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# Underwater Survey and Excavation in the Port of Pyrgi (Santa Severa), 1974

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### Underwater Excavations at the Etruscan Ports of Populonia and Pyrgi

Underwater excavations at the Etruscan ports of Populonia and Pyrgi were undertaken this past summer by an American-Italian team directed by Dr. Anna Marguerite McCann and Professor Nino Lamboglia of the Istituto Internazionale di Studi Liguri. It is the first time that such a collaborative team has been formed and marks an important step for future archaeological work in Italy. The project, under the auspices of

the American Academy in Rome and financed by the Atlantic Foundation, continued the underwater survey of the Etruscan coastline begun in 1970. At that time, a preliminary survey without dredging was made at Populonia where the ancient harbor area was located as well as a possible ancient breakwater (FIGS. 1, 2). This past summer with the help of three dredges the goals of the four-week campaign were: to confirm the existence of the ancient breakwater; to define the line of the ancient coastline to the south; to excavate the area where a sarcophagus had been located near the shore to the SW

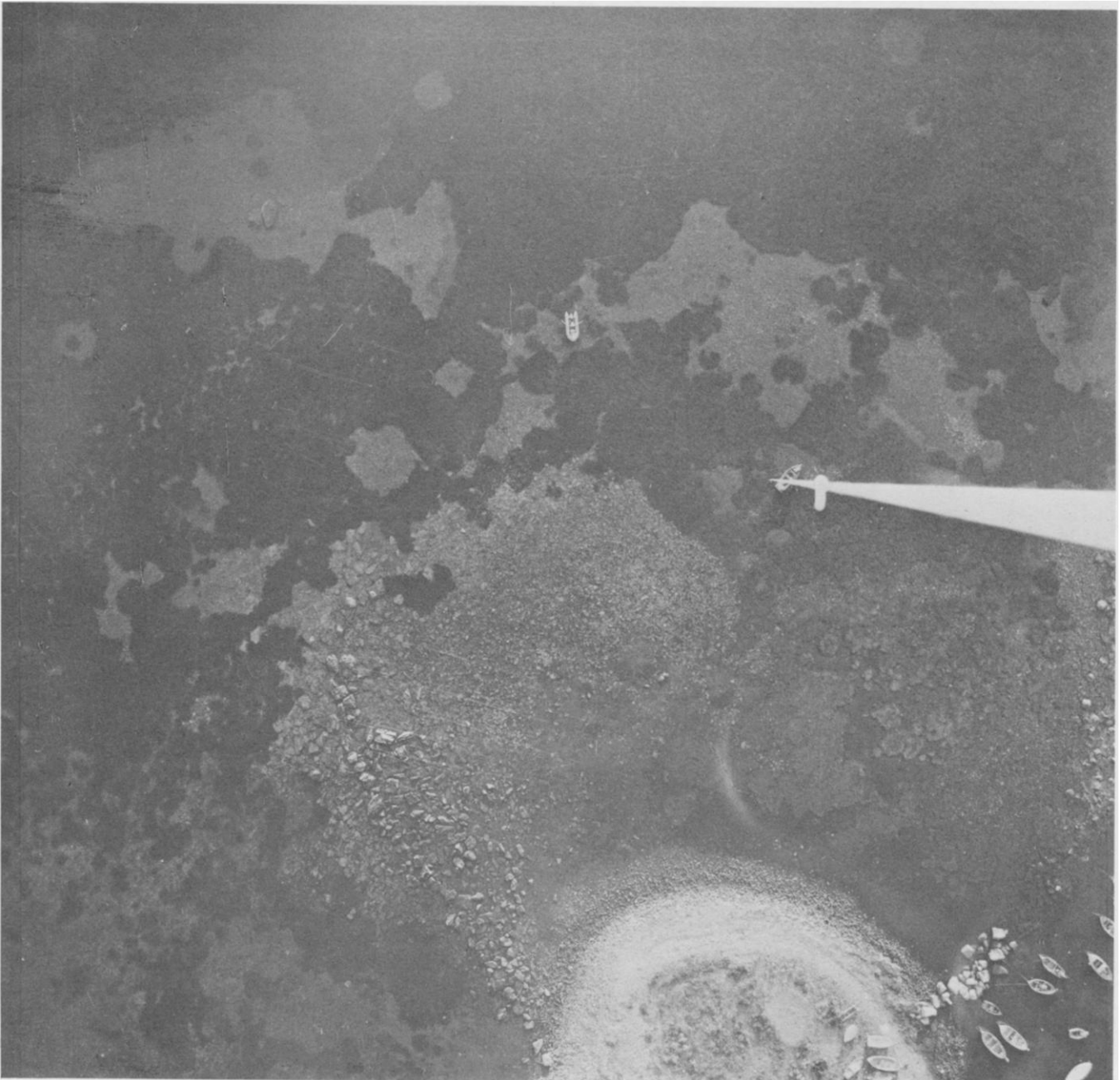


Figure 1. Aerial photograph of modern breakwater at Populonia, looking NE. Photo by Julian Whittlesey.

