



JU MUZEJ
& GALERIJA
TIVAT



Tivat
TURISTIČKA ORGANIZACIJA
OPŠTINE TIVAT

Ostaci rimskog vodovodnog sistema



The remains of
water system

Uvod

JU Muzej i galerija opštine Tivat odlučila se za projekat „Ostaci rimskog vodovodnog sistema“ zbog izuzetnog značaja i vrijednosti ovoga lokaliteta, a što se ogleda u sljedećem:

- vrijeme nastanka (koje nam omogućava detaljniju rekonstrukciju života; rimskog perioda na ovom području),
- blizina Prevlake (na kojoj se nalazilo pretpostavljeno naselje i potvrđena vila sa mozaikom, zbog koje je ovaj vodovodni sistem i nastao),
- izuzetno rijedak očuvani primjerak na ovim područjima,
- sačuvani osnovni elementi za njegovu rekonstrukciju,
- lokacija (koja mu omogućava dobru pristupačnost i buduću posjećenost),
- urušenost izazvana raznim faktorima prouzrokovanih protokom vremena i ljudskom nebrigom.

Sumirajući gore navedeno potvrđen je izuzetan značaj ovog lokaliteta koji nestaje. Cilj publikacije je da širu populaciju i nadležne organe opštinske vlasti upozna sa vrijednostima i stanjem lokaliteta.

Publikacija je finansirana od strane Turističke organizacije Tivta, koja je raspisala Javni poziv za dodjelu sredstava za projekte vezane za valorizaciju i prezentaciju kulturne baštine opštine Tivat.

O ostacima vodovoda vrlo malo ima podataka u literaturi. Vrijedni podaci su nam ostali u Starinaru (godina x), gdje je Mladen Crnogorčević u tekstu priložio i osnovu i presjek rimske građevine.

U literaturi se pominje da se postoje ostaci moguće cisterne za vodu u Bigovi gdje je postojalo antičko naselje („na periferiji naselja, bliže bivšem manastiru sv. Nikole „). M. Garašanin navodi se da su u njivama u polju otkriveni kanali za vodu, koji su bili pokriveni opekom. Međutim, pod građevine je bio pokriven mozaikom, pa namjena objekta ostaje nejasna.

Gradeći akvadukte, rimljani su se oslanjali na gravitaciju i uz pomoć nje vodu su sproveli po Rimskom carstvu. Imali su tri vrste sprovođenja vode: kroz olovne cijevi, cijevi napravljene od pečene zemlje i kroz ozidane kanale. Vodu su dovodili sa izvora koji je se nalazio na visokoj koti prateći prirodni nagib terena.

Sextus Julius Frontinus, rimski književnik bio je upravitelj vodovoda (40 – 103 kraj prvog vijeka n.e.) koji je o značaju rimskog vodovoda je zapisao:

„Svakom je jasno značenje više nego potrebnih vodovoda, kada ih uporedite s grandioznim neupotrebljivim piramidama ili beskorisnim, ali slavim djelima Grka“!

Ostaci vodovodnog sistema koji se nalaze u sjeverozapadnom dijelu Brda, prema Prevlaci biće konačno definisani posle detaljnih arheoloških i konzervatorskih istraživanja.

INTRODUCTION

Public Institution Museum and Gallery of Tivat Municipality has decided to run a project: “The Remains of Roman Water Supply System” due to an extraordinary importance and value of this location, and which is reflected through the following:

- *the occurrence time (that enables detailed reconstructions of life; Roman period on this area),*
- *the nearness of Prevlaka (on which there was a supposed settlement and confirmed villa, with mosaic, due to which this water supply system occurred).*
- *exceptionally rare preserved example on this area,*
- *preserved the main elements of its reconstruction,*
- *location (which enables well accessibility and future attendance),*
- *a collapse provoked by many factors caused by the time flow and human unconcern*

When we sum up the above mentioned it confirms the extraordinary importance of this location which is vanishing. The goal of the publication is to meet wider population and competent authorities of Municipality Government to the values and the conditions of this location.

The publication is financed by Touristic Organisation of Tivat, which announced the Public invitation for funds allocation, for projects related to valorisation and presentation of Tivat Municipality cultural heritage.

There is not much data about the water system remains in literature. The valued data remained in Starinar (year x), where Malden Crnogorčević contributed to the text both bases and section of Roman building.

It is mentioned in literature that there are the possible remains of cistern in Bigova, where was the antique settlement (“on the periphery of settlement, closer to former Monastery of St. Nicholas”). M. Garašanin quotes that on the fields were discovered the water channels, that were covered by brick. However, the building floor was covered by mosaic, so that the object purpose stays unclear.

By building the aqueduct, Romans relied on the gravitation, and by its help they carried out the water through Roman Empire. They had three types of water supply: through plumb pipes, pipes made of terracotta, and through walled channels. The water was carried out from the spring, which was situated on a high hill, following the natural slope of the terrain.

Sextus Julius Frontinus, Roman literate, was the coordinator of water system (40-103 the end of the first century A.C.), who wrote about the importance of Roman water system:

“It is clear to everyone the importance of more then necessary water systems, when you compare them to grandiose unusable pyramids or useless, but glorious, works of Greeks.”

The remains of water system, that are situated in the north-west part of the Hill, towards Prevlaka, will be finally defined after detailed archaeological and conservation researches.



[Pozicija lokaliteta / Location position](#)

RIMSKI PERIOD

Istorijski izvori i arheološki lokaliteti teritorije južno jadranske obale i njenog zaleđa, daju nam dosta materijala da rekonstruiramo našu daleku prošlost. Praistorijski lokaliteti iz doba paleolitika i neolitika ovog područja, jako su oskudni ili ih nema na području Boke kotorske. Protoilirski i ilirski plemena i ukupna populacija je obilježila bronzano doba - neolitik . Ovaj period možemo proučavati kroz arheološke lokalitete posebno Boke kotorske i sličnih nalazišta u okruženju. Brojne ilirske gradine i posebno kameni tumuli i danas pobuđuju pažnju i interes raznih istraživača, čime se žele dobiti rezultati za rekonstruiranje njihovog materijalnog i duhovnog života. I ostali pokretni arheološki nalazi naročito keramike, su baza za osvjetljavanje ovog perioda. I ako nijesu imali svoje pismo, razna ilirska imena se nalaze na njihovim nadgrobni spomenicima – cipusima. Svakako da je to uticaj i sublimat helenističkog svijeta koji je došao iz područja stare grčke civilizacije. Zbog kontakata sa starim helenima, koji su prvenstveno mirnodopskog trgovačkog karaktera, period helenizma na našem području možemo pratiti kroz pokretne arheološke nalaze naročito helenističke keramike. I u načinu gradnje naselja prihvataju se naprednije tehnologije koje su uočene u genezi nastajanja novih utvrda i naselja. Najbolji primjer za graditeljsku djelatnost helenističkog perioda, imamo u antičkom *Risiniumu*.

ROMAN EMPIRE PERIOD

*Historical sources and archaeological locations of South Adriatic coast territory and its hinterland give a lot of material to reconstruct our further past. Prehistoric locations from Palaeolithic and neo Palaeolithic age of this area are very poor or there are not any on Boka bay area. Proto-Illyrian and Illyrian tribes, and total population marked the Bronze age – Neolithic. This period can be studied through archaeological locations, especially of Boka bay, and similar findings in the surroundings. Numerous Illyric forts and stone tumulus especially excite attention and interest of various researchers even nowadays, by which should be gained the results for reconstruction of their material and spiritual life. Even the other mobile archaeological findings, especially ceramic ones, are the bases for this period lighting. Even they had not had their own writing, various Illyric names are on their tombstones – cippus. It is surely the influence and sublimate of Hellenistic world which came from area of Ancient Greece civilization. Due to contacts with Ancient Helens, who are of a peacetime trading character in the first place, Hellenistic period on our area could be tracked through mobile archaeological findings, especially Hellenistic ceramic ones. Even in the way of building the settlements the advanced technologies are accepted, and they are noted in genesis of new fortress and settlements formation. The best example of building activity of Hellenistic period we can find in ancient *Risinium*.*

Sve češći sukobi sa Rimljanima, novom vojnom silom na Mediteranu, dovode do manjih sukoba i na kraju do Ilirsko – rimskih ratova. Najčešći povod za nastajanje ovih ratova je bilo ilirsko gusarenje i pljačkanje brodova na Jadranu. Može se reći da je ova aktivnost bila smatrana kao važna privredna grana i djelatnost, od koje se ubirao prihod za cijelu ilirsku zajednicu, a naročito za vladare.

