 91-92).

[13] Preobrazba proizvodne djelatnosti iz keramičarskog pogona u uljaru zabilježena je u Červaru pokraj Poreča. Vidi: Girardi Jurkić, 1979.

into the belly of the amphora, whereby the body acquires a potbellied form. The shape of the upper section of the amphora could imply developmental similarities with the amphora from Loron, which belongs into a subgroup of late amphora forms, into variant 2. An amphora featuring the same morphological characteristics was unearthed in a context dated into the second half of the 3rd or the beginning of the 4th century at Aquileia (Marion, Starac, 2001, 118). The discovery of a large number of flat bases indicates a possible production of flat-based amphorae. A summary typological analysis of the amphorae unearthed at Fažana allows us to make a generalized conclusion about the manufacture of amphorae on this site during the first three centuries AD, characterized by a variable intensity of production, which peaked, as was already pointed out, during the first half and the middle of the 1st century.

The workshop produced mainly amphorae and the accompanying lids that were used for the distribution of Istrian olive oil all over the markets of the Empire; however, it also produced items for construction purposes and everyday use. Located in the interior of Kiln 2, besides amphorae and their lids, were also *spicae*, while specimens from the Brioni Isles and Pula, bearing the stamp of Gaius Lecanius Bassus, indicate that there was also a production of tegulae (Gnirs, 1910, 85). In 1909, the upper section of a ceramic die for the production of "Firmalampen" oil lamps, also known as type Loeschke IX-X, was discovered at Fažana (Gnirs, 1910, 82). The tegulae bearing the Lecanius stamp, which were unearthed on a relatively limited territory in the vicinity of the pottery workshop, suggest that this type of product, as opposed to amphorae, was produced in small batches that covered the needs of latifundia-type estates that featured large numbers of structures located on different, often physically not connected pieces of property.[12] It is obvious that the owners of pottery workshops, who were involved in the commercial exploitation of agriculture, also produced the necessary items to satisfy the needs of their agricultural estates, besides producing the usual products intended for the markets.

3. The transformation of the figlina in the Late Roman period

The Late Roman period is characterized by transformations that manifested themselves in almost all aspects of life of Roman society. The socio-political crisis of the 3rd century also reflected itself on the economic

[12] A similar situation can be traced to the pottery workshop in the vicinity of Cosa in Etruria, which was owned by the Sestii, a senatorial family from the second half of the 1st century BC. The well-known Roman rural architecture in the locality of Settefinestre is attributed to Lucius Sestius, thanks to tegulae stamps bearing his name. The only other place where such stamps were discovered was Rome. On the other hand, his amphorae vinariae were widely distributed in Gaul (Greene, 1986, 91-92).

Najrasprostranjeniji oblik tijeska u antici, za istiskivanje tekućine iz grožđa i maslina, bio je onaj koji je radio na principu poluge.[14] *Prelum*, horizontalna greda koja je na jednom kraju bila pričvršćena na *arbores*, dvije vertikalne grede ili u zid, s druge je strane raznim mehanizmima opterećivana okomitom silom, čime se vršio pritisak na bazu tijeska (*area*) s plodovima. Ovakva je vrsta tijeska poznata kroz više tipova konstrukcije, između kojih se razlikuje dvadesetak podtipova, ovisno o načinu fiksiranja nosača grede i vrste mehanizma za spuštanje horizontalne grede (Brun, 1986, 87-119). Opterećivanje horizontalne grede moglo se obavljati ručno, kamenim utezima, vitlom učvršćenim u podnicu, vitlom s protuutegom i vijkom s protuutegom (Amouretti, 1984; Brun, 1986, 59-136; Brun, 1993; Frankel, 1999; Matijašić, 1998, 145-158; White, 1975, 225-232; Cato, De agr., 1, 5; Col., R.r., 12, 8; Plin., N. H., 18, 317). Zbog slabe trajnosti drva, od antičkih tijeskova sačuvali su se isključivo kameni ili zidani elementi: podlošci za okomite nosače grede (*lapis pedicinus*), podlošci i protuutezi mehanizma za spuštanje grede, nosači za vitlo (*stipites*), koji su u Istri bili češće drveni negoli kameni, te podlošci tijeska (*area*) s kanalom uz rub, za usmjeravanje istisnute tekućine u kameni recipijent za sakupljanje.

Ostaci podloška za vertikalne nosače horizontalne grede tijeska (*lapis pedicinus*), otkopani 2009., sastoje se od kamenog bloka prelomljenog u dva dijela. (sl. 8.) Veći ulomak kamenog bloka (95 x 90 x 60 cm) s gornje strane ima uklesan četvrtasti utor (37 x 33 x 8,5 cm). Manji ulomak bloka, koji se nalazio neposredno uz veći, na jednoj je strani prelomljen tako da mu završetak nedostaje (45 x 93 x 60 cm), a s gornje strane djelomično su sačuvani ostaci četvrtastog utora, koji ukazuju na to da su utori bili uklesani na međusobnoj udaljenosti od 56 cm.[15] Ovaj podložak vertikalnih nosača grede tijeska, okvirno smješten na sredini današnjeg trga, Gnirs je zabilježio 1909., prilikom postavljanja vodovodne instalacije, ali po njegovim zapažanjima ukupna dužina baze iznosila je 2 m i blok je bio u jednom komadu (Gnirs, 1910, 81). Danas nedostaje jedan dio manjeg bloka, koji je vjerojatno uništen prilikom građevinskih radova u XX. stoljeću. Tada je vjerojatno i ostatak kamenog bloka prelomljen u dva komada, koji su ostali ležati jedan uz drugi. Ovaj kameni blok predstavlja sidrište

[14] Jednostavni tijeskovi s polugom za tiještenje poljoprivrednih proizvoda javljaju se u istočnom Sredozemlju (Sirija i Cipar) još krajem brončanog doba (Frankel 1999, 62), a takva je tehnologija ostala u upotrebi do pojave mehanizacije na parni, električni ili naftni pogon (Miličević 1982, 154-156).

[15] Nakon dokumentiranja nalaza kameni blokovi su postavljeni na hodnu površinu trga Piazza Grande, gdje se i danas nalaze.

life of Istria. The economical and political circumstances that were characteristic for the Late Roman period were instrumental for the transformation of Roman rural architecture, and in particular of architecture that was intended to serve certain economic activities (Begović, Schrunk, 2001, 157-162; Jurkić, 1981; Matijašić, 1988, 99-104; Matijašić, 1988a; Matijašić, 1997; Matijašić, 2009, 59-69). Roman rural architecture in Fažana, which was in the early imperial period intended for the production of pottery objects, mainly amphorae, as a necessary means for the commercialization of Istrian olive oil, underwent a transformation in the Late Roman period, both in production activities as well as in the architectural concept. At the site of the former pottery workshop that peaked in the 1st century, a plant for processing olives or grapes was set up, whose orientation deviated in comparison with the first construction phase.[13]

The stone elements of the press at Piazza Grande are: a base for the vertical posts of the press beam (*lapis pedicinus*), a base for the vertical supports of the winch (*stipites*), and a smaller square block that served as a base for the auxiliary post of the horizontal press beam. It is these finds that corroborate the change that occurred in the production character of this site.

