

Ancient port complex in Pakoštane near Zadar

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1. Introduction

Many secrets lie hidden in the sea near Pakoštane. These were largely unknown until a few years ago, when rich and diverse archaeological material associated with an important port complex were discovered on the seabed of this north Dalmatian coastal settlement situated some 40 km south of Zadar. To be precise, a shipwreck, salt pans and a port dating back to the Roman Imperial period were found at three locations within a spacious bay (Pl. 1: 1, 2). The archaeological remains were first noticed in June 2004 by Marko Meštrov, a student of archaeology and history and also a diver. Systematic underwater excavations started at approximately the same time, mainly supported financially by the Pakoštane municipality¹. The manager of the scientific project Underwater Archaeological Excavations of the Ancient Ports of Adriatic Croatia was Zdenko Brusić from the Department of Archaeology at the University of Zadar, who supervised the first excavation campaign, which revealed the location of the ancient port and rich cultural strata thorough site survey. Well preserved remains of a shipwreck were partially excavated, documented and protected (Pl. 2: 2 A, B) (Brusić 2005a: 191, 192; Ilkić 2006: 10, 11).

The next campaign comprised new excava-

tions in the ancient port (Brusić 2006: 306, 307).

In the summer of 2007 excavation of the shipwreck continued under the supervision of Irena Radić Rossi from the Croatian Conservation Institute at Zagreb. The ship's construction was thoroughly documented thanks to cooperation with experts from the French Institute Centre National de la Recherche Scientifique, Centre Camille Jullian, Aix-en-Provence.

2. Site

The wreck lies about 100 m south-west of central coastal Pakoštane, near the islands of St Justina and Veliki Školj (Pl. 1: 2 B), at a depth of 2 m, covered with a thick layer of fine sand (Pl. 2: 2), which was removed with a water dredge. The specific style of wooden hull planking joints pointed to an ancient date for the shipwreck. Pottery associated with the site suggested a possible Late Antique date for the vessel, which was confirmed by radiocarbon analysis (¹⁴C) of wood samples that yielded a reading of 1615 ± 85 BP (Brusić 2005b: 18). The wooden hull remains were protected *in situ* with geofabric and covered with a thick layer of sand.

The discovery of the ship offers new possibilities to interpret the Pakoštane region in the Roman period. Before the ship sank, its wooden hull had

been repaired at several locations with numerous lead patches. Lead plates were also used to fill holes on the interior of the ship's hull.

In 2005 divers from the Croatian Conservation Institute conducted an underwater rescue excavation at central Pakoštane, resulting in the discovery of a wooden structure made of posts and boards (Pl. 1: 1 C; 2: 3). These remains, which form a series of pools in shallow seawater, proved to be ancient salt pans.

The ancient port was located south-east of the salt pans, next to coastal Janice (Pl. 1: 2 A). It was developed at an exceptionally favourable location with a massive barrier, which is presently submerged (Pl. 2: 1), stretching in a south-western direction almost perpendicular between coastal Janice and the small island of St Justina. It is still unclear whether this barrier is natural or artificial. This provided the ancient port with excellent protection from the southern winds. The abundant source of drinking water found along the local shoreline also served as an important maritime attraction for sailors.

The bottom of the ancient port is covered with numerous finds, mainly pottery, at a depth of two metres. Two probes measuring 2 x 2 m were opened about 30 m offshore with an airlift, revealing a thick and exceptionally rich cultural layer 90 cm thick at places. The upper section revealed a 20-30 cm deep deposit, which proved to be the ancient level of the seabed, composed of broken stone mixed with numerous amphora and roof-tile sherds, in addition to some ballast stones. The underlying layer, 20-40 cm thick, consisted of sand, mud, and some small stones. Besides various artifacts, it contained numerous bones of animals, sea snails and shells, as well as seeds including olives, walnuts, almonds, and small

tree branches (Pl. 2: 4). The final underlying cultural layer, about 30 cm thick, reached bedrock (Brusić 2005a: 191; id. 2006: 306).