More and more often conflicts with Romans, by new Mediterranean military force, lead to minor conflicts and, at the end, to Illyric – Roman wars. The most often motive for these wars was Illyric piracy and vessels robbery on the Adriatic. It can be said that this activity was considered as an important agricultural branch and activity, from which the income for the whole Illyric community was collected, especially for the governors.

I sve jača težnja za rimskom hegemonijom nacijelom Mediteranu, naročito je doprinijela ovim ratnim događanjima . Dugotrajne borbe za osvajanje ovih teritorija i njihovog zaleđa rezultirale su porazom Ilira i uspostavljanjem rimske dominacije i uprave. Po svojoj teritorijalnoj šemi i podjeli na području Jadrana i zaleđa, formira se rimska provincija Dalmacija. Ovo se desilo u vrijeme vladavine Oktavijana Avgusta. Ovome je prethodila teritorijalna podjela koja je uključivala Ilirik, a koji je Cezar bio dobio na upravljanje zajedno sa Galijom. 11.godine n.e. provincija Dalmacija postaje carska provincija, na čijem čelu se nalazi „*legatus Augusti pro praetore*“, koji u svojim rukama drži cjelokupnu civilnu i vojnu vlast.

Stronger and stronger desire for Roman hegemony on the whole Mediterranean especially contributed to these war happenings. Long lasting battles for conquering these territories and its forts resulted in Illyric failure and establishment of Roman domination and regulation. According to its territorial scheme and the Adriatic area and

fort separation, Dalmatia, Roman province, is formed. This happened in time of Octavian August regulation. This was preceded by territorial separation which included Illyric, and which Cesare got for management together with Gallia. In 11 A.C. Dalmatian province becomes imperial province, led by "legatus Augusti pro praetore", who held in his hands the whole civil and military government.

Ovako strogi centralistički propisi se nijesu svuda primjenjivali, pogotovo u udaljenim provincijama kao što je slučaj sa našim područjem. Odnos prema domorodačkom ilirskom stanovništvu imao je izvjesne specifičnosti, zbog uklapanja rimske politike i uprave u ove oblasti. Ovome su naročito doprinijeli geografski uslovi i strateški položaj područja južnojadranske obale, koji je široko otvoren prema Rimu i Italiji, a planinskim vijencima odvojen od unutrašnjosti. Zbog ovog je ova oblast bila pogodna za učvršćivanje rimske vlasti i njeno širenje prema unutrašnjosti. Tome su doprinijele dobre saobraćajne veze koje su išle morem.

These severe centralistic regulations had not been applied everywhere, especially not in farther provinces, as it is our area. Relation towards aboriginal Illyric population had some specifications, due to matching the Roman politics and government on these areas. To this especially contributed geographic conditions and strategic position of South coastal Adriatic, which is widely opened to Rome and Italy, and separated by mountain ranges from the interior. This was the reason why this area was suitable for Roman government bracing and its spread towards the interior. Good traffic connections with the sea contributed to that.

Romanizacija ovog područja je išla dosta sporo zbog jakih ilirskih plemenskih veza, koje su u prethodnom periodu zadavale udarce rimskoj floti. Može se reći da su Rimljani naročito poštovali staro domaće plemensko uređenje. Strogo su poštovane granice pojedinih plemena (*civitates*). Zbog toga se pristupilo postepenom pridobijanju ilirskih vođa sa ostavljenjem prividne autonomije. Ovakvo stanje se dosta dugo zadržalo, što nam potvrđuju razni arheološki nalazi, gdje na rimskim epigrafskim spomenicima nalazimo tipično ilirska imena. (Riječani).

Romanization of this period went slowly due to strong Illyric tribe connections, which during the former period stroke Roman fleet. It can be said that Romans really respected ancient domestic tribe organization. Some tribes' frontiers (civitates) were highly respected. Due to that it was gradually accessed to coaxing of Illyric leaders with apparent autonomy leaving. This state was long-lasting, which is confirmed by various archaeological finding, where on the Roman epigraphic monuments there are typically Illyric names. (Rijeka).

U provinciji Dalmaciji su osnovane tri veće sudsko-administrativne oblasti (*conventus*) u Skradinu, Solinu i Naroni. Ovom poslednjem je pripadalo područje današnje Crne Gore.

Ovaj proces se može pratiti preko osnivanja rimskih gradova i manjih naselja na južnojadranskoj obali.

Kod rimskog istoričara Plinija nalazimo navedene naseobine rimskih građana konvente ili opide (*oppida civium Romanorum*). Na teritoriji Naronskog konventa, pominju se sledeća opida. *Narona* (Vid kod Metkovića), *Rhizinium* (Risan), *Acruium* (???), *Butua* (Budva) i *Olcinium* (Ulcinj).

In Dalmatia provincy three bigger administrative territories (conventus) are formed, in Skradin, Solin and Narona. To the last one belonged the area of today's Montenegro.

This process can be tracked by the conquering of Roman cities and smaller settlements on South Adriatic coast.

To Roman historian Plinius we find the mentioned settlements of Roman citizens convents or oppida (oppida civium Romanorum). On Naron convent's territory the following oppida are mentioned: Narona (Vid near Metkovići), Rhizinium (Risan), Acruium (???), Butua (Budva) and Olcinium (Ulcinj).

Osnivanje provincije Dalmacije imao je dva cilja: strateški i ekonomski. Osnovne privredne grane straih Ilira su bile poljoprivreda i stočarstvo. I o korišćenju rudnog bogatstva nalazimo izvjesne tragove i zapise. Osvajanjem provincija velika većina zemlje u njima postaje državna svojina- *ager publicus*. Ovim zapravo nastaje konfiskacija zemlje, koja je ranije pripadala pokorenom stanovništvu. Suverenitet nad zemljom ima država, pod uslovom da se i dalje obrađuje i državi daje određeni dio. Drugi pravno imovinski atribut ima *ager privatus*, koji je ostao u posjedu lokalnog stanovništva. Država ovdje interveniše u sporovima oko granica imanja, koji nijesu bili precizno određeni.

Ager campanus et silvae predstavljaju neobrađena zemljišta, pašnjaci šume. Ovo zemljište je zadržalo isti status koji je imalo prije uspostavljanja rimske vlasti.

Dalmatia provincy conquering had two goals: strategic and economic one. The main industries of ancient Illyric people were agriculture and cattle breeding. Even about the usage of mineral resources there are certain traces and inscriptions. By conquering of provinces, a great portion of land in them becomes State's property – ager publicus. This actually led to the land confiscation, which earlier belonged to the subjugated population. The sovereignty over the land had the state, under the condition that was further cultivated, and that a specified part was given to the state. The second legally property attribute had ager privatus, which stayed in local population estate. The state here intervened in litigations about estate's frontiers, which were not precisely determined. Ager companus es silvae represented uncultivated land, grassland, forests. This terrain kept the same status which it had had before the establishing of Roman government.

Na velikim obradivim zemljištima stvaraju se velika poljoprivredna gazdinstva – *fundusi*. Položaj ovih velikih poljoprivrednih imanja nalazio se na dobrim komunikacijama, zbog snabdijevanja širih teritorija i gradova svojim proizvodima. Rad na imanju obavljaju robovi *vilici*. Njih nadgledaju povlašćeni pojedinci, koji se staraju o pravilnom funkcionisanju i uopšte o uspješnom poslovanju ekonomije.

On big cultivated land there were big agricultural farms – fundus. The position of these big agricultural estates was on good communications, because of wider territories and cities suppling by its products. The estate's work was done by slaves vilici. They are supervised by privileged individuals, who care about appropriate functioning and successful economy work at all.

Na području južnog Jadrana i Boke kotorske sigurno su postojala ovakva velika gazdinstva s obzirom na dobar uzgoj poljoprivrednih kultura, kao što su vinova loza i masline. Ne treba zanemariti i ostale agrarne kulture žitarica i raznih agruma. Imanja su obično bila smještena uz plodne ravničarske predjele, kao što je tivatsko o grbaljsko polje. Blizina morskih pristaništa i kopnenih komunikacija je takođe bila uslov za dalju distribuciju i izvoz.

