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In the Adriatic region numerous examples of sewn boats have already been documented. This map shows an already rich archaeological corpus of sewn boats recently supplemented thanks to archaeological excavations in the antique colony of Parentium.

At the beginning of 2020, the municipality of Poreč started to renovate the southern city waterfront. The archaeologists of the Museum of the Poreč territory were in charge of the archaeological supervision and excavation.

At the intersection of Obala Maršala Tita and Cardo Maximus streets, at a depth of -1,55 meters below the current mean sea level, a sewn boat was discovered lying on the ancient sea bottom together with some interesting harbor structures.

During April, excavation, in situ documentation and study, and salvage of the boat were carried out in collaboration between the Museum of the Poreč territory, the Archaeological Museum of Istria, the Directorate for Protection of Cultural Heritage of Croatia and the Centre Camille Jullian (Aix Marseille University, CNRS). Companies Macuka Ltd. and Kapitel Ltd. provided technical support for the archaeological excavation. After desalinization, the boat was sent few days ago to Laboratory Arc-Nucléart of Grenoble for the conservation process. Before, it will be the object of dendrochronological analyses and detailed documentation.

The boat (named Poreč 1) was found adjacent to the remains of the Roman-era waterfront made of large stone blocks, following an approximate East-West orientation parallel to the current shoreline. The boat was covered with large stones. The western extremity was better preserved than the eastern part. Abundant ceramic and amphorae material were also found. Its preliminary study gives a date for the abandonment of the boat in the middle of the 1<sup>st</sup> century AD. Its construction could be hypothetically placed in the first half of the 1<sup>st</sup> century AD.

After fine cleaning, the boat was documented and prepared for various stages of 3D documentation by digital photogrammetry. Structure was also sampled to identify the species of wood used in construction.

The Poreč boat was preserved in the length of 5,7 m and width of 1.4 m. Its longitudinal section preserved some of the original curvature in its western part and in the transversal section amidships.

The boat remains consisted of a keel and 2 transitional timbers, a total of 13 strakes (7 along the northern side and 6 along the southern side), 9 floor-timbers, one keelson/mast step, and 2 stringers.

Based on the position of the mast step and form of the mast recess it was possible to establish that the prow of the boat was on the eastern side. Unfortunately, this part of the boat was particularly damaged while the stern was in a better state of preservation.

The keel, 5.6 m long, was 5 cm sided and 6 cm moulded, and it had a rectangular, non-chamfered section. The hook scarfs on boat ends connected the keel with transitional timbers. The scarfs were secured by vertical treenails and a metal nail.

The planking was flush-laid and assembled by stitching. Three strakes were identified as stealers (PN2, PN3 and PS3), while three others presented repairs (PN4, PN5, PS2). Planks were 8 mm thick on average, with a maximum width for the northern garboard (PN1) of 15.5 cm (garboard PN1). The average width of the strakes was 11.7.

Planks were connected with simple over-edge stitches (parallel sewing pattern). The channels were perpendicularly drilled through the thickness of the planks. The outer internal edges of the planks bear traces of small rectangular recesses to protect the stitches.

The seams were blocked by small tapered pegs, with an average diameter of 7 mm. The pegs were driven from the inner side of the hull at an average distance of 2.6 cm. Some repair pegs covered by the floor timbers were driven from outside of the hull. A wadding pad was placed on top of the seams, and held tightly by the ligature. A thick layer of pitch completed the waterproofing system.

Nine floor timbers were preserved in place, and traces of additional ones were identified due to the rows of treenails still visible on the planking. Rectangular in section, on average 5 cm sided and 7 cm molded, they were spaced 38 cm apart, except between floor timbers F15 and F16, where the spacing was twice (80 cm). The floor timbers were connected to the planking by tapered treenails.

The lower face of the frames was crenellated in order to avoid crushing the wadding pad. On the bottom of the hull, the openings were quadrangular in shape and oversized (measuring approximately 6 cm in width and 2 cm in height), having the additional function of limber holes.

A keelson/mast-step timber, 1.3 m long, 11 cm wide and 5 cm thick, was installed on the frames between F10 and F13. It was found broken in two parts. This timber is wider around the mast recess, narrowing towards the extremities. Recesses were carved into the lower surface in order to be settled on frames.

The mast recess is rectangular in shape, 8 cm long, 4 cm wide and 4 cm deep. Its eastern side has been cut obliquely, at an angle of approximately 85°, in order to facilitate raising and lowering of the mast.

Finally, the two stringers were attached to the floor timbers by iron nails.

The Poreč boat shares some characteristics with others sewn boats found in Istria (Pula 2) and Dalmatia in Caska (Caska 1, 3 and 4) and Zaton (Zaton 1 and 3). The structure, sewing pattern and waterproofing system is similar. Preliminary examination of the wood of the Poreč boat testify the use of deciduous species of wood, in particular beech of planking as attested in Caska and Pula.

The Poreč boat was built according to a shell principle, and its shape was based on a longitudinal strake-oriented principle. Methods were shell-first.

The boat, long in origin around 7 m, was propelled using both sail and oars, and was used for coastal transportation of goods, peoples and animals.

In conclusion, since the first discoveries of sewn ships in Adriatic, new and significant ship-finds have improved the corpus offering new and valuable data to define the local traditions in shipbuilding that, originated in pre-Roman Istria and Liburnia, survived after the Roman conquest in this part of the Northern-eastern Adriatic nautical space.

Recent discoveries from Istria and Dalmatia strengthen the hypothesis of the survival during the Roman era of various traditions of sewn ships in the Adriatic region - in North-western Adriatic as well as in the North-eastern Adriatic.

These traditions are marked not only by the construction of vessels structurally and functionally different, but also by the use of different sewing patterns or mixed techniques, the choice of different types of wood and raw materials for the hull, the assembly and the waterproofing system.

The Adriatic tradition of sewn ships has a local origin and it is strongly connected to the native pre-Roman shipbuilding tradition, as confirmed by the discovery of the Zambratija sewn boat dating back to the end of the Bronze age.

## References

- G. Boetto, Recherches d'archéologie navale en Adriatique orientale, *Comptes Rendus de l'Académie des Inscriptions et Belles-Lettres*, novembre-décembre, 2016 [2017], p. 1401-1422
- A. Ferreira Dominguez, F. Guibal, G. Boetto, I. Radić Rossi, Dendrology and Dendrochronology of Ancient Shipwrecks from Caska (Pag Island, Croatia): New Data for the Definition of Adriatic Shipbuilding Traditions, in G. Boetto, P. Pomey, P. Poveda (eds), *Open Sea, closed sea. Local traditions and inter-regional traditions in shipbuilding, Proceedings of the Fifteenth Symposium on Boat and Ship Archaeology (ISBSA 15)*, Marseille, 2018, Paris, 2021, p. 251-256 (Archaeonautica 21)
- I. Koncani Uhač, G. Boetto, M. Uhač (eds), *Zambratija. Prapovijesni šivani brod. Rezultati arheološkog istraživanja, analiza i studija / Zambratija. Prehistoric sewn boat. Results of the Archaeological Research, Analysis and Study*, Pula, 2019 [2020], 206 p. (Monographs and catalogues 33)
- P. Pomey, G. Boetto, Ancient Mediterranean Sewn-Boat Traditions. *The International Journal of Nautical Archaeology*, 48, 1, 2019, p. 5-51
- I. Radić Rossi, G. Boetto, Ancient scuttled ships and other harbour structures of Caska (Island of Pag, Croatia) in their cultural and historical context, *The International Journal of Nautical Archaeology*, 49.2, 2020, p. 271-278