The cultural layer in both probes abounded in rich and diverse artifacts, of which pottery was the most numerous. Also present were finds made of glass, metal, wood, hide and stone. It is obvious that this layer was formed through the long-term presence of ships at this location, which is also confirmed by the large quantity of ship's equipment recorded (Pl. 3: 1-7).

Artifacts relevant to dating the port, and some rare types of archaeological material, include the same Latin letters appearing on two fragmented *tegulae* reading [SO]LONAS and i SOLON[AS] (Pl. 6: 1, 2). This roof-tile is one of the earliest finds from the ancient port of Pakoštane: building material with SOLONAS stamps date from the third or second decade of the 1st century BC until the reign of Nero (Righini 1998: 45). The inscription probably relates to *Solonates*, the autochthonous community of Emilia (Righini 1998: 41; Mardešić 2006: 102). Products from this *figlina* are widespread along the coasts of central and northern Adriatic, and they have also been recorded in the hinterland of the Roman province of Dalmatia (Škegro 1991: 225, 226, 228).

Several coins were also discovered in the ancient port². A *sestertius* minted during the reign of Trajan is the best preserved example (Pl. 6: 3). The bust of the emperor facing right on the obverse occurs with the legend 'IMP CAES NERVA[E TR]AIANO AVG GER DAC P M TR P [COS] V P P'. The legend 'S P Q R OPTIMO PRINCIPI' runs around a standing Spes on the reverse, with the abbreviation S-C appearing in the field. This type of coin is listed in the catalogue

Roman Imperial Coinage (RIC 519) as dating back to AD 103-111.

Almost all of the pottery types used in the eastern Adriatic coast during the first three centuries AD are found in the ancient port. Fine pottery is represented by bowls, plates and jugs of differing provenance. A beaker with two handles (Pl. 5: 4) originates in northern Italy and is characteristic of the 1st to 2nd century AD (Plesničar-Gec 1977: 20, Pl. 1: 70). There are also some examples of wares from Asia Minor, including interesting examples of Eastern sigillata B dating to the end of the 1st and second half of the 2nd century AD, such as flat-based plates (Pl. 5: 2) belonging to Hayes' type 60 (Hayes 1985: 64, Pl. 14) and plates with a rounded base (Pl. 5: 3) known as Hayes' type 80 (Hayes 1985: 69, Pl. 15). Çandarlı's Form 3 flanged bowls (Pl. V: 1), also represented, belong to the second half of the 2nd century (Hayes 1983: 104, 118, 120).

Coarse wares are especially numerous in Pakoštane. 'Eastern kitchen ware' from Asia-Minor and of Greek origins was used in ships' galleys, as revealed by the presence of soot on all pottery types used for cooking, such as the Hayes' Type 2 casserole (Pl. 4: 4) (Hayes 1983: 122). Cooking pots were also found in Pakoštane of Hayes' Type 2 (Pl. 4: 3) (Hayes 1983: 122, 123). Corresponding finds to all these coarse wares from the Athenian Agora date back to the end of the 1st and beginning of the 2nd century AD (Robinson 1959: 42, Pl. 7).

A huge amount of pottery used for drinking was found in the Roman port. A cup with a handle (Pl. 4: 1) is dated mainly by Hayes from the late Flavian era until AD 200, although some sub-forms continue throughout the 3rd century (Hayes 1983: 107, 122, 124). Trefoil-mouthed jugs with

a strip-like handle (Pl. 4: 2) adhere to Hayes Type 1 (1983: 122, 124), while similar jugs from the Athenian Agora date to the end of the 1st and early 2nd century (Robinson 1959: 42, Pl. 7).