On the area of South Adriatic and Boka bay there were certainly such big farms, due to very well cultivation of agricultural cultures, like grapevine and olives. Other agrarian cultural grains and various citrus fruit should not be neglected. The estates were usually situated along fertile flatlands, like it is Tivat and Grbalj field. Nearness of the sea docks and coastal communications was also the condition for further distribution and export.

U centru ovih posjeda nalazila se upravna i stambena zgrada *villa rustica*. Ona je uglavnom zauzimala centar imanja, predstavljala stambenu zgradu za gospodara. Često su bile luksuzno opremljene i dekorisane podnim mozaicima. U ostalom dijelu je bila prilagođena potrebama ekonomije. Unutrašnji raspored je imao glavne i sporedne prostorije. Ukoliko je imala sprat, prizemlje je bilo za poljoprivrednu djelatnost. Ove vile su često bile suviše skromne za ladanjska uživanja, pa su se počele graditi raskošniji objekti za provod i dokolicu, tkz. *villesuburbane*. Tip ovakvog objekta imamo u antičkom Risiniumu, danas poznatom kao rimska vila dekorisana podnim mozaicima. Istraživanja su pokazala da su se na ovom mjestu nalazilo još ovakvih objekata, što je predstavljalo rezidencijalni kvart grada.

In the centre of these estates was regulative and residential building villa rustica. It mostly took place in the centre of the estate, and represented the residential building for its owner. They were often luxurious equipped and decorated with floor mosaics. The other part was dedicated to economy necessities. Interior arrangement had the main and secondary rooms. If there was a floor, the ground floor would be for agricultural activity. These villas were usually modest for country pleasure, so that more rascal objects for fun and leisure started to build, so called villsurbane. This villa type is in ancient Risinium, nowadays known as Roman villa, decorated with floor mosaics. The researches showed that more such objects were at this place, which represented the residential city quart.

Pored ovih stambenih objekata u rimskim urbanim centrima postojale su kuće za stanovanje. Luksuznije građene za bogate rimske građane nazivane su *ville urbane*. Arheološka istraživanja u Risnu su nam dala dosta podataka za ekonstrukciju jedne rimske patricijske kuće.

Except these residential objects in Roman urban centres there were houses for living. More luxurious built for wealthy Roman citizens are called ville urbanae. The archaeological researches in Risan gave us a lot of data for reconstruction of one Roman patrician house.

Rimska patricijska kuća

Osnovni raspored tipične rimske kuće može jasno uočiti. Klasični tip rimske kuće naziva se *domus* i na neki način podsjeća na neke oblike grčke kuće. Osnovna karakteristika je da je zatvorena prema spoljnjem svijetu. Život je okrenut prema unutrašnjem dvorištu *atrijumu* u čijoj sredini se nalazi bazen *impluvium* za skupljanje kišnice. U kuću se ulazilo kroz hodnik *fauces* koji je direktno vodio u atrijum. Na ovom hodniku su postojala i vrata koja bi sprječavala da se baci pogled u kuću, ako bi vrata od ulaza bila otvorena. U centru objekta se nalazio *tablinium*, glavna prostorija kuće i središte porodičnog života. Tu se najčešće nalazilo kultno mjesto penata (božanstva) i čuvane su maske predaka. *Tablinium* je bio otvoren prema atrijumu kao i prema vrtu i dvorištu iza kuće. Desno i lijevo od *tabliniuma* su se nalazila dva krila *alae*, dosta prostrane prostorije, sa različitim namjenama. Oko atrijuma su se nalazile druge prostorije kao što je *cubiculum*, spavaća soba za članove porodice, kao i prostorije za posluđu. Najčešće se pored *tabliniuma* nalazila kuhinja *culina*, kao i *latrina* prostorija za toalet.

Domus je mogao imati i spratove, u zavisnosti od bogatstva *paterfamilias*

Roman Patrician House

The main arrangement of a typical Roman house can be clearly seen. Classical type of Roman house is called domus, and somehow reminds at some features of Greek house. The main characteristic is that it is closed towards the outside world. The life is turned towards the interior garden atrium, in which centre is a pool impluvium for rainwater accumulation. Into the house is entered through a corridor fauces which directly led to atrium. In this corridor there were also a door which stopped to take a look inside the house if the entrance door would have been opened. In the centre of the object there was tablinium, the main room of the house and the focus of family life. There was often the cult place of penate (deity) and ancestry masks were kept there. Tablinium was opened towards atrium, as well as towards the garden and the yard behind the house. On the right and left from tablinium were two wings alae, very specious rooms, with diverse purposes. Around the atrium were other rooms, such as cubiculum, the bedroom for family members, as well as the rooms for servants. The kitchen culina was often next to tablinium, as well as latrina, a bathroom.

Domus could also have floors, depending on wealthiness of *paterfamilias*.

Rimska građanska kuća

Širenjem grada i naseljavanjem siromašnijeg sloja stanovništva, uži centar grada postaje tijesan, što uslovljava izgradnju nešto skromnijih objekata za stanovanje, tzv. *insulae*. To su spratni objekti, koji su za razliku od *domusa* okrenuti prema spoljnjem svijetu, i široko otvorena prema ulici. U njima nema atrijuma, nego umjesto njih, postoje uski svjetlarnici u kojima se ne boravi. Prostorije nijesu imale odeđenu namjenu. Po vodu se išlo na ulicu gdje se crpla iz javnih česmi. U prizemnjima ovih objekata su se nalazili dućani *tabernae* u koje se silazilo u nabavku. Svaki dućan je predstavljao zasebnu prostoriju, širom otvorenu prema ulici, koji se uveče zatvarao pokretnim kapičama. Svaki sprat je imao stambenu jedinicu za jednu porodicu.

Ovi objekti su formirali kvartove sa uskim ulicama između, koje su povezivale razne djelove grada. *Insulae* su bile građene od slabog materijala, katkad od samog naboja. Kostur građevine je bio drveni, dok je sve ostalo bilo od lošeg materijala. Zbog toga su bili česti požari i rušenja. Ovakve zgrade su donosile vlasnicima dobre prihode od iznajmljivanja.

Roman Civic House

By spreading of the city and poorer population settlement, the downtown becomes cramped, which conditioned the building of some modest objects for living, so called insulae. These are objects with floors, which were opposite of domus turned towards the outside world, and wide opened towards the street. There was not atrium in them, and in place of it there were narrow skylights, which are not used for staying. The rooms were not had the certain purpose. To bring some water one should go on the streets, where it was pumped from public fountains. On the

ground floors of these objects were the shops tabernae, in which people went to purchase. Every shop represented a separate room, wide opened towards the street, which was closed by mobile shutters, at night. Every floor had one residential unit for one family.

These objects formed quarts with narrow streets between, which connected various parts of the city. Insule were built of a very weak material, sometimes from the pise itself. The skeleton of the building was wooden, but all the rest was of a poor material. Due to that, fires and demolitions were frequent. These buildings brought good rental revenues to the owners.

Arheološki nalazi iz rimskog perioda tivatskog područja

Arheološka istraživanja ovoga područja obavljena su u nekoliko navrata i kako se navodi u literaturi, zabilježeno je oko 100 lokaliteta iz raznih historijskih perioda: od ilirskog do turskog.

U tim istraživanjima pronađeni su ostaci pokretnih i nepokretnih nalaza. Ostaci nekadašnjih naselja ogledaju se u arhitektonskim ostacima objekata i utvrđenja. Značajno je istaći da se među pronađenim ostacima rimskih kuća izdvajaju vile rustike sa podnim mozaicima. Nađene su na Prevlaci, Pjaci i manji fragment podnog mozaika na lokaciji u Kavču, kao i neidentifikovanom objektu u Bigovu. Ovo nam ukazuje da su navedeni objekti pripadali većim poljoprivrednim imanjima - latifundijama.

U istraživanjima su konstatovani i ostaci nekadašnjih puteva. Djelovi trase nekadašnjih komunikacija ukazuju na putnu povezanost pojedinih naselja i susjedne oblasti. Ovi putevi su na važnim putnim koridorima bili kontrolisani. Jedan od tako važnih puteva bila trasa koja je preko tivatskog i grbaljskog polja išla prema Budvi. Ova trasa je bila kontrolisana sa kule stražare- speculusa smještenoj na sjevernoj strani brežuljka Gomilica.

