

FIELDWORK AT PORTUS (COMUNE DI FIUMICINO, PROVINCIA DI ROMA, REGIONE LAZIO)

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The 2019–20 season of fieldwork focused on several areas of the Imperial port complex, including the Claudian harbour, the *Grandi Magazzini di Settimio Severo* and the stretch of the river Tiber between Portus and Ostia Antica.

The new investigations of the Claudian harbour began in 2016 as part of the ERC funded Rome's Mediterranean Ports project.¹ The aim is to understand better the moles of the artificial harbour basin which enclosed an area of approximately 200 hectares. The application of Electrical Resistivity Tomography (ERT) combined with deep coring has been successful in precisely mapping the location of the northern mole at a depth of 5 m as well as in helping to understand its construction technique (Kay *et al.*, 2019). The research continued in 2019 with a survey of an area further to the west at the proposed location of the Pharos (lighthouse).

Elsewhere at Portus a photogrammetry survey of the *Grandi Magazzini di Settimio Severo* that lies at the junction of the passageway running between the Claudian basin and the *Canale di Imbocco del Porto di Traiano* is recording with detailed photography the ground floor of the complex. A short season in 2019 focused upon recording the northern façade of the building which faced onto the Claudian harbour and where the 2018 Portus Fieldschool had been conducted. Following the clearance of overhanging vegetation and invasive plants by the *Parco Archeologico di Ostia Antica*,² higher parts of the structure were now visible. The new plan of the building that is being developed has identified at least six structural phases extending between the later second and sixth centuries AD.

Over the course of the last two decades, the Portus Project has undertaken a systematic study of the hinterland around the Imperial port, using non-invasive prospection techniques to map previously unknown infrastructure such as aqueducts, roads, and canals (Keay *et al.*, 2005). Since 2007, the survey was extended to explore the area of Isola Sacra, with the aim of better understanding the landscape between the Imperial harbour complex and Ostia Antica, 3 km to the south (Germoni *et al.*, 2011; Keay *et al.*, forthcoming 2020). The results of the survey have shown that much of the island was covered by a regular field system, while in the Trajanic period a canal was created to run between Portus and the mouth of the Tiber near Ostia. It also revealed a dense area of large warehouses on the northern bank of the river Tiber in Trastevere Ostiensis (Germoni *et al.*, 2018; Keay *et al.*, forthcoming 2020), elements of which had been revealed by earlier excavations (Zevi, 1972).

The investigations have now been extended to explore the body of water between Ostia Antica and Portus, using new advances in marine geophysics that allow for high-precision mapping and prospection. The earliest record of the presence of archaeological material along the lower part of the River Tiber comes from Flavio Biondo in the sixteenth

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² The project gratefully acknowledges the support of the staff of the *Parco Archeologico di Ostia Antica*, the Director Dott.ssa Mariarosaria Barbara and Dott.ssa Cristina Genovese, Dott.ssa Alessandra Ghelli, Dott.ssa Marina Lo Blundo and Dott.ssa Claudia Tempesta.