The body of one jug from Pakoštane bears an inscription whose meaning remains enigmatic (Pl. 6: 4). Another jug incised 'SALONA' probably belonged to a local pottery workshop. The embossed letters naming the capital of the Roman province of Dalmatia run symmetrically between two handles on the upper part of the biconical body (Pl. 2: 5). The form of the jug's letters are similar to another from Nin incised 'FELIX ARBA' (Nedved 1990: 4-8).

Numerous sherds from different amphora types were also discovered in the Roman port. A small lead artifact in the form of an amphora is especially interesting and rare, and may have possessed a votive character.

3. Conclusion

All of the archaeological finds discovered so far show that the Roman port of Pakoštane was intensively used, mainly between the 1st and 3rd century AD. Although only a small part of the seabed has been explored so far, we expect future research to confirm the strong, long-held theory that Pakoštane corresponds to the ancient port of *Asseria*, a splendid ancient town known to have been situated near Benkovac in southern Liburnia (Jelić 1898: 121; Iveković 1932: 155). Be that as it may, these underwater excavations have resulted in the discovery of a significant port complex from antiquity. Pakoštane was one of the most important ports along the Croatian coast, a seaport much exploited in Roman times.

Notes

- 1 Zdenko Brusić, Mato Ilkić, Mate Parica and Martina Čelhar from the Department of Archaeology of the University of Zadar and Marko Meštrov, a student of archaeology and history took part in the first two campaigns. Members of the Croatian Conservation Institute supervised by Irena Radić Rossi joined the next campaign 2005. Experts from the *Centre National de la Recherche Scientifique, Centre Camille Jullian, Aix-en-Provence* in France participated in the 2007 excavation campaign.
- 2 Four ancient coins have been found in the sea in the area called Janice. An article by Mato Ilkić and Marko Meštrov is under preparation for publication in a forthcoming issue of *Vjesnik Arheološkog muzeja u Zagrebu*.

References

- Brusić, Z., 2005a, Luka Pakoštane – Jamice i položaj između otočića Sv. Justine i Velog Školja. *Hrvatski arheološki godišnjak* 1/2004: 191, 192.
- Brusić, Z., 2005b, *Tragovi prošlosti pakoštanskog kraja*, Zadar.
- Brusić, Z., 2006, Luka Pakoštane – Jamica. *Hrvatski arheološki godišnjak* 2/2005: 306, 307.
- Hayes, J. W., 1983, The Villa Dionysos Excavations, Knossos: The Pottery. *The Annual of the British School at Athens* 76: 97-169.
- Ilkić, M., 2006, Lucerne, keramika i Trajanovi šoldi. *Aqualung* 1: 10, 11.
- Iveković, Č., 1932, Istraživanje starina u Biogradu na moru i njegovoj okolini. *Ljetopis Jugoslavenske akademije znanosti i umjetnosti*, 44: 146-157.
- Jelić, L., 1898, Povijesno-topografske crtice o biogradskom primorju. *Vjesnik za arheologiju i historiju dalmatinsku*, n. s., sv. III: 33-126.
- Mardešić, J. 2006. Tegule s pečatima iz starog fonda arheološke zbirke u Vidu kod Metkovića. *Vjesnik za arheologiju i povijest dalmatinsku*, 99: 99-112.
- Nedved, B., 1990, *Felix Arba. Pregled povijesti i spomenika otoka Raba u rano rimsko doba*, Rab.
- Plesničar-Gec, L., 1977, *Keramika emonskih nekropol*, Katalogi in monografije, Ljubljana.
- RIC: Mattingly, H., E. Sydenham, 1968. *The Roman Imperial Coinage*, II. *Vespasian to Hadrian*, London.
- Rigina, V., 1998, I bolli laterizi di età romana nella Cispadana. Le Figlinae. In *Le fornaci romane. Produzione di anfore e laterizi con marchi di fabbrica nella Cispadana orientale e nell'Alto Adriatico*. Atti delle giornate internazionali di studio (Rimini, 16 - 17 ottobre 1993), 29-52. Rimini.
- Robinson, H. S., 1959, *Pottery of the Roman Period, The Athenian Agora*, vol. V. Princeton-New Jersey.
- Škegro, A., 1991, Rimske žigosane opeke na području Bosne i Hercegovine. In *Zbornik radova posvećenih akademiku Alojzu Bencu*, Akademija nauka i umjetnosti Bosne i Hercegovine, Posebna izdanja, knjiga XCV, Odjeljenje društvenih nauka, knjiga 27, 221-237. Sarajevo.