The most widely spread type of wine or olive press in the Roman period was the one that functioned on the principle of the lever.[14] A *prelum*, a horizontal beam that was on one end fastened onto the *arbores*, two vertical posts or into the wall, was with the help of different mechanisms on the other side exposed to vertical pressure, which resulted in pressure being exerted onto the press base (*area*) containing the fruits. There are several construction types of this kind of press, among which we differentiate approximately twenty subtypes, depending on the method of fixing the posts of the beam, and on the types of mechanisms used for lowering the horizontal beam (Brun, 1986, 87-119). The loading of the horizontal beam could be done by hand, using stone weights, with a winch fixed into the floor, a winch with a counterweight, and a screw with a counterweight (Amouretti, 1984; Brun, 1986, 59-136; Brun, 1993; Frankel, 1999; Matijašić, 1998, 145-158; White, 1975, 225-232; Cato, De agr., 1, 5; Col., R.r., 12, 8; Pliny, N. H., 18, 317). The only elements that had been preserved from Roman presses, due to the poor durability of wood, are stone elements, or those that had been masoned: bases for the vertical posts of the beam (*lapis pedicinus*), bases and counterweights of the

[13] A transformation of production activities from a pottery workshop into an olive oil mill was documented at Červar near Poreč. See: Girardi Jurkić, 1979.

[14] Simple lever presses for pressing agricultural products were in use in the Eastern Mediterranean (Syria and Cyprus) already towards the end of the Bronze Age (Frankel, 1999, 62), and such technology remained in use until the appearance of steam-, electric-, or petroleum-powered engines (Miličević, 1982, 154-156).

Sl. 8. Lapis pedicinus
Fig. 8 Lapis pedicinus.

za vertikalne grede (čiji je profil jednak četvrtastim utorima), koje su imale funkciju nosača horizontalne grede tijeska, a s gornje su strane bile usidrene u krovnu konstrukciju. Kameni blok određuje jednu od krajnjih točaka horizontalne grede, tj. poluge koja je na jednom kraju bila fiksirana, a na drugom je uz pomoć vitla vršen vertikalni pritisak ne bi li se iz plodova, opterećenih horizontalnom gredom, istiskivao sok.

Uz podložak vertikalnih nosača tijeska, koji je prvi put zabilježeni 1909., a zatim ponovno dokumentiran čitavo stoljeće kasnije, na početku zaštitnih istraživanja 2007. (Džin, Koncani Uhač, Bulić, 2007, 70-71), u probnoj sondi otkopani su kameni elementi istog tijeska. Južno od podloška vertikalnih nosača grede tijeska otkopan je kameni blok (147 x 64 x 25 cm), koji na bočnoj uzdužnoj strani ima uklesanu profilaciju ravnih i zaobljenih letvica, što upućuje na to da je u prvotnoj funkciji kameni blok bio dio arhitektonskog vijenca. Pri reutilizaciji kamenog bloka na gornjoj površini uklesana su dva četvrtasta utora, čime je dobio namjenu baze vertikalnih nosača vitla (*stipites*), kojim je opterećivan *prelum*. Jedan je utor u potpunosti sačuvan (23,5 x 15,5 x 7,5 cm), a nedostaje dio kamenog bloka na mjestu gdje se nalazio drugi utor (12 x 25 x 4,5 cm). Utori su uklesani na međusobnoj udaljenosti od 91 cm. U istoj sondi, 2,3 m sjevernije od baze vitla, u osi s podloškom vertikalnih greda otkopan je manji kameni blok (58 x 59,5 x 24 cm), na čijoj je gornjoj plohi uklesan kvadratni utor (17,5 x 17,5 x 4,5 cm). Usporedne reljefne plastične trake na plohama ovog kamena ukazuju na neku njegovu prethodnu, nama nepoznatu namjenu, dok se u sekundarnoj namjeni nalazio u funkciji dijela tijeska. Kao sastavni dio tijeska imao je funkciju podloška za vertikalnu gredu koja je služila kao pomoćni nosač preluma, potrebnog za namještanje njegovog različitog položaja prilikom punjenja ili pražnjenja tijeska (sl. 9.).[16]

[16] Po završetku istraživanja kameni blokovi su postavljeni na zelenu površinu na fažanskoj rivi, gdje se i danas nalaze.

mechanism used for lowering the beam, winch supports (*stipites*) that were more often made of wood rather than stone in Istria, and bases of the press itself (*area*), featuring a channel along the edge, for directing the extruded liquid into a stone recipient where it was collected.

The remains of a base for the vertical posts of the horizontal beam of the press (*lapis pedicinus*), which were unearthed in 2009, are made up of a block of stone split into two parts. (Fig. 8) The larger fragment of the stone block (measuring 95 x 90 x 60 cm) features a square groove carved on the upper side (measuring 37 x 33 x 8.5 cm). The smaller fragment of this block, which was located immediately next to the larger one, has been broken on one side, so that its end is missing (measuring 45 x 93 x 60 cm), while still visible on the upper side are the partially preserved remnants of a square groove, which indicate that the grooves were carved at a distance of 65 cm from one another.[15] This base for the vertical posts of the press beam, nowadays located in the middle of the Piazza Grande Square, was documented by Gnirs in 1909, during the construction works on a water supply system; however, according to Gnirs, the total length of the base measured 2 meters, and the block was in a single piece at the time (Gnirs, 1910, 81). One piece of the smaller block is missing nowadays, which was in all probability destroyed during construction works that were executed in the 20th century. It was most probably then, that the remainder of the stone block was split into two parts that remained lying one next to the other. This stone block represents an anchoring base for the vertical posts (whose profile corresponds to the square grooves) that were used to support the horizontal beam of the press, and were on the upper side anchored into the roof structure. The stone block defines one of the terminal points of the horizontal beam, i.e. of the lever that was fixed on one side, and on the other there was vertical pressure applied to it with the help of a winch, in order to press the liquid out of the fruits.

Along with the base of the vertical posts of the press, which was first recorded in 1909, only to be again documented an entire century later, further stone elements belonging to the same press were unearthed during a test excavation at the beginning of the rescue explorations in 2007 (Džin, Koncani Uhač, Bulić, 2007, 70-71). To the south of the base of the vertical posts of the press beam, we unearthed a stone block (measuring 147 x 64 x 25 cm) that on its lateral longitudinal side features a carved steplike profile consisting of straight and rounded laths, all of which indicates that this stone block was originally a part of an architectonic cornice. Two square grooves were carved out from the upper surface of this block in order to be able to re-utilize it as a base for the vertical supports of the winch (*stipites*) used to apply pressure on the *prelum*.

[15] After the finds had been documented, the blocks of stone were set up in the pedestrian zone of Piazza Grande, where they remained to the present day.

Sl. 9 Baza vitla i pomoćnog nosača grede
Fig. 9 The base of the winch and of the auxiliary beam support.

Baza vitla i baza pomoćne vertikalne grede nalazile su se 1,6 m od zida koji se pruža, kao i ostaci tijeska, u smjeru sjever - jug, s otklonom prema istoku od 7,7°. Ovaj je zid građen od djelomično obrađenog, većim dijelom pločasto i nepravilno uslojenog kamenja, povezanog zemljom. Orijentacija i vertikalni položaj zida djelomično definiraju prostor u kojem se nalazio tijesak (T. I.). Sudeći po udaljenosti podložaka vertikalnih greda i vitla, horizontalna greda ovog tijeska bila je duga oko 7,5 m. Podložak za tiještenje plodova (*area*) nije pronađen. Po Brunovoj tipologiji antičkih tijesaka s gredom, naš primjerak pokazuje sličnosti s tipom C3 (Brun, 1986, 86, sl. 28; Matijašić, 1998, 148.).

