Ancient ships from Cissa (Island of Pag, Croatia) in their cultural and historical context

Giulia Boetto, Irena Radic Rossi

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The international interdisciplinary research project Cissa Antiqua focuses on the study of the coastal, partly submerged site of Caska (island of Pag, Croatia), and its historical and geographical context. The project is supported by the Ministry of Culture of the Republic of Croatia, the Croatian Science Foundation, the University of Zadar and the Municipality of Novaja, the French Ministry of Foreign Affairs (MAEED), the Aix-Marseille University and the French National Centre for the Research (CNRS).

GEOGRAPHICAL AND HISTORICAL CONTEXT

During the time of the Roman conquest a Liburnian population inhabited the island of Pag. In the 1st c. AD, Pliny the Elder mentioned it under the name of Cissa portunata (Hist. Nat., 3, 140). The island was called Cissa until the 14th century, when the centre of power moved to the town of Pag. Linguistic research confirms that the name Cissa is preserved in the modern toponym Caska, referring to the bay which abounds in numerous traces of life from the Roman period. The local legends talk about the splendid city of Cissa that, punished by God, sunk into the sea due to the evilness of its inhabitants. According to the results of the recent research campaigns, it is evident that the bay of Caska preserves notable remains of a multi-stratified settlement, whose important phase seems to be identifiable with a big and well-organized maritime villa property of the senatorial family Calpurnii Plaoues. In the framework of the project Cissa Antiqua, the systematic topographical documentation and study of the coastal and underwater structures continue to reveal interesting archaeological features.

THE HARBOUR STRUCTURES

The harbour zone is situated in the shallow waters along the NE edge of the bay of Caska, in front of an impressive terrace wall that belongs to the remains of a monumental maritime façade related to the Roman Imperial phases of the site. In order to facilitate the description of work in progress, the area was divided into four zones (A-D).

In the zones A, B, excavated between 2009 and 2012, the first shipwreck, named Caska 1, was found. It was re-used, after being filled with stones, to fortify some pier-like wooden coastal structure, composed mainly of wooden pilings and raw stone material. Moving to the west, zone C was excavated in 2012 and 2013, revealing the presence of an impressive wooden structure forming the base of a second pier-like structure. It is composed of rectangular caissons, made of horizontal logs kept in place by vertical poles driven through rectangular openings, then filled with stones. Further westwards, zone D, excavated from 2013 to 2015, lies at the southern extremity of a breakwater protecting a mooring area from the southern winds. In the rich cultural layer of this area, a Roman wooden anchor was discovered in 2005. In this zone, the remains of a second reused ship, Caska 2, were found. This ship was filled with stone blocks and sunk on purpose, forming the fundament of a jetty.

CASKA 1

The remains of the laced boat Caska 1 are 8 m long and 1.6 m wide. The transverse section at the main frame has a flat frame with a round turn of the bilge. The longitudinal section is flat. A keel, six strakes on each side and seven frames were found in situ. Several loose pieces belonging to the boat structure were found displaced around the shipwreck. Due to the lack of some indicative elements, it was not possible to establish the position of stem and stern.

The keel was made of evergreen oak (Quercus ilex L.). It was scarfed on the extremities, in order to accommodate the stem and the stern knees. The 2.5 cm thick garboards were laced to the keel. Two planks connected by an oblique scarf composed each garboard stripe. Planks were 1.5-2 cm thick, with a maximum width of 16 cm. Eleven planks connected by oblique scarf beams composed the five strakes on the west side of the ship.

A repair was observed on the east side. Planks were all made of beech (Fagus sylvatica L.) and were laced to each other. The stitching pattern was similar to that observed on the shipwrecks found at Nin/Zaton and Pula. The seams were blocked by small tapered pegs, mostly made of fir (Abies alba Mill.). The pegs were driven from the inner side of the hull at an average space between the center to centre of 2.4 cm. The lacing channels were perpendicularly drifted through the thickness of the planks. The outer internal edges of the planks bear the traces of small rectangular recesses for protecting the lacing cords. A wedding pad was placed at the top of the junctions between planks, inside the hull, and held tightly by the lacing cords. A thick layer of pitch completed the watertight system.

Seven floor-timbers survived in place, and traces of an additional seven were identified. The general framing pattern was of a sequence of floor-timbers with probable half frames on the extremities. These frames were made of deciduous oak (Quercus sp.). Rectangular in section, they were spaced 39.5 cm.

The frames were connected to the planking by tapered treenails driven from the outer side of the hull. The lower face of the frames was modelled in a series of openings above the seams, in order to avoid crushing of the planking. The openings at the level of the bottom were quadrangular in shape and oversized, having the additional function of timber holes.

From the turn of the bilge and along the sides, the openings were rounded or triangular in shape, and rested tight on the planking. The most interesting pieces among the displaced frames were the three sculpted futtocks, which can be compared to the similar features on the Herculanum boat (Italy, 1st c. AD). These futtocks rested on the gunwale, while their lateral grooves housed waist boards. Hypothetically, we can assume that these sculpted futtocks were placed in the room-and-space between the floor timbers.

The hull-structure was based on a shell first concept, and its shape was based on a longitudinal strake-oriented concept. The boat was probably propelled using both oars and sail, although no trace of propulsion or steering devices has been discovered on the shipwreck. The construction of the boat Caska 1 has been dated between 42 and 102 AD (AMS Radiocarbon dated δ13C -0.9 to L-8972).

CASKA 2

The remains of the ship built with a typical Roman mortise-and-tenon technique are 13 m long and 4 m wide. The ship rests on the keel, inclined to starboard (east). The transverse section at the main frame is flat, with a round turn of the bilge. The preserved structure consists of the keel and ten strakes on each side (the tenth strake is a wale), flush laid and assembled by pegged tenons, twenty-four composite frames, a keelson with mast-step and some stringers. Several planks were repaired by patch tenons, and the frames present some repairs too.

Exceptionally, the heath used for cooking was found in the forecast of the ship. The hold of the ship was filled with loose wooden pieces, mostly planks, but also some interesting elements, such as eight thwarts, one stanchion with elevated extremity, and a fragment of planking belonging to another sewn boat similar to Caska 1 (designated Caska 3). It can be assumed that most of the loose wooden elements from Caska 2 are related to the reuse of the ship in the construction of the pier, and were thrown into the hold of Caska 2 in order to reinforce the hull before it was filled with big stone blocks.

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