Poseban značaj ovog područja je ta što je morskim putevima bila dobra povezanost sa ostalim djelovima rimskog carstva. Ovo je bio i najlakši put da se iz udaljenih mjesta dopremi roba.

Pokretni arheološki nalazi nađeni na ovim lokacijama potvrđuju stratigrafske slojeve koji su potvrđivali periode nastanka. Važni strateški položaji su imali kontinuitet u trajanju života na tom mjestu. To su uglavnom bila uzvišenja ili blizina morske obale.

Do danas nije pronađeno neko značajnije veće naselje ili grad. Ipak, u literaturi se kod pojedinih autora za ovo područje vezuje ubikacija antičkog *Acruviuma*. Naime, na *Pointinger*-evoj mapi ovo značajno antičko naselje se nalazilo između *Risiniuma* i *Buthue*.

Arheološka istraživanja su potvrdila da su se na pojedinim lokacijama nalazila naselja rimskog perioda: Pjaca, Prevlaka, Sv. Luka, Gomilica i Bigovo.

Pokretni keramački nalazi, kao i numizmatički nalazi su pronađeni na brojnim istraženim i rekognostiranim lokalitetima. Takođe, konstatovani i brojni slučajni nalazi na cijelom području.

Keramički nalazi variraju od nalaza fine keramike raznih manjih posuda do nalaza amfora, kako na kopnu tako i u podmorju. Nalaze amfora, kao i ostatke antičkih plovila nalaze se u podmorju tivatskog akvatorijuma i zaliva Bigovo.

Numizmatički nalazi rimskog perioda se odnose na rimske imperatore.

Fragmenti stakla se odnose na finije posude.

Rimski grobovi i nadgrobni natpisi, nađeni su u blizini stare crkve Sv. Spasa i Sv. Srđe u Brdima.

Archaeological Findings from Roman Period on Tivat Area

Archaeological researches of this area are conducted repeatedly, and how it is cited in literature, there are noted about 100 locations from diverse historical periods: from Illyric to Turkish. Through those researches the remains of mobile and static findings are found. The remains of former settlements are reflected in architectonic remains of object and forts. It is essential to emphasise that, among the found remains of Roman houses, rustic villas with floor mosaic are singled out. They are found on Prevlaka, Pjaca, and smaller fragment of floor mosaic on the location in Kavač, as well as on the unidentified object in Bigova. This shows that the mentioned objects belonged to bigger agricultural estates – latifundia.

During the researches there are also ascertained the remains of former roads. The parts of former communication route show a road connection of some settlements and the surrounding. These roads are being controlled on the

important road corridors. One of such important roads was the route along Tivat and Grbalj field, towards Budva. This route was controlled from a watchtower – speculum, situated in the north side of Gomilica hill.

The great importance of this area is that there was a good connection to other parts of Roman Empire, by sea roads. This was also the easiest way of goods delivery from further places. Mobile archaeological findings, found on these locations, confirm stratigraphic layers which confirmed the periods of occurrence. Important strategic positions had a continuity in life lasting on that place. Those very mainly the hills or the seacoast nearness.

A settlement or a town of a great importance in largeness is not found till today. However, in literature some authors relate the location of ancient Acruvium to this area. Namely, on Point Inger's map this important ancient settlement was situated between Risinium and Buthua.

Archaeological researches confirmed that on some locations there were settlements of Roman period: Pjaca, Prevlaka, St. Luca, Gomilica and Bigovo.

Mobile ceramic findings, as well as the numismatic ones, were found on numerous researched and recognized locations. There were also ascertained numerous accidental findings on the entire area.

Ceramic findings vary from fine ceramics' findings of various smaller containers, to amphoras, as on the coast, as in the submarine. Amphoras findings, as well as the antique vessels remains, can be found in the submarine of Tivat maritime zone, and Bigovo bay.

Numismatic findings of Roman period are related to Roman emperors.

Glass fragments are related to finer containers.

Roman graves and tombstones can be found near ancient church of Saint Salvador and St. Srđa, in Brda.

Rimski akvadukti (remek djela antičkog graditeljstva)

Rimska civilizacija je ostavila neizbrisiv trag u arhitekturi, tehnologiji, umjetnosti i književnosti, kao i na razvijanju tehnologije izgradnje sistema za snadbijevanja vodom.

Drevna civilizacija Mezopotamije i Egipta gradila je kanale za navodnjavanje koji su bili preteča vodovodnih sistema. U kasnijem periodu na području Perzijskog carstva pojavljuju se sistemi riješeni sa horizontalnim i vertikalnim prokopom koji se nazivaju „Qanati i Keris sistemi. U vrijeme grčke civilizacije, odnosno u njenom klasičnom i arhajskom razdoblju (750 – 323. pr.n.e.) pojavljuju se konstrukcije akvedukta. U doba helenizma izrađeno je puno vodovoda gdje se pojavljuju keramičke cijevi, koje su stavljane u kanale. Bunari u kojima je skupljana kišnica predstavljaju „ prve cisterne vode“. Razvoj kulture uslovljava promjene u načinu života, tako da se u doba antike grade vrijedna arhitektonska zdanja od kojih neka i danas traju.

ROMAN AQUEDUCTS (MASTERPIECES OF ANTIQUE BUILDING)

Roman civilization left an indelible mark in architecture, technology, art and literature, as well as the development of building system technology for water supply.

The ancient civilization of Mesopotamia and Egypt was building the channels for irrigation, which were forerunners of water systems. Later, on the area of Persian Empire appeared the systems resolved by horizontal and vertical ditch, called “Qanati and Keris” systems. Over the period of Greek civilization, i.e. in its classical and archaic epoch (750-323 B.C.) appeared the reconstructions of aqueducts. In the Hellenistic period numerous water supply systems were built, where we can notice the appearance of ceramic pipes, which were put into the channels. Draw-wells, in which the rainwater was aggregated, represent “the first water cisterns”. Cultural development conditions the changes in life manner, so that in the ancient period the valued architectonic buildings were built, from which some last even nowadays.

Izgradnja rimskih akvadukta temelji se na korišćenju gravitacije: voda je dovođena sa visokog izvora, nizbrdo, sve do mesta gde je potrebna, što je podrazumevalo praćenje nagiba. Da bi takav način dopremanja vode funkcionisao, obavljana su geodetska mjerenja. Nagib nije smio biti previše strm jer bi uslovio prevelik pritisak, ali ni previše blag, jer onda snadbijevanje vodom ne bi bilo sigurno.

In order to function such water delivery, the geodetic measures were conducted. The slope must not be too much steep because it would cause a high pressure, but not even too much mild, because the water supply would not be safe that way.

Rimljani, po čitavom rimskom carstvu grade akvadukte. Proizvodnja materijala za vodovodne konstrukcije, kao i poboljšanje shvatanja o geodeziji i hidrauliki uslovlili su mogućnosti dovođenja vode u velikim količinama. Najstariji akvadukt iz Rima (Aqua Appia) sagradio Apije Klaudije Kras 312. godine prije n.e. Rimljani uvode luk

(opus arcuatum) koji nosi konstrukciju na akvaduktima i rešava problem sifona koji su bili skupi i nesigurni, a predstavljali usko grlo na akveduktima. Keramičke cijevi su imale ograničene dimenzije i propust vode. Pronalaženjem opus signinum- krečnog maltera prave se cijevi koje se prilagođavaju kapacitetu i jačini vode.

Sami grad Rim je imao 11 vodovoda, a pretpostavlja se da ih je bilo oko 200 u Rimskom Carstvu.

Od antičkih pisaca izdvajaju se četiri autora koji su se bavili akvaduktom, kao segmentom arhitekture : Vitruvije i Frontin, Vegecije i Plinija.

Romans built aqueducts among the entire Roman Empire. Material production for water system constructions, as well as the improving of comprehension about geodesy and hydraulics, caused the possibilities of bringing water in huge amounts. The oldest aqueduct is from Rome (Aqua Appia), built by Appius Claudius Caecus, in 312 B.C. Romans introduce an arc (opus arcuatum) that brings the construction on the aqueducts and resolves the problem of drainage tubes, which were expensive and unsecure, and represented a bottleneck on the aqueducts. Ceramic pipes had limited dimensions and water leakage. The pipes that adjust to capacity and water intensity are built by finding opus signinum – lime mortar.