Kameni blok uzidan u sjeveroistočnom uglu zgrade na trgu Piazza Grande (k.č. br. z81, k.o. Fažana) također se povezuje s mehanizmom za tiještenje poljoprivrednih plodina (Matijašić, 1998, 179-180). Na široj stranici uklesana su dva četvrtasta utora u koja su se fiksirale vertikalne grede tijeska, a uklesani natpis (*Inscr. It. 10, 1, 614.*) na poprečnoj, užoj stranici svjedoči o ranijoj namjeni, vjerojatno nadgrobnog karaktera (Matijašić, 1998, 179). Dimenzije bloka i uklesanih utora različite su od novih nalaza istog tipa iz Fažane. Ostaje otvorenim pitanje potječe li ovaj *lapis pedicinus* iz kasnoantičkog postrojenja za proizvodnju ulja ili vina u Fažani ili je dovezen s nekog lokaliteta rimske ruralne arhitekture iz bliže okolice.[17]

[17] Na kopnu, u bližoj okolici Fažane, na udaljenosti od oko 3 km poznati su ostaci rimske ruralne arhitekture na sljedećim lokacijama: Sv. Elizej (Gnirs, 1908, 122; Matijašić, 1988, 46), Rt Mede - San Lorenzo (Matijašić, 1988, 46; Schiavuzzi, 1908, 119) Valbandon - Vela Boška (Matijašić, 1998, 168-169), Valbandon (Gnirs, 1911a, 155-169; Matijašić, 1988, 42-43; Matijašić, 1998, 120-124; Weisshäupl, 1901, 204), Ližnjemoro (Matijašić, 1988, 42; Weisshäupl, 1901, 204) Šurida (Matijašić, 1988, 41-42; Matijašić, 1998, 168-169), Šurida - Mala Vala (Ujčić, 2007), Runci (Gnirs, 1901, 28; Matijašić, 1988, 41), Puntižela (Gnirs, 1904, 236; Matijašić, 1988, 41), Vižanel (Gnirs, 1908, 123; Matijašić, 1988, 42), Tavain (Gnirs, 1908, 123; Matijašić, 1988, 46), Val Murazzi (Matijašić, 1988, 48; Matijašić, 1998, 181; Schiavuzzi, 1908, 118).

One of the grooves is entirely preserved (measuring 23.5 x 15.5 x 7.5 cm), but a section of the stone block is missing where another groove was located (measuring 12 x 25 x 4.5 cm). The grooves were carved at a distance of 91 cm between one another. In the same probe, and 2.3 m to the north from the base of the winch, in an axis with the base of the vertical posts, we unearthed a stone block of lesser dimensions (measuring 58 x 59.5 x 24 cm), featuring a carved square groove on its upper surface (measuring 17.5 x 17.5 x 4.5 cm). The sculpted, parallel straps in relief on the surfaces of this stone indicate that it was previously used for an unknown purpose, whereas in its secondary position it was used as a part of a press. Its function as one of the constituent parts of an olive or wine press was to act as a base for the vertical beam that served as an auxiliary post of the *prelum*, necessary for the setting of its differing positions during either the filling or emptying of the press (Fig. 9).[16] The base of the winch and the base of the auxiliary vertical beam were located at a distance of 1.6 m from the wall that extends itself, as is also the case with the remains of the press, in the north - south direction, with a deviation towards the east measuring 7.7°. This wall was erected with roughly hewn stones, layered for the most part in an irregular manner, and bound with earth. The orientation and the vertical position of the wall partially define the area where the press was located (T. I). Judging by the distance between the bases of the vertical posts and the winch, the horizontal beam of this press was approximately 7.5 m long. The base employed for pressing the fruits (*area*) was not discovered. In accordance with Brun's typology of Roman presses featuring a beam, our specimen shows similarities with the C3 type (Brun, 1986, 86, Fig. 28; Matijašić, 1998, 148).

The stone block that was masoned into the northeastern corner of the structure located on Piazza Grande Square (cadastral plot no. z81, cadastral commune Fažana), is likewise being connected with a device for pressing agricultural fruits (Matijašić, 1998, 179-180). Two square grooves were carved on its wider side, into which the vertical posts of the press were inserted and fixed, while the inscription (*Inscr. It. 10, 1, 614.*) that was hewn on the narrower transverse side, corroborates that the block was previously probably used as a funerary monument (Matijašić, 1998, 179). The dimensions of both the block and the carved grooves differ when compared with newer finds of the same type from Fažana. But there is still an open question, whether this *lapis pedicinus* really stems from a Late Roman compound for the production of olive oil and wine at Fažana, or has it been brought here from some other site featuring Roman rural architecture,

[16] After the conclusion of the excavation, the stone blocks were placed onto a green surface on the seafront at Fažana, where they remained to this day.

Postrojenja za tiještenje maslina i vina u tolikoj su mjeri slična da je gotovo nemoguće na temelju arheoloških ostataka tijeska ustvrditi je li se u njima proizvodilo maslinovo ulje ili vino. Jedina razlika u procesu tiještenja maslina ili grožđa jest u tome što su se masline prije tiještenja mljele u mlinovima, a grožđe nije. Arheološki nalazi koji mogu odrediti vrstu proizvodnje jesu ostaci mlinova ili organski ostaci u obliku karboniziranih koštica maslina. U Fažani nisu pronađeni nalazi koji bi neosporno potvrdili vrstu proizvodnje. S obzirom da je poznato da su se tijeskovi za ulje koristili isključivo za preradu ulja, a oni za vino samo za vino, nije moguće jednoznačno odrediti vrstu ploda koji se u ovom tijesku prerađivao.

Budući da su gotovo svi oblici antičkih tijeskova bili u upotrebi od antičkog do predindustrijskog razdoblja, s gotovo neznatnim razlikama unutar užih geografskih regija, nije moguće rekonstruirati precizni kronološki slijed njihovih tipova. Međutim, iako je različitost tih postrojenja u vremenskom kontekstu obično zanemariva, regionalne inačice su često značajne. Tipološke različitosti antičkih tijeskova najbolje se ogledavaju kroz analize različitih primjera u regijama Sredozemlja. Takav pristup omogućava sagledavanje složenog razvoja te širenja pojedinih tipova na određenom području, ali ne i preciznu kronološku interpretaciju (Frankel, 1999, 25). Ni nakon sagledavanja morfoloških i tehničkih detalja tijeska iz Fažane ne nalazimo uporišta za precizniju dataciju. Temeljem stratigrafskih pokazatelja vrijeme izgradnje tijeska treba smjestiti nakon prestanka keramičarske proizvodnje, u IV. ili V. st., ali točno vrijeme njegova nastanka nije moguće preciznije odrediti. Vremensku odrednicu korištenja tijeska pruža razmjerno skroman repertoar grube kuhinjske keramike pronađene u istom sloju s njegovim ostacima. Riječ je o loncima ravnog dna, tvrde fakture i s vertikalnom metličastom dekoracijom na cijeloj vanjskoj površini, koji su zastupljeni na sjevernojadranskom i istočnoalpskom području u razdoblju od IV. do VII. st. (Santoro, 2007, 376), te ulomak sjevernoafričke *terre sigillate* iz V. stoljeća.

Vojno-politička kriza koja je zadesila Carstvo u III. st., kao i barbarske invazije u idućim stoljećima, različito su se manifestirale u raznim dijelovima Carstva (Lewit, 2004, 1-53). Iako arheologija ne bilježi opadanje broja stanovništva u Istri tijekom III. i IV. st., već ukazuje na kontinuitet naseljenosti ruralnih lokaliteta do ranosrednjovjekovnog razdoblja (Jurkić, 1981, 77-106; Matijašić, 1988, 99-104; Starac, 2010, 86-104), poljoprivredna se proizvodnja prilagođava novim ekonomskim i društvenim okolnostima (Jurkić, which was located in the neighborhood.[17]

Facilities for the production of olive oil and wine are so similar that it is practically impossible to tell one from the other on the basis of the archaeological remains of the press. The only difference in the process of pressing olives or grapes was that the olives were ground in a mill before pressing, and the grapes were not. The archaeological finds that could help shed some light on this are remnants of mills, or organic waste in the form of carbonized olive stones. There were no finds in Fažana that would indicate beyond a doubt what kind of production went on there. Bearing in mind that it is a known fact that olive presses were used exclusively for the production of oil, and grape presses for the production of wine, we are not in a position to determine what had been produced in this press.