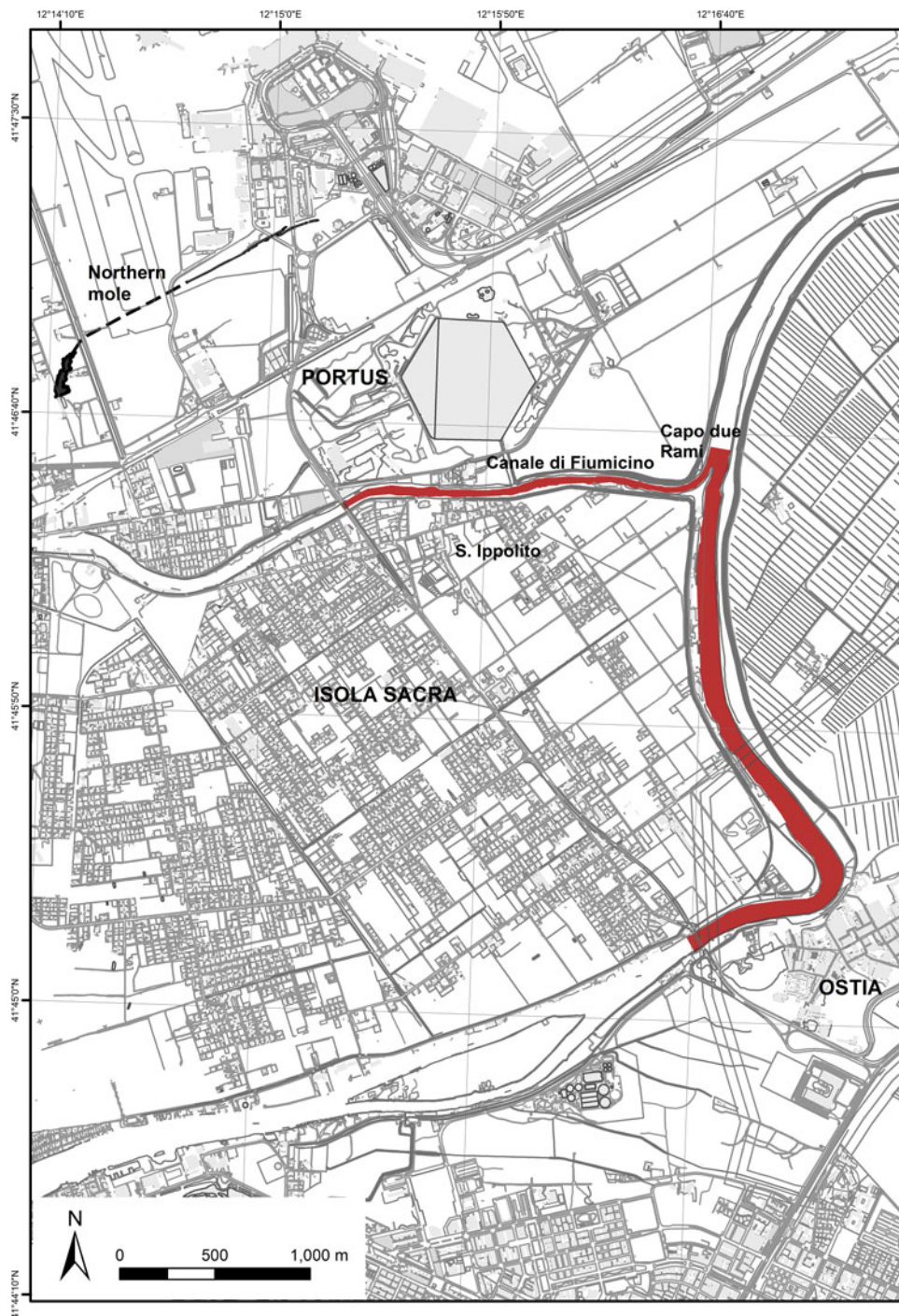


Fig. 1. The location of the northern Claudian mole at Portus and the river Tiber study area.

century, who describes a large quantity of marble blocks close to Portus and Isola Sacra (1558: 48). Little attention was paid to this part of the Isola Sacra until the 1950s with the recovery of marble from the Canale di Fiumicino (so-called *Fossa Traiana*) which was deposited at Ostia Antica and a later study of the southern bank (Velocchia Rinaldi and Testini, 1975). There followed a period of more intense activity which revealed submerged structures, amphorae and marble in the Canale di Fiumicino and at Fiumicino itself, in an area corresponding to the sea to the west of Portus (Mocchegiani Carpano, 1986: 63–116).

Since 1978 a large quantity of marble blocks and columns has been recovered from the riverbed of the Canale di Fiumicino in the area of Capo due Rami and extending 200 m west (Baccini, 1979; 1989) in the direction of the viaduct of the Via dell'Aeroporto di Fiumicino. A smaller group of twenty blocks of Greek marble was also discovered during agricultural work close to the Basilica di Sant'Ippolito at Isola Sacra (Pellegrino, 1990). The discovery indicated that marble arrived at Portus partially prepared and was stored in an area that has been identified as a *statio marmorum* on the southern bank of the Fossa Traiana (Pensabene, 1994) before being loaded onto smaller vessels to be transported up the river Tiber to Rome (Pensabene, 2007: 389–90).