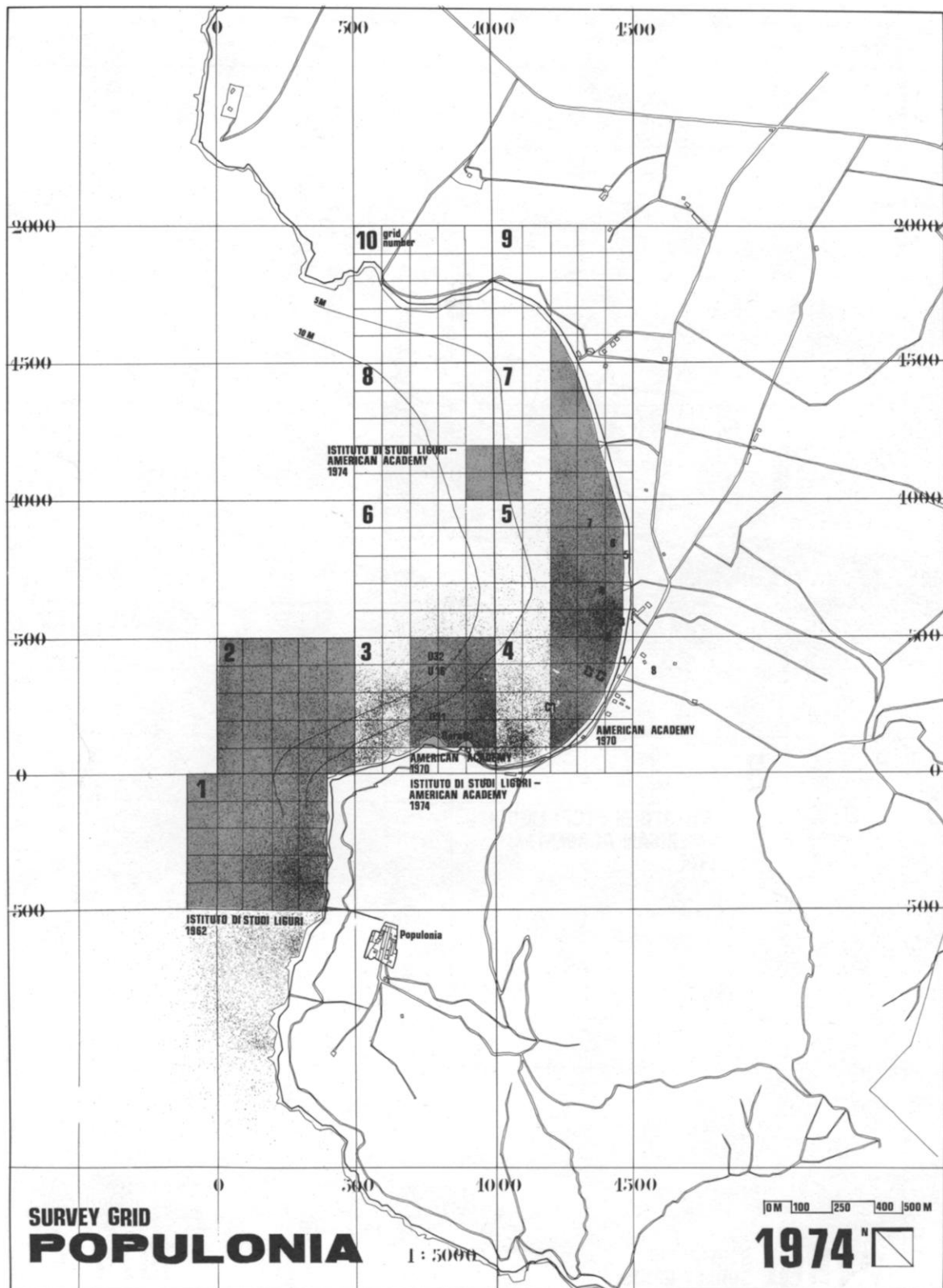


Figure 2. Map of the gulf of Populonia, with grid. Dark areas indicate areas which have been searched underwater. Plan by Jay Warren.