Since almost all types of ancient presses were in use from the Roman to the pre-industrial period, with almost negligible differences within neighboring geographic regions, it is not possible to reconstruct the precise chronological order of their types. However, although the diversity of these plants is usually negligible in a temporal context, regional variations are often significant. The typological diversity of Roman presses is best reflected through the analyses of various examples from the regions of the Mediterranean. Such an approach allows us to perceive the complex development and spreading of certain types in a particular area, but it does not enable us to give a precise chronological interpretation (Frankel, 1999, 25). Even after looking at the morphological and technical details of the press from Fažana, we are unable to come with a more precise dating. Based on stratigraphical indicators, the press was probably erected after the pottery workshop ceased operating, in the 4th or 5th century, but the exact time of its creation remains a mystery. A timeline for the period of operation of the press is given by the relatively modest array of coarse kitchenware that was found in the same layer with the remains of the press. We are talking about flat-based pots with a hard fabric, featuring a vertical brushed surface that extends all over the vessel, of the kind that were represented in the Northern Adriatic and Eastern Alpine territory in the period from the 4th to the 7th century (Santoro, 2007, 376), and a fragment of North African *terra sigillata* from the 5th century.

[17] On the mainland, in the neighborhood of Fažana, at a distance of approximately 3 km, there are known remains of Roman rural architecture on the following sites: Sv. Elizej (Gnirs, 1908, 122; Matijašić, 1988, 46), Rt Mede - San Lorenzo (Matijašić, 1988, 46; Schiavuzzi, 1908, 119) Valbandon - Vela Boška (Matijašić, 1998, 168-169), Valbandon (Gnirs, 1911a, 155-169; Matijašić, 1988, 42-43; Matijašić, 1998, 120-124; Weisshäupl, 1901, 204), Ližnjemoro (Matijašić, 1988, 42; Weisshäupl, 1901, 204) Šurida (Matijašić, 1988, 41-42; Matijašić, 1998, 168-169), Šurida - Mala Vala (Ujčić, 2007), Runci (Gnirs, 1901, 28; Matijašić, 1988, 41), Puntižela (Gnirs, 1904, 236; Matijašić, 1988, 41), Vižanel (Gnirs, 1908, 123; Matijašić, 1988, 42), Tavain (Gnirs, 1908, 123; Matijašić, 1988, 46), Val Murazzi (Matijašić, 1988, 48; Matijašić, 1998, 181; Schiavuzzi, 1908, 118).

1981, 77-80; Matijašić, 1997, 206; Matijašić, 1988a; Matijašić, 2009, 59-69). U okvirima rimske ruralne arhitekture na sjevernom Jadranu smanjuje se kapacitet proizvodnje. Time se i izvoz istarskih proizvoda u podunavske provincije i Norik znatno smanjuje (Matijašić, 2009, 60-61). Poljoprivredna proizvodnja u Istri ograničava se na proizvodnju za vlastitu potrošnju, a eventualni proizvodni viškovi komercijalizirani su na užem, regionalnom tržištu. Kasnoantička proizvodnja maslinovog ulja ili vina na mjestu nekadašnje figline, u kontekstu općih ekonomskih prilika tog razdoblja, vjerojatno nije bila namijenjena široj distribuciji. Za ostrogotske vlasti, u prvoj polovici VI. st., kada je ekonomija istarskih vila doživjela ponovni procvat, moguće je pretpostaviti izvoz proizvoda iz fažanske vile. Temeljem svjedočenja Kasiodorovih pisama, to je vrijeme u kojem su Istrani svoje proizvode prodavali trgovcima koji su dolazili iz drugih pokrajina (Matijašić, 1988a, 364-365).

Analogno procesima preobrazbe rimske ruralne arhitekture diljem Carstva (Percival, 1976, 171-182), vjerojatno i vila u Fažani na pragu srednjovjekovlja procesom nukleizacije postaje jezgra pojačanog naseljavanja i izgradnje, čime se oblikuje naselje koje je prethodilo današnjoj Fažani. Međutim, zaštitnim arheološkim istraživanjem nisu dokumentirani ostaci koji bi se mogli povezati sa srednjovjekovnom Fažanom, u izvorima poznatom pod toponimom *vicus Fasano*, od 1150., ili *Wasana*, početkom XIII. stoljeća (De Franceschi, 1939 - 1940, 158). Izuzev nekoliko keramičkih ulomaka otkopanih u bunaru nedaleko od sjevernog pročelja crkve sv. Kuzme i Damjana, koji se datiraju u XVIII. st. (Džin, Koncani Uhač, Bulić, 2007, 70), te nekoliko zidanih formacija, koje nam ograničeno područje istraživanja ne dopušta smjestiti u smisleni kontekst, nisu zabilježeni drugi arheološki podaci o novovjekovnoj Fažani. Razloge tomu svakako treba tražiti u činjenici da današnje zgrade u staroj jezgri Fažane ispod svojih temelja skrivaju podatke o razvoju ovog naselja.

S oprezom možemo pomišljati da se planimetrija današnje stare jezgre Fažane postupno oblikovala još u ranom srednjovjekovnom razdoblju, na ostacima rimske ruralne arhitekture. Sagledavanjem geodetske situacije figline i njenog međuodnosa sa suvremenim katastrom ističe se zanimljiva činjenica da je najstarija sačuvana građevina u staroj jezgri Fažane, crkva Sv. Marije Karmelske iz druge polovice XIV. st., ujedno i jedina građevina u Fažani koja ima istu orijentaciju kao i antička figlina (T. I.). U skladu s poznatim primjerima srednjovjekovnih sakralnih građevina na

The military and political crisis that has befallen the Empire in the 3rd century, coupled with the Barbarian invasions in the following centuries, manifested themselves differently in various parts of the Empire (Lewit, 2004, 1-53). Although archaeology does not record a decrease in the number of inhabitants in Istria in the course of the 3rd and 4th centuries, but it moreover points to a continuity of habitation in rural regions up to the early medieval period (Jurkić, 1981, 77-106; Matijašić, 1988, 99-104; Starac, 2010, 86-104), agricultural production nevertheless adapted itself to the new social and economical circumstances (Jurkić, 1981, 77-80; Matijašić, 1997, 206; Matijašić, 1988a; Matijašić, 2009, 59-69). There is a decrease in production capacity within the framework of Roman rural architecture in the Northern Adriatic. That also triggered a sharp fall of Istrian exports to provinces in the Danubian basin and to Noricum (Matijašić, 2009, 60-61). Agricultural production in Istria is limited to the production of goods for local consumption, with any surplus produce being sold in the neighboring regional markets. The Late Roman production of olive oil or wine on the compound that once housed the pottery workshop, was in the context of the general economic conditions of the time probably not intended for wider distribution. It can be assumed that the villa in Fažana again exported its agricultural produce during the period of Ostrogothic rule, in the first half of the 6th century, when the economy of Istrian villas experienced a renewed blossoming. Based on the testimony provided by Cassiodorus' letters, this was the time when Istrians sold their products to traders who came from other regions (Matijašić, 1988a, 364-365).