The city of Rome alone had eleven water systems, and it is assumed that there were about 200 in Roman Empire.

From antique writers four authors, who dealt with aqueducts as a segment of architecture, are distinguished: Vitruvius and Frontino, Vegetius and Plinian.

Iz literature saznajemo da su vodu dovozili i sa udaljenosti i po desetine kilometara ako u blizini nije bilo izvora sa kvalitetnom vodom ili ako su u pitanju bili izvori sa ljekovitom vodom. Privatne koncesije nijesu se nasljeđivale, ni prodavale, imali su ih samo posebno zasluženi građani. Voda je morala imati određene osobine : prozirna, kristalna, čista, da brzo ključa dok okolina nije smjela imati močvarno zemljište. Način raspolaganja vodom bio je zakonski regulisan.

We find out from the literature that they were bringing the water even from the distance of tens of kilometres if there were not springs with quality water around, or if there were springs with medicinal water in question. Private concessions were not inherited, nor sold, only specially deserved citizens had them. The water had to have certain characteristics: transparent, crystal, clean, to boil fast, while the surrounding could not have swampy land. The way of water disposition was legally regulated.

Vodovod je građen od sredstava koje obezbjeđivala državna blagajna, jer su u pitanju bila velika sredstva, odnosno to su bili najskuplji građevinski projekti, Besplatno se voda mogla koristiti na javnim cisternama i fontanama, dok se posebnom dozvolom neiskorišćena voda mogla upotrijebiti za potrebe praonica i tekstilnih radionica. Javne i privatne terme su bile najveći potrošači vode.

The water system was built from the State resources, because those were resources of huge amounts, i.e. those were the most expensive building projects. Water for free could be used on public cisterns or fountains, while untapped water could be used for laundry and textile workshops, by special permission. Public and private baths were the biggest consumers of water.

U vrijeme rimskog carstva postojala je služba, koja se nazivala: cura aquarum . Služba, na čijem čelu je bio je Curator aquarum bila je odgovorna za vodosnadbijevanje, čišćenje vodovoda i njegovoj zaštiti.

In Roman Empire time there was a service called: cura aquarum. The service, which was led by Curator aquarum, was responsible for water supplying, cleaning of water system and its protection.

Sistem vodosnadbijevanja čini više segmenata.

Cistjerna je predstavljala rezervoar za vodu i imala je komoru za taloženje mulja (castella limaria) . Sa akveduktom je bila povezana cijevima. Građene su od kamena i imale su zidove velike debljine. Zbog izolacije i uštede prostora koji bi zauzimala građene su u zemlji.

The water supplying system consisted of many segments.

The cistern represented a water tank and had a sludge deposition chamber (castella limaria). It was connected to the aqueducts by pipes. They were built of stone and had walls of a great thickness. They were built in earth due to isolation and space saving.

Voda u njima nije se mogla ugrijati ni zalediti, zidovi su bili fiksirani uz zemlju, razni mikrobi i vegetacije nijesu bile prisutne. Unutrašnjost im je bila obložena malterom . Cisterne su mogle primiti od 10 do 40 kubika vode, a javne cisterne i po više hiljada kubika .

The water in them could not be warmed nor frozen, the walls were fixed with ground, various microbes and vegetation were not present. The interior was covered by mortar. The cisterns could receive from 10 to 40 cubic of water, and public cisterns even more thousands of cubic.

Vitruvije daje opis:... „Kod građenja cisterni ovako treba raditi: Najpre se pripravi što čistiji i što oštiji pesak, a bazaltno kamenje razbije u komade, teške otprilike funtu; u malternom sanduku se umeša što jači malter, tako da dođe pet delova peska na dva kreča. Tada se jama nabije do potrebne visine drvenim gredama, okovanim gvoždem. Kad se učvrste zidovi, neka se iz sredine ukloni sva zemlja do najnižeg ruba zidova. Čim se to uravna, neka se tle nabije prema debljini koja se odredi. Ako se uporedo načine dve cisterne da se voda može procedivati i tako menjati, dobiće se za upotrebu mnogo zdravija i ugodnija. Tako se blato može taložiti, voda će biti bistrija i očuvaće se ukus bez mirisa; ako ne, biće potrebno da se doda soli i tim razredi“. (Vitruvius VIII, 14-15).

Vitruvius gives the description: ...”While building the cisterns this should be done: Firstly, as clean and sharper as possible sand is prepared, and basalt stones are smashed into pieces, weighty about a pound; in mortar box is melted as strong as possible mortar, so that it comes five pieces of sand on two limes. Then, the cave is huddled to the needed height by wooden beams, shrouded in iron. When the walls are fixed, the whole earth from the middle should be eliminated, till the lowest edge of the walls. As soon as it is adjusted, the dirt should be huddled according to the thickness that is determined. If there are two cisterns built, so that the water could be filtered and that way changed, it will be much healthier and nice for usage. That way the mud could be deposited, the water would be cleaner and the taste without a smell would be preserved; if not, there would be necessary to add salt and dilute that way. (Vitruvius, VIII, 14-15)

Vodovodni kanali imali su otvore, koji su služili za otklanjanje kvarova i čišćenje nečistoća.

The water system channels had openings which served for damage removing and for cleaning the dirt.

Bazeni su služili za regulisanje toka vode tokom kišnog i sušnog perioda, a građeni su uzduž trase. Trase su bile ograđene sa obadvije strane kamenom.

The pools served for regulation of the water flow, during rain and dry period, and they were built along the line. The lines were surrounded by stone, both sided.

Akvadukti su uslovljeni konfiguracijom terena i većinom su imali blagi pad i birana su mjesta koja su što manje izložena suncu. Vitruvije je smatrao da nagib ne smije biti manji od dva ipo cm. na svakih tridesetak metara.

Aqueducts were conditioned by configuration of the terrain and mostly had a slight fall, and the places that were less exposed to the sun were elected. Vitruvius considered that the slope should not be less than two and a half centimetres on every thirty metres.

Tokom perioda materijal za vodovodne cijevi se mijenjao i pravljene su od: kamena, drveta, keramike i olova. Olovne cijevi su bile najjeftinije i zbog svojstva olova najlakše za obradu. Olovne cijevi su imale minimalnu dužinu oko tri metra, a širinu oko 1,85m. Keramičke cijevi u doba helenizma stavljane su u zidane kanale. Imale su otvore sa poklopcima koji su služili za čišćenje , dok su na sastavima ojačavane trakama od olova.

During the period the material for water supply pipes was changing and it was built of stone, wood, ceramics and plumb. Plumb pipes were the cheapest and due to the plumb features the easiest for processing. Plumb pipes had a minimal length of about 3 metres, and width of about 1.85 metres. Ceramic pipes in Hellenistic period were put in masonry channels. They had openings with lids used for cleaning, while on compositions they were strengthened by plumb strips.

Rimska hidraulička iskustva koristila su se do sredine XIX vijeka.

Rimski epigrafski kameni natpisi predstavljaju značajne materijalne ostatke, koji nam govore o vremenu nastanka, dogradnji, mjestu i mogu da sadrže i ostale potrebne informacije vezane za akvedukte.

Arheološka istraživanja, koja se odnose na vodovod su jako rijetka. Obično se radi o slučajnim nalazima.

Roman hydraulic experience was used till the middle of the nineteenth century.

Roman epigraphic stones inscriptions represent important material remains, which talk about the occurrence time, upgrade, place, and they can contain even the other necessary pieces of information related to the aqueducts.

The archaeological researches related to water system are very rare. Those are usually the accidental findings in question.

Bačve – Piskara

Na omanjem brežuljku smještenom u blizini Prevlake, na blagoj padini, koja se spušta prema moru nalaze se ostaci zidanog rimskog vodnog sistema. Orjentisan je u pravcu SI-JZ.

Do lokaliteta vode dvije utabane staze, koje se odvajaju od glavnog puta.

On a small hill situated near Prevlaka, on a gentle slope, towards the sea, there are the remains of Roman built water system. It is oriented in NE – SW direction.