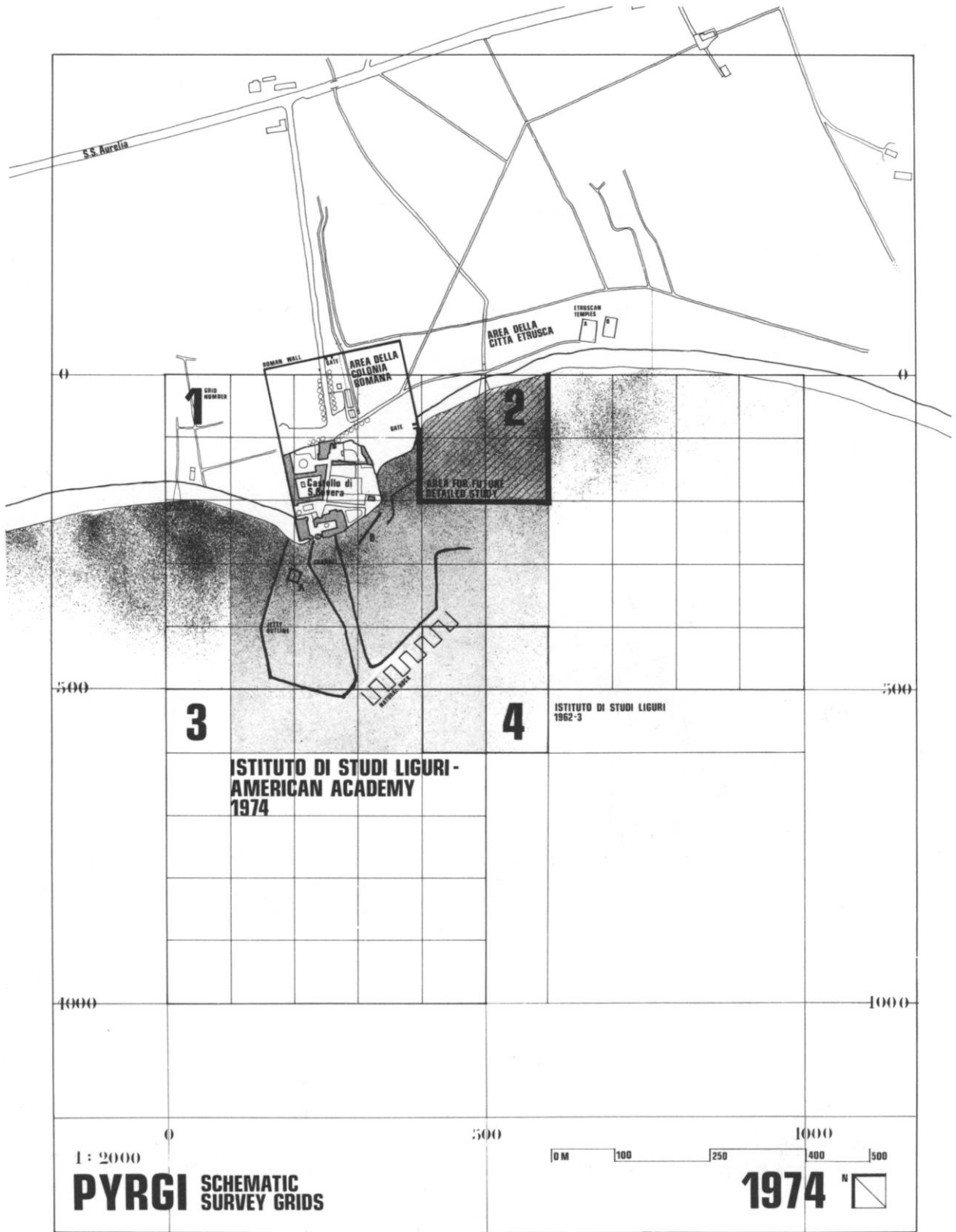


Figure 3. Map of Pyrgi (Santa Severa), with grid showing area searched. Map by Jay Warren.

and finally, to excavate the area in the channel where **wooden planking** had been found yielding a carbon date as early as 816 B.C. In addition, remains of an early imperial shipwreck were found this summer in the channel area and a section of a floor timber with the ancient mortises and tenons was recovered.

Probes made below the modern breakwater in 1970 had indicated rock to a depth of 2.30 m. below the present ocean floor. Attempts were made this summer to

cut a trench across the breakwater with hydraulic dredges. Unfortunately, the dense roots of Poseidon grass (over 1.20 m. thick) prevented excavation through to the ancient levels, leaving the question of the presumed breakwater unresolved.