Parallel with the processes of transformation of Roman rural architecture throughout the Empire (Percival, 1976, 171-182), it is probable that with the process of nucleation, the villa at Fažana likewise became a focal point of intensified settlement and construction activities at the threshold of the Middle Ages, all of which resulted in the formation of a settlement that preceded present-day Fažana. However, the conducted rescue archaeological explorations did not yield any remnants that could be tied to medieval Fažana that was from written sources also known under the toponym of *vicus Fasano*, from 1150, or *Wasana*, at the beginning of the 13th century (De Franceschi, 1939 - 1940, 158). With the exception of a few pottery fragments that were unearthed in a well not far from the northern façade of the church of St. Cosmas and Damian, which were dated into the 13th century (Džin, Koncani Uhač, Bulić, 2007, 70), and several masoned formations that we cannot place into a meaningful context because of the limited area of exploration, no other archaeological data were ever recorded about Modern Age Fažana. The reasons for this are surely in the fact that information about the development of this settlement lies hidden under the foundations of present-day structures in the old section of Fažana.

mjestima rimskih ruralnih arhitektonskih kompleksa, vjerojatno je i ova gotička građevina, za koju postoje mišljenja i o njenoj ranijoj, romaničkoj fazi, temeljena na ostacima rimske arhitekture.[18] Neznatno odstupanje u orijentaciji kasnoantičke arhitekture u odnosu na ranocarsku figlinu, zabilježeno na njezinom sjevernom dijelu, ne mora nužno značiti i istovremenu promjenu arhitektonske orijentacije na cijelom području nekadašnje figline. Pojedini su se prostori nekadašnje figline, s prenamijenjenom svrhom, vjerojatno koristili i u mlađem kasnoantičkom ili ranosrednjovjekovnom razdoblju. Istovjetna orijentacija crkve sv. Marije Karmelske i antičke figline govori u prilog iznijetom mišljenju o kontinuitetu naseljavanja ove lokacije od ranocarskog vremena, iako ne raspolažemo jednoznačnim argumentima koji bi tome išli u prilog. Zbog drugačijeg oblika naseljavanja ove lokacije u antici, obilježenog u prvom redu proizvodnom djelatnošću, odnosno keramičarskom proizvodnjom u ranocarskom razdoblju i preradi poljoprivrednih plodina u kasnoj antici, ispod ulica Fažane prikupljeno je obilje podataka koji olakšavaju tumačenje i razumijevanje povijesnih procesa u rimskodobnoj Istri, napose onih vezanih uz gospodarsku i društvenu povijest.

4. Zaključak

Suvremeno tkivo naselja stare jezgre Fažane, koje onemogućava cjelovito istraživanje figline, sputava nas i u potpunom sagledavanju radioničkog kompleksa. Danas još uvijek ne možemo utvrditi detaljni tlocrtni raspored rimske ruralne arhitekture u Fažani, zastupljenost i međusobne odnose proizvodnog (*pars rustica*) i stambenog (*pars urbana*) dijela unutar graditeljske cjeline, iako je, po karakteru proizvodne djelatnosti u doba ranog Carstva, zasigurno proizvodni dio zauzimao znatno veću površinu. Temeljem rezultata terenskog istraživanja, koje je obuhvatilo sasvim ograničeno područje, ne možemo jasno interpretirati organizaciju procesa proizvodnje keramičkih predmeta, izuzev samog procesa pečenja. Ostaju nepoznate lokacije i dimenzije prostora u kojima se glina pročišćavala, gdje

[18] Primjer interpolacije romaničkog sakralnog objekta u rimsku ruralnu arhitekturu zabilježen je 9 km sjeveroistočno od Fažane, na lokalitetu sv. Ivan - Turnina pokraj Gajane. Godine 2005. istraženi su ostaci romaničke crkve sagrađene iznad antičke ruralne arhitekture. Južni i zapadni zidovi crkve sagrađeni su na antičkim zidovima zadržavši njihovu orijentaciju (Uhač, 2005, 247). Drugi primjer korištenja starijih antičkih zidova kao temeljnih struktura romaničke crkve zabilježen je istraživanjima 2006. i 2007. na lokalitetu Sv. Cecilija, 8 km sjeveroistočno od Fažane, gdje je romanička crkva također zadržala orijentaciju antičke ruralne aglomeracije, a sjeverni zid crkve jednim je dijelom sagrađen iznad antičkog zida (Jurković et al. 2008, 332-333).

We must be very careful when we speculate that the planimetry of the old section of present-day Fažana was gradually formed already in the early medieval period, on the remains of Roman rural architecture. Taking into account the geodetic situation of the pottery workshop and its interrelation with the modern cadaster, an interesting fact is readily observed, and namely, that the oldest preserved building in the old town of Fažana, the church of St. Mary Carmelite from the second half of the 14th century, is also the only building in Fažana, which has the same orientation as the Roman figlina (T. I). In accordance with the known examples of medieval sacral structures located on sites of previous Roman rural architectonic complexes, it is highly possible that this Gothic edifice that, according to some, might have had a Romanesque phase, has its foundations on the remains of Roman architecture.[18] The minimal deviation in the orientation of Late Roman architecture in relation to the early imperial figlina, as recorded on its northern section, does not necessarily mean a simultaneous change in the architectural orientation on the entire area of the former pottery workshop. Some areas of the former workshop, which underwent a conversion, were probably also used in the younger Late Roman or early medieval period. The identical orientation of the church of St. Mary Carmelite and the Roman workshop speaks in favor of the stated opinion about the continuity of settlement of this location from the early imperial period onwards, even though we do not posses any unambiguous arguments that would back such claims. Due to a different form of settlement of this location in the Roman period, which was characterized primarily by production activities such as pottery production in the early imperial period, and the processing of agricultural crops in the Late Roman period, plenty of data was collected beneath the streets of Fažana, which facilitate the interpretation and understanding of historical processes in Roman Istria, especially those related to economic and social history.

4. Conclusion

The modern fabric of the old section of Fažana, which prevents a thorough exploration of the figlina, is also a hindrance for a comprehensive inspection of the workshop complex. At present, we are still not in a position

[18] An example of an interpolation of a Romanesque sacral structure into Roman rural architecture was recorded 9 km to the northeast of Fažana, on the site of St. Ivan - Turnina, next to Gajana. In 2005, the remains of a Romanesque church were explored, which was erected over Roman rural architecture. The southern and western walls of the church were built on Roman walls, retaining their orientation (Uhač, 2005, 247). Another example of usage of old Roman walls as foundations for a Romanesque church was recorded during the explorations in 2006 and 2007, on the site of St. Cecilia, 8 km to the northeast of Fažana, where the Romanesque church likewise retained the orientation of a Roman rural agglomeration, and where the northern wall of the church was partially erected over a Roman wall (Jurković et al. 2008, 332-333).

su se keramički proizvodi oblikovali, sušili i skladištili. Dvije peći tipa II b, uz kompaktne slojeve usitnjenih, u procesu proizvodnje neuspjelih, a zatim odbačenih amfora nalazi su koji slikovito dočaravaju karakter proizvodne djelatnosti kroz prva tri stoljeća naše ere. Figlina namijenjena u prvom redu proizvodnji amfora Dressel 6 B i drugih, još uvijek tipološki neodređenih oblika iz kasnije faze, proizvodila je u manjim količinama i građevinski materijal te razne uporabne predmete uglavnom za potrebe njena vlasnika ili možda za komercijalizaciju na užem regionalnom tržištu.