Two paved paths, which are separated from the main road, lead to the location.



Staza koja vodi do lokaliteta / Paths that lead to the location

Zidani kompleks, kojem su sačuvani ostaci tlocrta osnove, sastojao se iz više cjelina podređenih njegovoj funkciji. Okvirne granice sistema su imale oblik pravougaonika.

Dužina sačuvane jedne stranice iznosi: 16,57m. Dok druga sačuvana strana iznosi 6,49m. S obzirom da su zidovi urušeni i djelimično se nalaze pod zemljom, originalne dimenzije kompleksa su bile veće.

Built complex, to which the remains of ground plan base are preserved, consisted from many unities subordinated to its function. The system framework boundaries had a rectangular shape. The length of one preserved side is: 16.57m, while the other one is 6.49m. According to the fact that the walls were collapsed and partially under the ground, the original dimensions of the complex were bigger.



Spoljni ugao kompleksa / The outer corner of the complex



Urušeni duži zid/ The collapsed, longer wall

Središnjom podužom osom bio je podijeljen na dva dijela. Ostaci velike prostorije nalaze se na istočnoj strani objekta, a pretpostavlja se da je predstavljala cisternu. Ova prostorija je bila zasvođena. Danas je vidan dio svoda u sjeveroistočnom uglu.

By longer, central axis it was divided in two parts. The remains of a big room are on the east side of the object, and it is assumed that it represented a cistern. This room was vaulted. Nowadays, a visible part of a vault is in the north-eastern angle.



Dio središnjeg zida i svoda / The part of a central wall and vault

Jedan od najznačajnijih načina snadbijevanja vodom u antici predstavljale su cistjerne. Mogle su se puniti skupljanjem kišnice ili dovođenjem vode sa nekog udaljenog izvora. Kad je kišnica u pitanju, voda se skupljala i preko cijevi sa krova spuštala se u cistjernu. Ukoliko je dopremana sa udaljenog izvora korišćeni su vodovodni kanali i cijevi. Kada je u pitanju ovaj nalaz, najverovatnije je da je voda dolazila sa nekog izvorišta, kojim obiluju obronci Lovćenskog masiva. Crnogorčević navodi da su u polju nalaženi kameni čunkovi kojih je bilo sve do crkve Sv. Nedjelje u Pelinovu. Jedna spoljna strana zida cistjerne nalazi se pod zemljom i nije vidljiva. Unutrašnja strana zida i dio svoda su zidani od tesanog kamena vezanog sa krečnim malterom.

One of the most significant ways of water supply in Antics represented the cisterns. They could be filled by rainwater or bringing the water from some distant spring. When the rainwater is in question, the water was also accumulated and put into the cisterns, by the pipes from the roof. If it would have been transported from the distant spring, the water supply channels and pipes were used. When we talk about this finding, it is the most certain that the water came from some spring abounded by slopes of Lovćen massif. Crnogorčević cites that there were found stone slabs in the field, and they were all the way to Holly Sunday church, in Pelinovo. One outer side of the cistern wall is under the ground and it is not visible. The inner side of the wall and the part of the vault are built of carved stone tied to lime mortar.



Detalji tehnike zidanja / The detail of building technique

Unutrašnjost cistjerne je obično oblagana ciglom i malterisana krečnim malterom sa primjesama mljevene cigle. Ovaj način zadanja je obezbjeđivao nepropusnost vode.

The interior of the cistern was usually covered by brick and plastered in lime mortar, with minced brick admixtures. This way of building provided water impermeability.



Unutrašnja strana zidana u opeci / The inner side built in brick

Dovodni i odvodni kanali za sada nijesu uočeni i pronađeni, zbog promjene konfiguracije terena protokom vremena. Ovaj prostor na zapadnoj strani bio je podijeljen na tri jednake manje cjeline, u koje se slijevala voda. Središnji zid koji je odvajao ove dvije cjeline, imao je tri lučna otvora, koja su predstavljala kanale kojima je voda dolazila. Zidovi ovih prostorija su konstruisani od kamena sa oblogom od cigle. Lučni otvori su zidani od tesanog kamena, slaganom u pravilne redove.

Sam luk je sagrađen od pločastog kamena ređanog nasatice.

Inlet and outlet channels had not been seen and found for now, due to the changing of terrain configuration by time. This space on the west side was divided in three equal smaller unities, in which the water was accumulated. The central wall which separated these two unities had three arched openings, that represented the channels through which the water was coming. The walls of these rooms were constructed of stone, with brick lining. The arched openings were built of carved stone, positioned in regular order.

The arch itself was built of a plate stone, randomly arranged.



Prvi lučni otvor / The first arched opening



Drugi lučni otvor / The second arched opening



Treći lučni otvor / The third arched opening

Uočeno je da su prostorije bile na raznim visinskim kotama, što je omogućavalo protok vode naniže, silom gravitacije.

Način zidanja najbolje se uočava na spoljnom zapadnom zidu.

Zid je imao dva lica i između njih ispunu od manjih amorfnih komada kamena i krečnog maltera. Spoljno lice zida je djelimično očuvano. Izvorno je bilo obloženo redovima tesanog kamena sa mjestimičnim ubacivanjem crvene cigle. Ovaj način zidanja ima elemente rimskog *opus mixtum*.

It is noted that the rooms were on various heights, which enabled the water leaking downwards, by gravity force.

The way of building is the best noted on the west outer wall.

The wall had two faces and between them filling of smaller amorphic pieces of stone and lime mortar. The outer face of wall is partially preserved. Originally it was slab-sided by curved stone series, with red bricks in places.

This way of building had the elements of Roman opus mixtum.



Detalj zidanja spoljašnjeg zida / The detail of building the outer wall

Unutrašnje lice je zidano od cigle koja redane u pravilne horizontalne redove, Ovaj način zidanja je omogućio zadržavanje vode u unutrašnjost sistema.

The inner face is built of brick, which is lined in regular horizontal rows. This way of building enabled water keeping in the interior of the system.



Detalj zidanja unutrašnjeg zida / The detail of building the inner wall

Pretpostavka je da su svi unutrašnji zidovi bili zidani na ovaj način.

U novijoj literaturi ima malo podataka o ovome objektu. Istraživači ovoga područja se pozivaju na M. Crnogorčevića koji je dao detaljniji opis lokaliteta i koji je objavljuje u Starinaru iz 1893 (1900) godine.

kazuje da se kraj sv. Neđelje u Bačvu slijevalo ulje, jer da nije bilo tovarne životinje, a da se nije moglo prenositi na uprt, jer rađaše u velikom izobilju, tako da se snabdijevaše kandilo prevlačko i brodovi, kojima se prodavše ispod Prevlake. Takvo slijevanje ipak je teško prihvatiti: čemu se ulje nije prenosilo?! Moglo bi se valjda pretpostaviti da se slij, Na uzvišici (kod prijedžbe) tkz. Bačva, koju zovu i Piskarom. To je starinska građevina. Duga je 16m. a široka 7m. Posred je uzdužni (centralni) zid sa tri svoda, koji izgleda kao most sa tri oka. Po više triju svodova bijaše svod (arco pieno) preko sve bačve od sjevera k zapadu, dokle obratnim smjerom nego li su vijenci triju podzemnih svodova. a po više svodova bijaše zemlja. Od donjih triju svodova do gornjeg svoda, bijaše 2 m. visine, ili nešto manje. Na gornjem svodu koga već nije bijaše okno na zapadnom kraju, koje je služilo kao vrata.

Bačva je građene neobično čvrsto. Zidovi po stranama debeli su joj do 90 cm.: Spolja su građeni ovećim četvrtastim tesanicima, u srijedi omanjim kamenjem, utvrđenim maltom, a od ovoga lijepo poredanim opekama, živo crvene boje, a obložene takođe maltom. Tako poredane opeke izgledaju najljepše u jednom kraju, gdje zid izgleda kao saliven, da bi u njemu voda, ulje ili druga tečnost mogla sačuvati vodu.

Srednj uzdužni zid na tri svoda građen je od dovoznog kamena, crvenog i bijelog (cklvenika).