To study the line of the ancient coastline to the south, trenches and soundings were made with dredges alone and used within steel caissons to obtain stratified levels. At a point about 80 m. out from shore, the compressed



Figure 4. Aerial photograph of Roman harbor area at Pyrgi with castle and dredged channel. Square structure visible on western mole. Looking NE. Photo by Julian Whittlesey.

layer of slag, ore and sherds similar to that visible along the beach gives way to a level of loose slag and ore. It is probable that this point represents the line of the ancient coastline when the iron smelting industry was at its height.

Significant also in the definition of the ancient coastline was the excavation of a small marble sarcophagus with 20 visible large tufa blocks surrounding it located about 30 m. out from the shore in the SW area of the gulf. The blocks appear to be remains of a tomb and are evidence that the ancient necropolis extended out at least to this point.

In the channel area to the north of the breakwater where wooden planking had been discovered in 1970 a grid of six 1.50 m. squares was laid out with iron pipes. Systematic excavation of the zone so far has yielded fragments of six cut and smoothed logs and a rounded spar with other fragments or worked wood. It is possible that we may have the remains of a barge used in the transportation of iron ore from Elba. Such a discovery would be unique and pottery from the level of the wood includes fragments of both bucchero and late 6th century Greek red-figured ware.

At the Etruscan port of Pyrgi, where no previous underwater survey had been done, work was concentrated on mapping the visible remains (FIG. 3). Since existing maps of the port of Pyrgi are inaccurate or incomplete, attention was focused first on the survey and mapping of features presently at or below sea level. The results of this survey, refined by aerial photographs by Julian & Eunice Whittlesey (FIG. 4) and municipal maps, have been incorporated into a new map of the harbor and *castrum* area. The large, square structure on the west mole (structure A), usually termed a *peschiera*, was measured and partially dredged, revealing construction details and well-preserved remains of the wooden forms in which the concrete had been poured. Possible traces of pavement and partition walls inside the square suggest that it may have served as the foundation for a low tower or house rather than as a fish tank. Contrary to indications on previous maps, there are no traces of a similar structure on the east mole.

The moles themselves are constructed of large stones — mostly unshaped — apparently piled on a series of natural shoals formed by dikes of a hard, quartz-like volcanic stone (rhyolite?), visible at several points in the channel and the end of each mole. Although the major portion of each mole appears to be artificial, it is possible that the natural formation was prominent enough to foster the original settlement at Pyrgi. Unfortunately, dredging in the 16th century seems to have altered the original deposits in the channel.

While the west mole extends to the beach, the east mole is presently separated from it by a shallow channel

(ca. 1.50 m. deep, 50.0 m. wide). It is possible that this was the actual berthing area in antiquity, since a wide concrete wall was discovered (structure B), extending for 100 m. in a SE direction along the landward side of the channel. The wall, 2.50 m. wide, surviving to a height of 0.50 m. at several points, is constructed of the same hydraulic cement as structure A. Wooden forms similar to those inside structure A were preserved along both sides of the wall. It is possible that structure B is the base of the dock against which ships berthed during the Roman period, just in front of the seaward *castrum* wall. Interpretation of this area as an open channel is aided by observation of the natural currents in the area: they hug the coast as they move from the southeast to the northwest, passing through the docking channel and out between the two moles, effectively scouring the seaward channel. Aerial photographs revealed that the SE corner of the *castrum* wall, still visible in the water as a line of tumbled blocks, did not form a right angle, as often restored on plans, but bent in an east-west salient corresponding roughly to the orientation of the channel wall.

To the east of this area, in front of the famous Etruscan temples, a hitherto unknown submerged area of the city was discovered in the last days of the survey when the tile factory polluting the water closed down, giving us visibility for the first time (area of square 2, in FIG. 3). While the visible remains are Roman in this area at a depth of under 2 cm. (large sections of fallen rubble and brick walls, a brick arch, marble columns and possibly a road), one wonders if beneath this zone the Etruscan harbor might be found. It is hoped that through continued collaborative work, excavation will shed further light on the fascinating problem of the existence of Etruscan harbors and their seafaring history.

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### Excavations in Diocletian's Palace, Split, 1974

The summer of 1974 was the last of seven summers of joint Yugoslav-American excavations conducted in the palace of the Emperor Diocletian, now the center of the modern city of Split in Yugoslavia. This joint project is under the direction of Jerko Marasović, from the Town Planning Institute of Dalmatia, and the author, and has been supported first by the Smithsonian Institution,