Arhitektonski ostaci figline dočaravaju veličinu i područje njenog rasprostiranja ispod stare jezgre suvremenog naselja Fažana. Areal rasprostiranja ranocarske figline okvirno se može definirati današnjim nazivima ulica te obuhvaća područje od trga Piazza Grande i Ribarske ulice na sjeverozapadu, približno do ulice Put svetog Elizeja na jugoistoku te od Trga Republike na jugozapadu do Ulice Viktora Cara Emina na sjeveroistoku. (Sl.1, T. I)

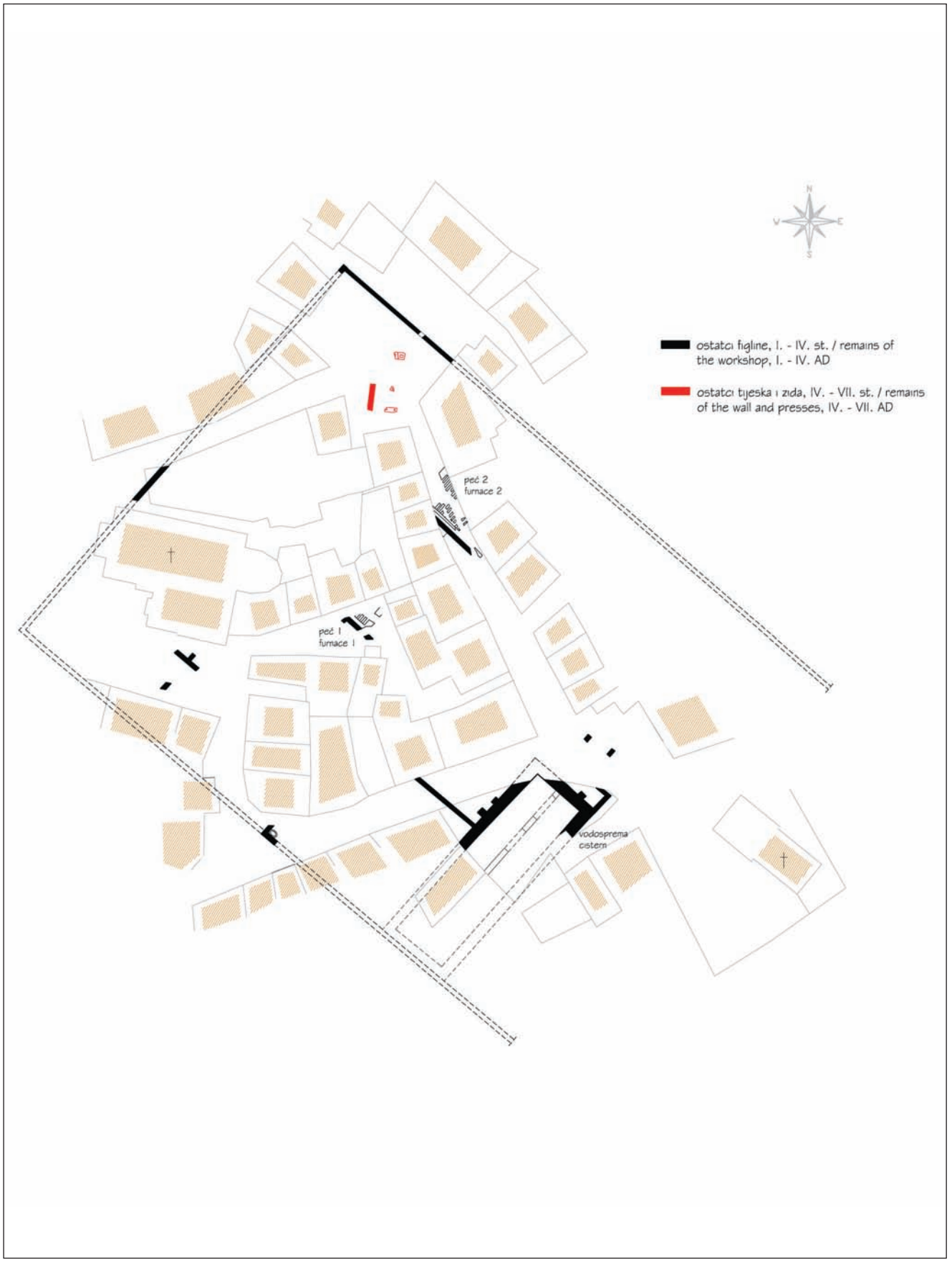
Nove socijalno-ekonomske okolnosti koje su obilježile kasnu antiku uvjetovale su preobrazbu ruralne arhitekture u arhitektonskom konceptu, ali i proizvodnoj djelatnosti. Na mjestu ranocarske figline u kasnoantičkom razdoblju smješta se postrojenje za preradu maslina ili grožđa. Iako terenska arheološka istraživanja nisu pružila jednoznačne argumente koji bi osvijetlili proces nukleizacije rimske ruralne arhitekture u Fažani na pragu srednjovjekovlja, možemo pomišljati da upravo u tom razdoblju rimska ruralna arhitektura postaje jezgrom pojačanog naseljavanja, čime se oblikuje naselje Fažana, posvjedočeno u pisanim izvorima iz XII. stoljeća.

to determine the detailed ground plan layout of Roman rural architecture in Fažana, as well as the representation and mutual relations of the production (*pars rustica*) and residential (*pars urbana*) sections within the architectural ensemble, even though, at least as far as the character of the production sector in the early imperial period goes, the production part surely occupied a far larger area. Based on the results of field exploration activities that encompassed a very limited area, we are not in a position to clearly interpret the organization of the process of production of pottery objects, except for the firing process itself. Still unknown to us are the locations and dimensions of the facilities for clay purification, and for the manufacturing, drying and storage of pottery products. Two kilns of the II b type, along with the compact layers of fragmented amphorae that were discarded due to an unsuccessful production process, are finds that vividly illustrate the nature of the manufacturing activities during the first three centuries of our era. The figlina that was designated primarily for the production of Dressel 6 B amphorae, and of other, typologically still unspecified forms from a later phase, also produced small quantities of construction materials and various objects for daily use mainly to satisfy the needs of its owners, or, to cater to the needs of the neighboring regional markets.