In 1990 the then *Soprintendenza per i Beni Archeologica di Ostia* (SBAO) in collaboration with the *Servizio Tecnico per l'Archeologia Subacquea* began a programme of underwater survey at the eastern entrance to the Canale di Fiumicino in the area of Capo Due Rami (Petriaggi, 1995: fig.1). The survey discovered sections of concrete walls faced with blocks of travertine (Petriaggi 1995: 202). Following this, two projects used marine geophysical techniques to survey the Fossa Traiana and discovered further columns and blocks on the riverbed (Bosman and Casalbore 2011: 483). However, the research focused upon the morphology of the riverbed and the depositional and erosive processes, as well as its evolution (Bosman and Orlando 2017).

The new geophysical prospection of the river Tiber and Canale di Fiumicino was conducted over a two-week period in January 2020. The first phase saw the use of a 400 kHz Norbit iWBMS multibeam echosounder with a curved array and side-mounted LiDAR for bathymetry. The system allows for increased accuracy in shallow water and coupled with the LiDAR and GNSS positioning, provides 3D data capture of nearly the entirety of the submerged and emerged area with a high degree of accuracy. The survey covered a length of 2.3 km along the Canale di Fiumicino and 3.7 km along the Tiber between Capo Due Rami and the Ponte della Scafa. Following a preliminary analysis of the data to isolate areas of archaeological interest, a Remotely Operated Vehicle (ROV) survey was undertaken to verify the results. The modified BlueROV (designed by CAP Project Management), equipped with a forward-facing 1080p high definition camera, is designed to work in riverine environments and allows long periods of immersion. Despite the strong current and low visibility (30cm), footage was collected at several points immediately in front of Ostia Antica and at several points along the Canale di Fiumicino. Whilst further verification will be necessary through diving, the survey was successful in recording new information regarding structures in the river Tiber at Ostia Antica, in particular immediately to the north of forum. The survey in the Canale di Fiumicino recorded some features that had been previously noted by earlier surveys, but was also able to record new information about isolated finds as well as record in high definition structures such as the pier bases for the '*Pons Matidia*' Roman bridge that connected Portus with the Isola Sacra. Through the unique combination of multibeam, LiDAR and GNSS offered by the Norbit system, the

submerged archaeological landscape has been recorded in precise detail and location, providing additional data for the *Parco Archeologico di Ostia Antica* for the protection of this cultural heritage.

Acknowledgements

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TIVOLI, HADRIAN'S VILLA: THE PLUTONIUM PROJECT (COMUNE DI TIVOLI, PROVINCIA DI ROMA, REGIONE LAZIO)

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The Universities of Pavia and Oxford continued their investigations in Villa Adriana,¹ in the area called *Plutonium*, traditionally interpreted as a reproduction of the Underworld, and located on one of the highest rises of the complex, in the east part of the Villa.² The excavations took place from 1 to 21 July 2019.³ A team of 12 graduate students and post-doctoral researchers took part in the project, both from Oxford and Pavia Universities (S. Andronio, I. Bossolino, E. Casarotti, A. Dalgkitsi, E. Di Virgilio, V. Jukic Buca, A. Poldi Allai, G. Restaino, T. Runeckles, A. Verde). Dr Gilberto Montali, from the University of Palermo, supervised the architectural survey and documentation of the archaeological structures.

Two trenches were opened:

- 1) Trench A (continuation of last year) aimed at investigating the semi-circular wall projecting SE of the front of the *Plutonium* building.
- 2) Trench C, aimed at understanding whether and how the semi-circular structure projecting SW of the front of the *Plutonium* is connected to the main building and to the wall uncovered in trench A.

In Trench C (Fig. 1), the investigation of the large curving wall, projecting SW of the conglomerate platform on which the *Plutonium* is built, allowed a better understanding of both the complex and its history. The excavation data suggest that this wall should be interpreted as a powerful curvilinear substructure on which an elevated feature (in the form of a corridor or a portico) was built and gave access to the main building. The *Plutonium*, at the time of its planning and construction in the second phase of the Villa, was therefore accessed from the west through a monumental entrance of semi-circular form that enclosed a large open space. It remains, nevertheless, uncertain

¹ Gorrini and Melfi (2019).

² For a discussion of the previous research in the area see Gorrini *et al.* (in press) with full bibliography.

³ The Plutonium Project is jointly directed by Maria Elena Gorrini and Milena Melfi, working in close collaboration with Villa Adriana – Villa d'Este (Dr Andrea Bruciati, Dr Benedetta Adembri and Dr Sabrina Pietrobono). Dr. Gilberto Montali is in charge of the architectural survey of the site.