Vertikalno odstojanje obrve istočnog i sjevernog zida od nutrnjega tla (pasila, postavšeg od razrušenog gornjeg svoda) je poprečno od 40-90 cm.; odstojenje pak obrve od vanjskog zemljišta na sjevernom zidu iznosi 909 cm. Ostali je zid pod zemljom, a takav je uvijek bio kao što su i danas spoljnji zidovi na istočnoj, južnoj i zapadnoj strani.

Dok bačvu ne oštetiše gromovi ona bijaše zasvodene na *sad*, te se skrivao narod od nepogode pod svedenim prostorom. Pravac građenja je onaj isti koji je i na mostu na Stradiotima, od sjeveroistoka ka jugozapadu (NO-SW). Do same Bačve dovodili su kameni čunkovi, kojim je početak-u rastojanju od 8 km.-nađen kod sv. Neđelje u Pelinovu grbaljskom, a bilo ih je i na pretrg kojekuda, naročito kod veljih njiva.

Dok se ne odredi da li je Bačva bila hranionica, skrivnica ili podzemna tamnica, njena namjena ostaće zagonetna.”

There is an assumption that all inner walls were built this way.

In contemporary literature there is not much data regarding this object. This area researches are addressing M. Crnogorčević, who gave a detailed description of the location and it is published in Starinar, from 1893 (1900) year.

Crnogorčević says that near Holly Sunday, in Bačva, the oil was pouring, because there was not a pack animal, and due to that it could not be transported, and it was growing in huge amounts, so that the Kandel of Prevlaka and the vessels, by which they are sold under Prevlaka, are being supplied. Such pouring was not easy to accept: why the oil could not be transported? It could be possibly assumed that it could pour "on the knap (near Prijedžba), so called Bačva, which is also called Piskara. It is an ancient building. Its length is 16m, and its width is 7m. In the centre there is longitudinal (central) wall with three vaults, which looks like a bridge with three eyes. Above three vaults there was also a vault (arco pieno) along the whole Bačva from north to south, the opposite directions from the wreaths of three underground vaults, and above the vaults there was the earth. From the three lower vaults till the upper one there was 2 metres of height, or something less. On the upper vault there was a shaft on the west end, that served as the door.

Bačva was built unusually tight. The side walls were of 90cm thickness: Their outside building was characteristic due to the bigger quartal ashlars, in the centre the smallish stones, fortified by mortar, and from this very nice row of bricks, of vivid red colour, also fortified by mortar. The bricks aligned that way were the most beautiful in the surrounding, where the wall looked like imagined, so that the water, oil or other liquid could preserve the water in.

Central longitudinal wall on three vaults was built of imported stone, red and white (cklvenik).

Vertical distance of the eyebrow (vault) of eastern and northern wall from the internal ground (Pasil, originated from destroyed upper vault) is from 40 to 90 cm transversely; but the distance of the eyebrow (vault) from the external ground on the north wall is 909 cm. The rest of the wall is under the ground, and such was the same as today are the external wall on the east, south and west side.

Until Bačva was not damaged by thunders it had been vaulted on sad, so that people could hide from catastrophes under the vaulted space. The building direction is the same as the one on the bridge on Stradioti, NE-SW. Stone chunks were leading to Bačva itself, and their originate – in the distance of 8 km – was found near Holly Sunday church in Pelinovo of Grbalj field, and they were also on a lot of other places, especially near Velje njive.

Until it is not determined if Bačva was Mensa, a hiding place or an underground prison, her purpose will stay mysterious."





Uz tekst M.Crnogorčevića je priložen grafički prikaz lokaliteta.

Ovaj kompleks je bio u funkciji snadbijevanja vodom objekata i naselja na Prevlaci. Ovako sagrađen vodovodni sistem morao je obezbjeđivati veći dio objekata. Nalaz ostataka mozaika *ville rustice* u dva kulturna sloja, ukazuje na njeno duže trajanje i postojanje značajnijeg naselja na ovom prostoru u rimskom periodu.

Tačno datiranje će se utvrditi tek nakon sistematskih istraživanja cjelokupnog prostora.

With M. Crnogorčević text, the graphic representation of the location is attached.

This complex was in function of water supplying the objects and settlements on Prevlaka.

This built water system had to provide greater part of the objects. The finding of villa rustica mosaic remains in two cultural layers, demonstrates its long – lasting and the existence of more significant settlement on this area, in Roman period.

The exact date will be confirmed only after the systematic researches of the whole scope.

Zaključak

Dvije staze koje vode do njega obrasle su sitnom i krupnom divljom vegetacijom, što onemogućava dolazak na teren. Sam lokalitet je bio obrastao visokim stablima koja su formirala šumu čitavom površinom.

The Conclusion

Two paths which lead to it are overgrown by small and large wild vegetation, that disables the terrain access. The location itself was overgrown by high trees which formed the forest all along.



Samonikla vegetacija / Self-sown vegetation

Pojedina stabla su nicala iz samih zidova, a njihovo korjenje je uveliko razorilo pojedine segmente zidova.

Some trees sprout from the walls themselves, and their roots mostly destroyed some segments of the walls.



Devastacij zida / The wall devastation



Ostaci posjećenog drveća / The remains of cut trees

Posle uklanjanja i odvoza rastinja ukazale su se konture lokaliteta, što je omogućilo identifikaciju i deskripciju objekta. Utvrđeno je da se radi o ostacima rimskog vodovodnog sistema. Sa ovoga mjesta voda se distribuirala do objekata na Prevlaci.

Nalaz ove namjene predstavlja raritet na ovom području. Ukazuje na jednu civilizacijsku epohu koja je ostavila materijalni trag koji se sačuvao vjekovima.

Zbog stanja u kojem se nalazi, kao i izuzetne vrijednosti neophodno je pod hitno planirati sistematsko arheološko istraživanje. Posle definisanja rezultata istraživanja, neophodno je preuzeti konzervatorske mjere radi zaštite lokaliteta od daljeg propadanja.

Svi preuzeti predhodni radovi treba da rezultiraju turističkom valorizacijom i prezentacijom lokaliteta.

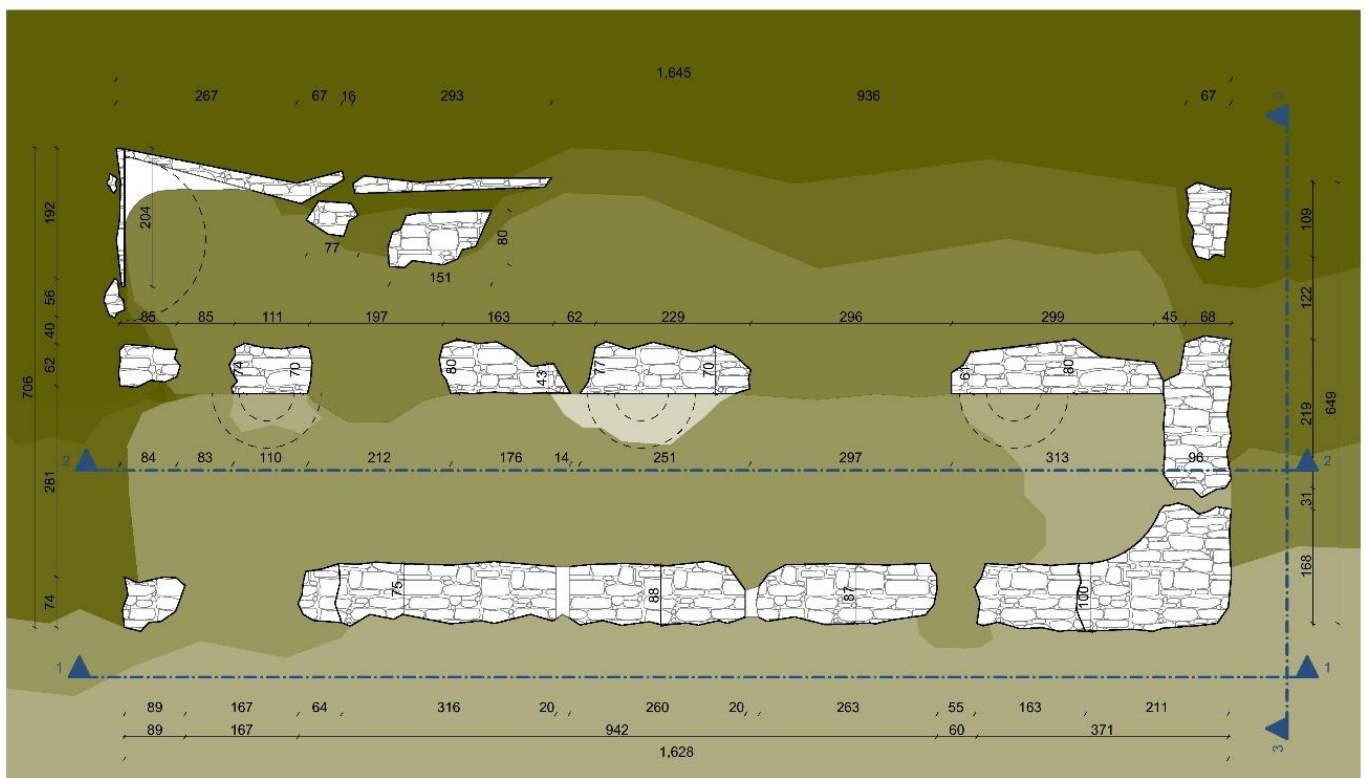
After the disposition and removal of the vert, the location contours were shown, what enabled the object identification and description. It is confirmed that the remains of Roman water system are in question. From these places the water was distributed to the objects on Prevlaka. This purpose finding represents a rarity on this area. It indicates at one civilizational epoch, which left the material trace that was preserved by centuries.