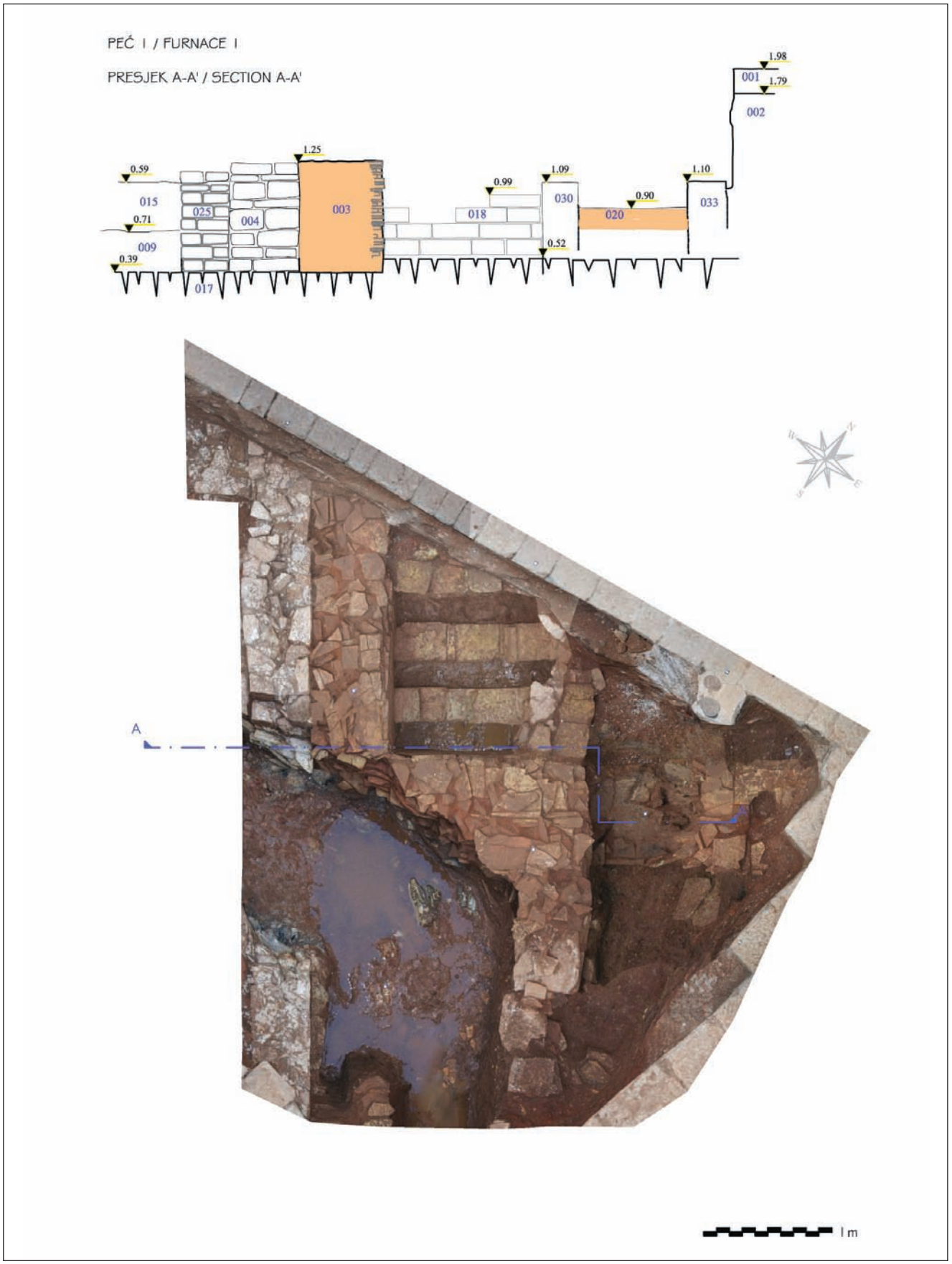
The architectonic remains of the figlina illustrate its size and the area over which it extended underneath the old section of the modern settlement of Fažana. The early imperial pottery workshop extended itself over an area that can be broadly defined by current street names, comprising the area from Piazza Grande Square and Ribarska Street on the northwest, approximately to Put Svetog Elizeja Street on the southeast, and from Trg Republike on the southwest to Viktora Cara Emina Street on the northeast. (Fig. 1, T. I).

New socio-economic circumstances which have marked the Late Roman period conditioned the transformation of rural architecture not only as regards the architectural concept but also in conjunction with production activities. A plant for processing olives or grapes was placed on the site of the pottery workshop in the Late Roman period. Although archaeological field explorations failed to produce unambiguous arguments that could shed some light onto the process of nucleation of Roman rural architecture in Fažana on the threshold of the medieval period, we think that precisely in that period Roman rural architecture becomes the focal point of increased settlement, which resulted in the creation of the village of Fažana, as was corroborated in written sources from the 12th century.

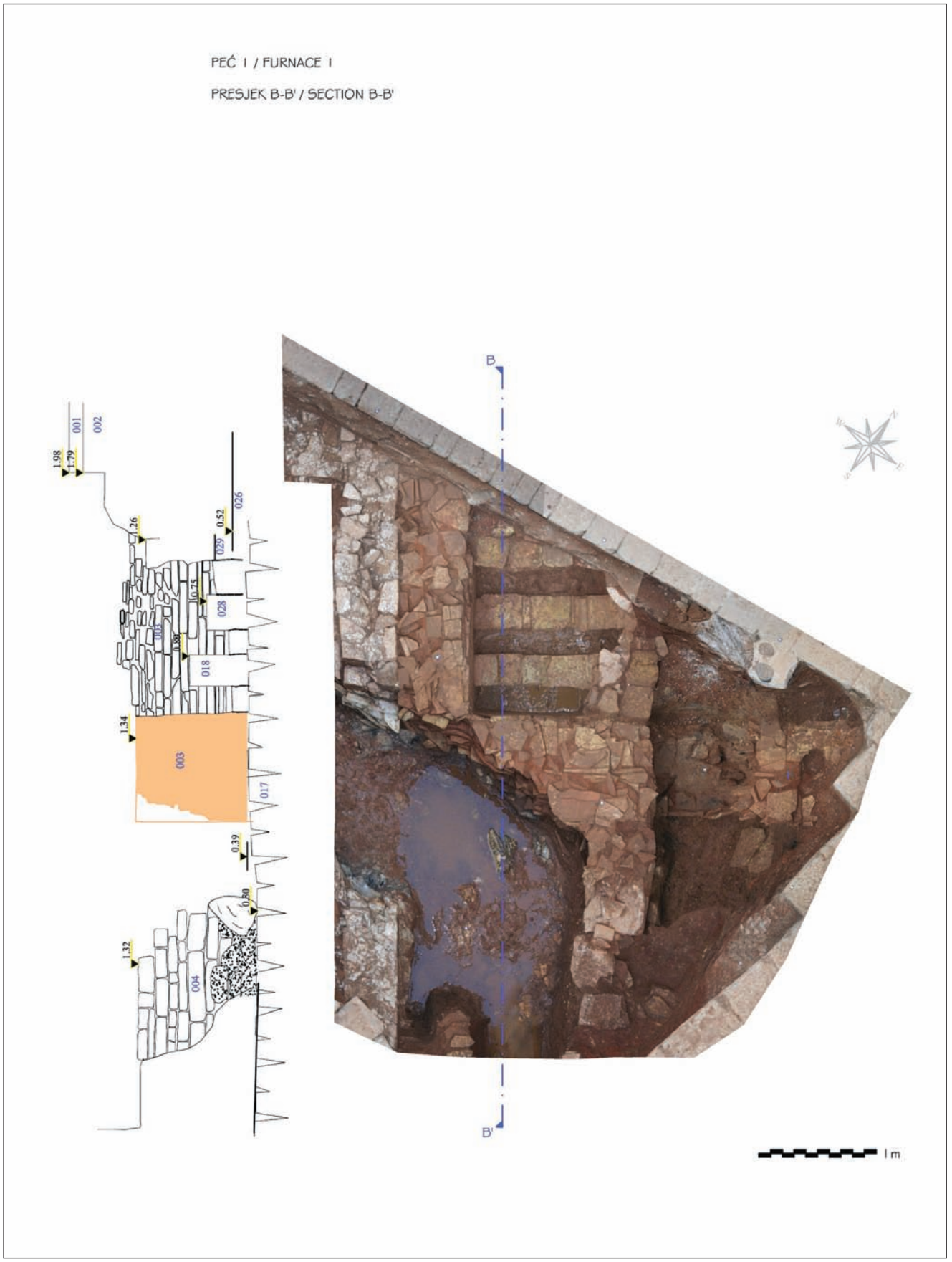
T. I. Geodetska situacija
T. I. The geodetic situation.