Pl. I



1



2

Pl. II



Photo by: Z. Brusić
M. Parica
K. Zubčić

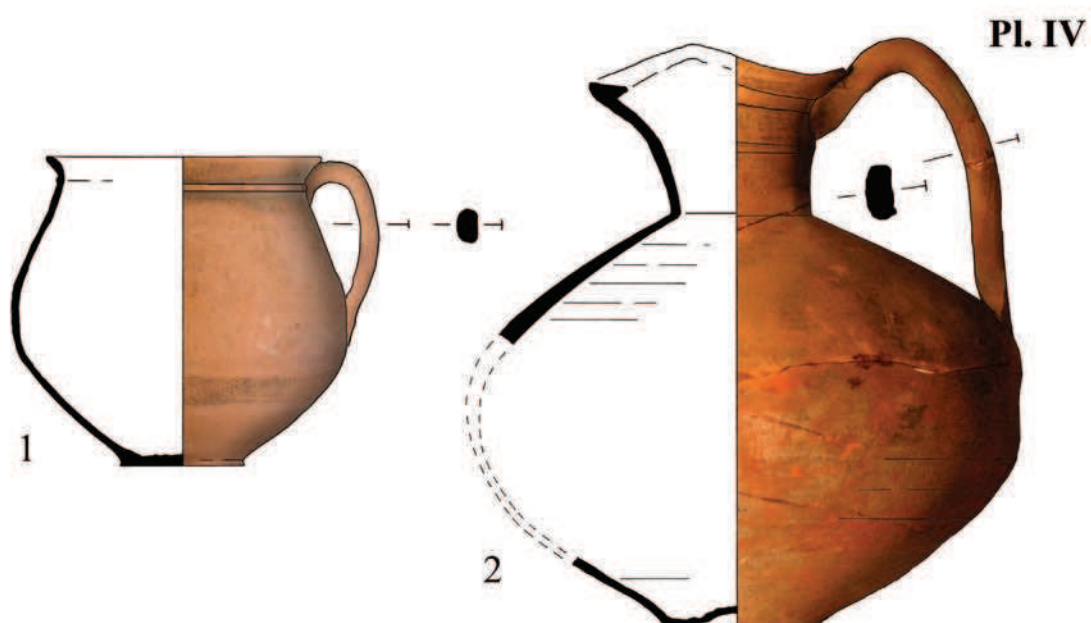


Pl. III



Photo by: R. Mosković

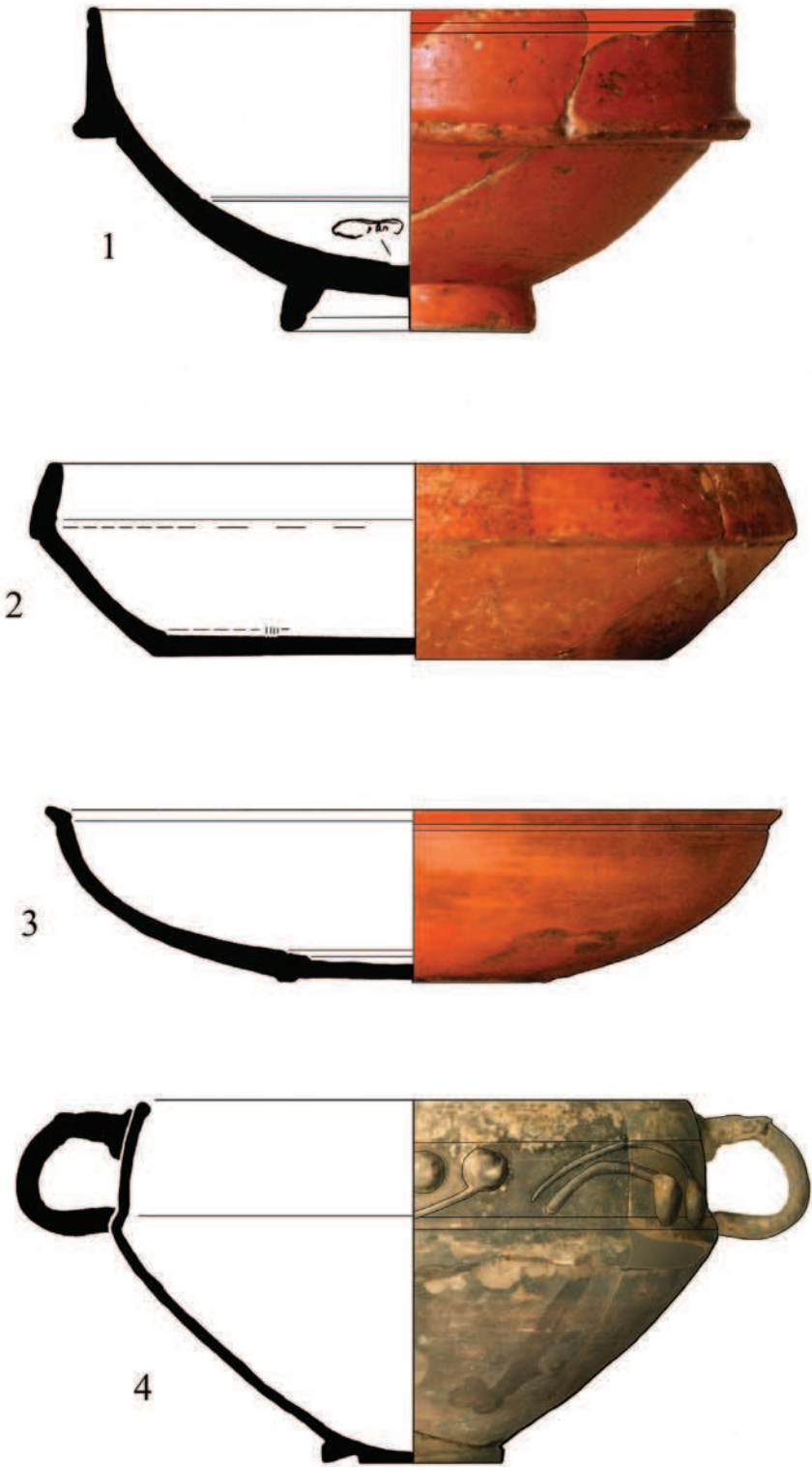




Drawing by: M. Parica



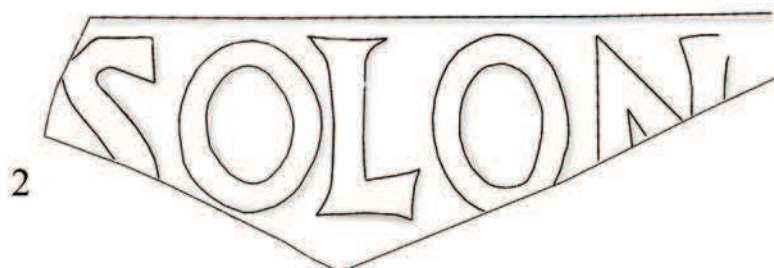
Pl. V



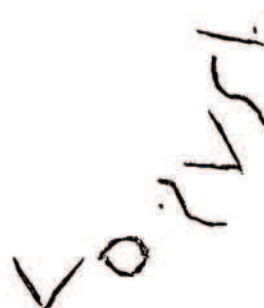
Drawing by: M. Parica



Pl. VI



3



Drawing by: M. Parica