Due to the condition it is in, as well as the extraordinary value, it is necessary to urgently plan the systematic archaeological research. After the defining of the research results it is necessary to retake conservatory measures because of the location protection from further devastation.

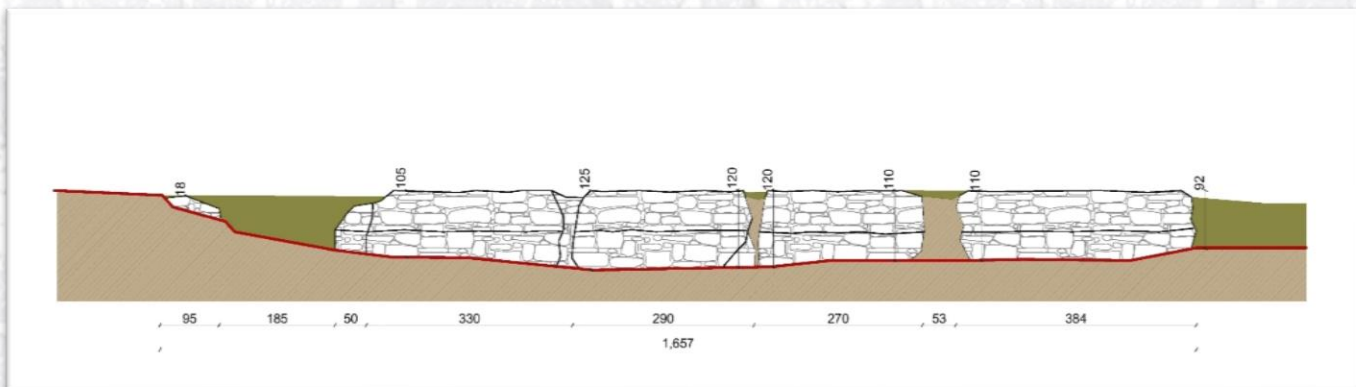
All retaken former works should result in touristic valorisation and the presenting of the location.

Prilog/Anex:

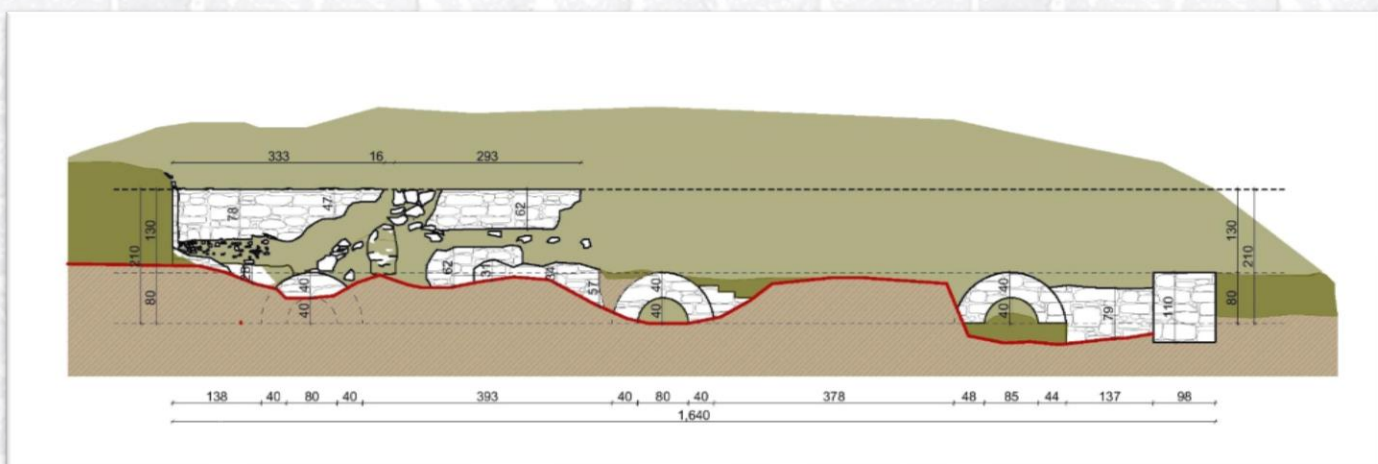
Osnova / Foundation:



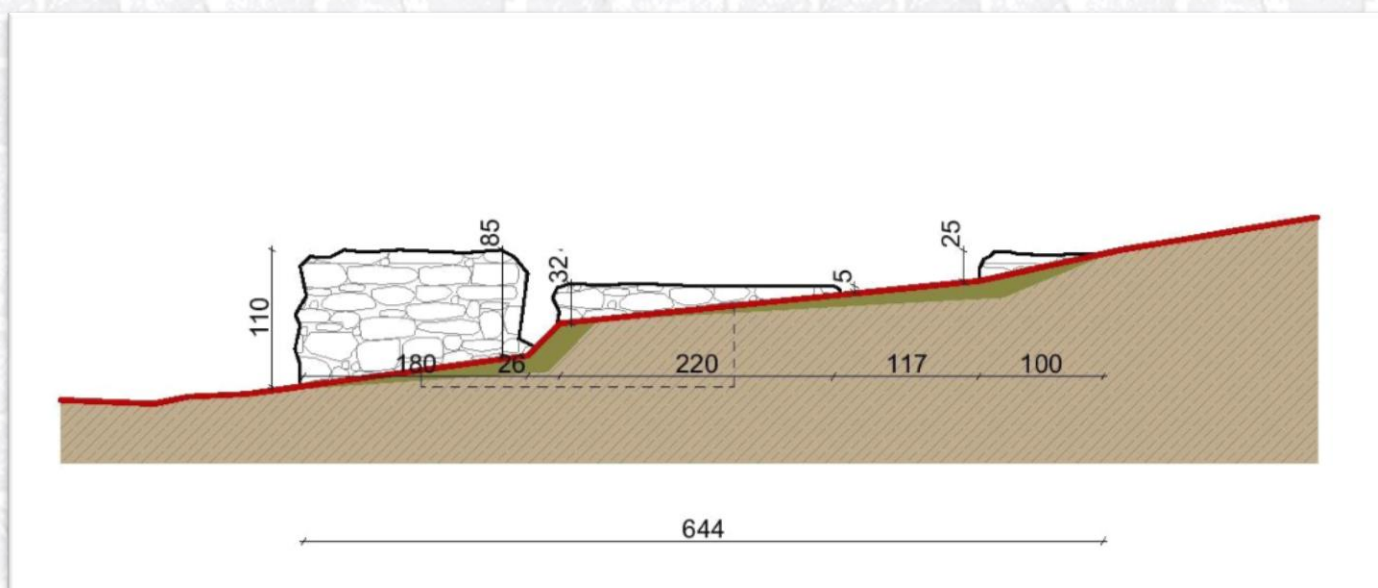
Izgleđ 1-1 / Appearance 1-1



Izgleđ 2-2 / Appearance 2-2



Izgleđ 3-3 / Appearance 3-3







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