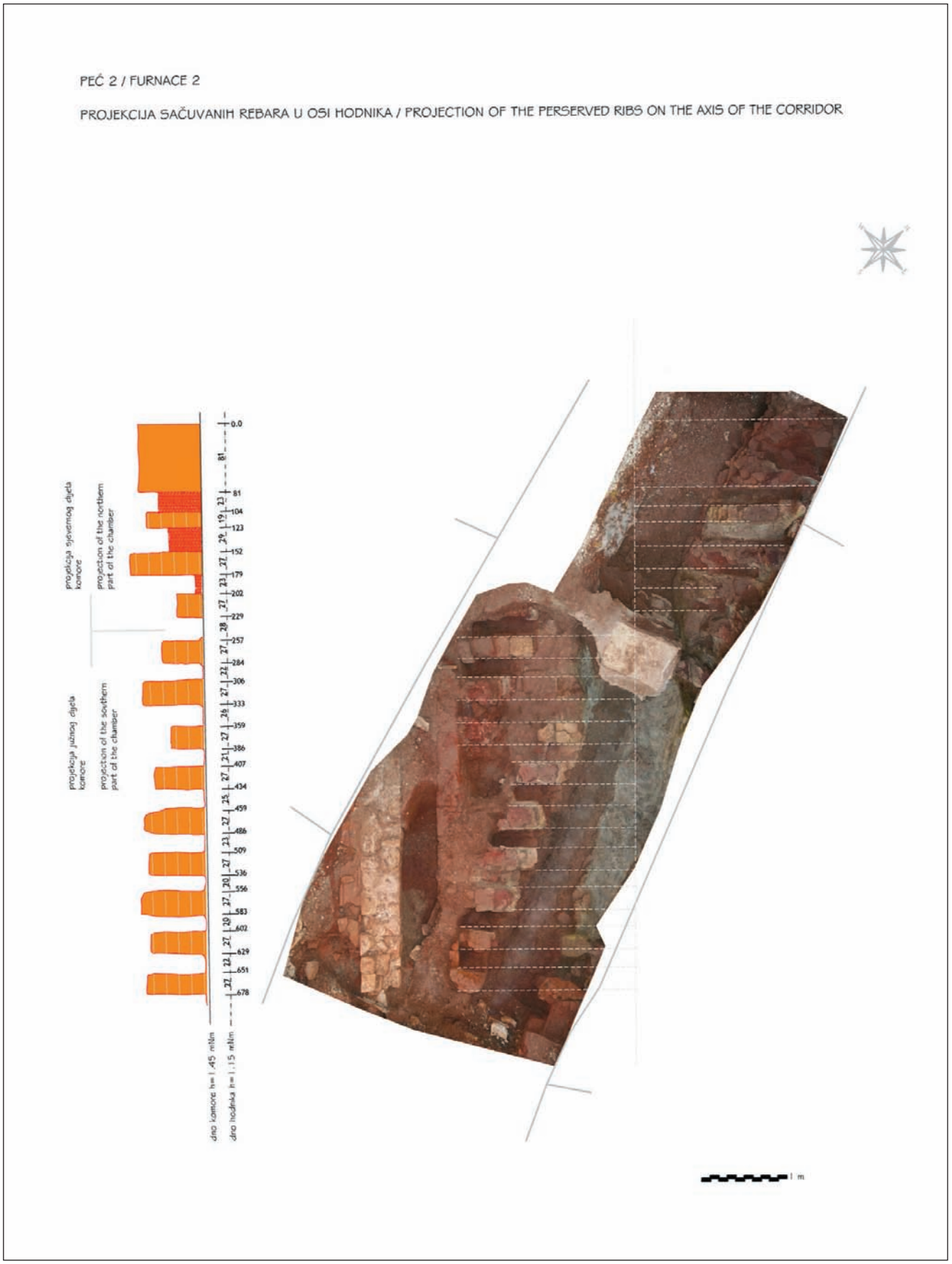
T. II. Peć 1, presjek A-A'
T. II. Kiln 1, cross-section A-A'.



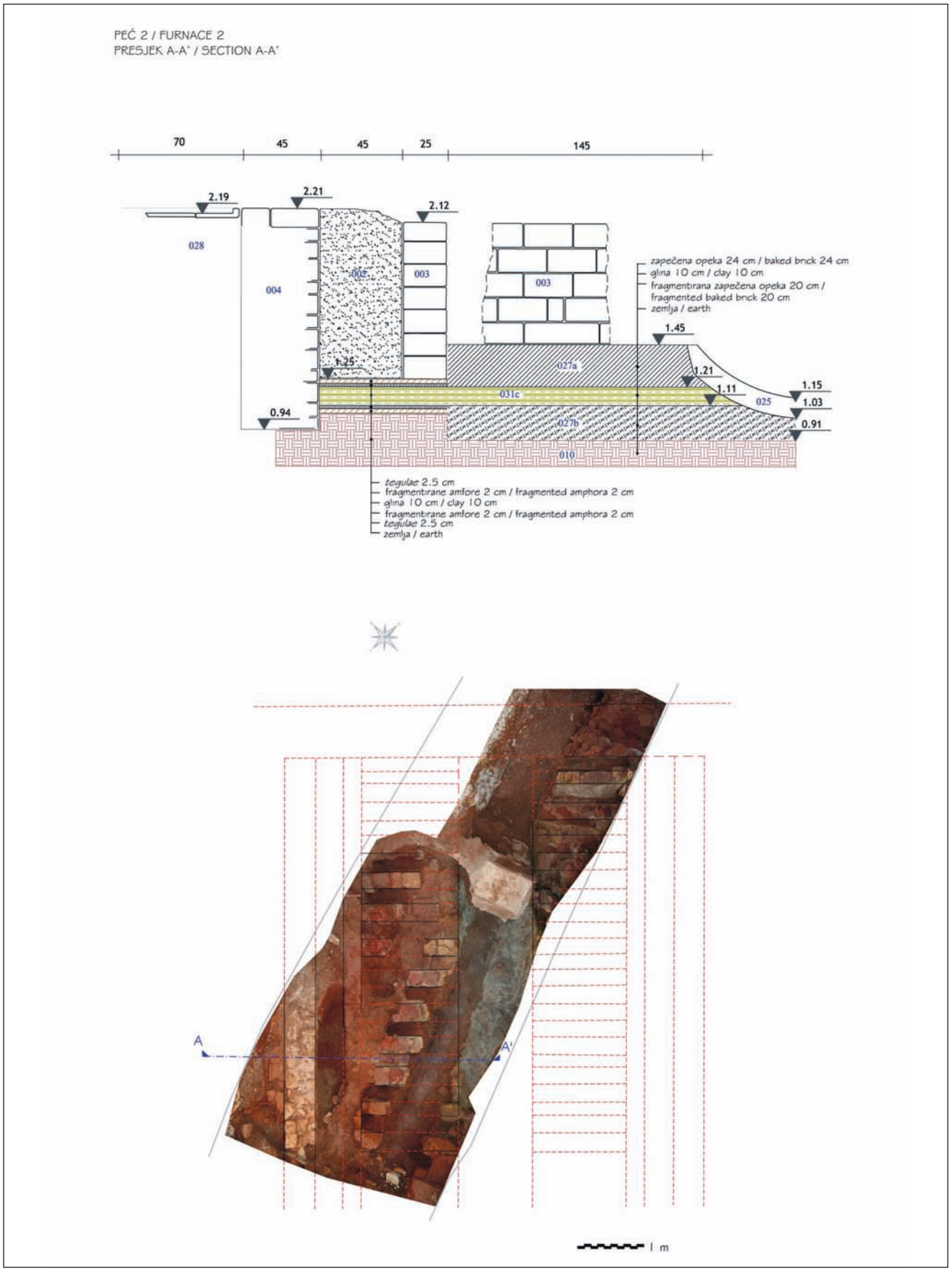
T. III. Peć 1, presjek B-B'
T. III. Kiln 1, cross-section B-B'.



T. IV. Peć 2, projekcija rebara peći u osi hodnika
T. IV. Kiln 2, a projection of the kiln ribs in the axis of the corridor.



T.V. Peć 2, presjek A-A'
T.V. Kiln 2, cross-section A-A'.



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