

Rapid #: -27413848

CROSS REF ID: **20477241970004921**

LENDER: **PZS (Piedmont Virginia CC) :: Main Library**

BORROWER: **BMC (Bryn Mawr College) :: Canaday Library**

TYPE: Book Chapter

BOOK TITLE: Rethinking the Roman city : the spatial turn and the archaeology of Roman Italy /

USER BOOK TITLE: Rethinking the Roman city : the spatial turn and the archaeology of Roman Italy /

CHAPTER TITLE: Rethinking Relationships Between Ostia and Portus

BOOK AUTHOR:

EDITION:

VOLUME:

PUBLISHER: Routledge Taylor & Francis Ltd,

YEAR: 2022.

PAGES: 92-113

ISBN: 9780815361794

LCCN: 2021032085

OCLC #: 1260170096

Processed by RapidX: 9/8/2026 7:30:01 AM

This material may be protected by copyright law (Title 17 U.S. Code)

Rethinking the Roman City

The Spatial Turn and the Archaeology
of Roman Italy

Edited by Dunia Filippi



Routledge
Taylor & Francis Group

LONDON AND NEW YORK

First published 2022
by Routledge
4 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

and by Routledge
605 Third Avenue, New York, NY 10158

Routledge is an imprint of the Taylor & Francis Group, an informa business

© 2022 selection and editorial matter, Dunia Filippi; individual chapters, the contributors

The right of Dunia Filippi to be identified as the author of the editorial material, and of the authors for their individual chapters, has been asserted in accordance with sections 77 and 78 of the Copyright, Designs and Patents Act 1988.

All rights reserved. No part of this book may be reprinted or reproduced or utilised in any form or by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying and recording, or in any information storage or retrieval system, without permission in writing from the publishers.

Trademark notice: Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation without intent to infringe.

British Library Cataloguing-in-Publication Data

A catalogue record for this book is available from the British Library

Library of Congress Cataloging-in-Publication Data

Names: Filippi, Dunia, editor.

Title: Rethinking the Roman city: the spatial turn and the archaeology of Roman Italy/edited by Dunia Filippi.

Other titles: Spatial turn and the archaeology of Roman Italy

Description: Abingdon, Oxon; New York, NY: Routledge Taylor & Francis Ltd, 2022. | Series: Studies in Roman space and urbanism | Includes bibliographical references and index.

Identifiers: LCCN 2021032085 (print) | LCCN 2021032086 (ebook) | ISBN 9780815361794 (hardback) | ISBN 9781032161877 (paperback) | ISBN 9781351115421 (ebook)

Subjects: LCSH: City and town life – Rome. | Social archaeology – Rome. | Social archaeology – Italy – Ostia (Extinct city) | Social archaeology – Italy – Pompeii (Extinct city) | Spatial behavior – Rome. | Spatial behavior – Italy – Ostia (Extinct city) | Spatial behavior – Italy – Pompeii (Extinct city) | Forums, Roman – Italy. | Rome – Antiquities. | Pompeii (Extinct city) – Antiquities. | Ostia (Extinct city) – Antiquities. | Rome – Civilization.

Classification: LCC DG87 .R48 2022 (print) | LCC DG87 (ebook) | DDC 937/.06 – dc23

LC record available at <https://lcn.loc.gov/2021032085>

LC ebook record available at <https://lcn.loc.gov/2021032086>

ISBN: 978-0-815-36179-4 (hbk)

ISBN: 978-1-032-16187-7 (pbk)

ISBN: 978-1-351-11542-1 (ebk)

DOI: 10.4324/9781351115421

Typeset in Times New Roman
by Apex CoVantage, LLC

5 Rethinking Relationships between Ostia and Portus

Simon Keay[†]

Ostia and Portus played key roles in the supply of Imperial Rome and are, thus, two of the most important port sites in the Roman Empire. Notwithstanding the many important studies that have been published over the last fifty years or so, there is still a lack of clarity about the respective roles they played in this.¹ While they were geographically very close to each other, there were very marked differences between them. They have also enjoyed very different traditions of study, with most academic attention being traditionally focused upon Ostia and Portus only becoming a subject of renewed interest in the last decade or so. Furthermore, the land that lies between both of the two ports, the Isola Sacra, has been even less well served and is known to scholarship primarily on account of the rich archaeological and epigraphic record of the *Necropoli di Porto*.

A recent geophysical survey of the Isola Sacra by the *Portus Project*, however, is helping to change this perspective.² It is showing that the space encompassed by the Isola Sacra in antiquity was integral to the functioning of both ports and has also made discoveries that are changing our conceptions about the topography of Ostia, its relationship to Portus and the role of both ports in supplying Rome. This paper summarises these discoveries and explores some of their implications.³

Characterizing the Differences between Ostia and Portus

Ostia was situated in a classic estuarine landscape close to the mouth of the Tiber, some 35 km from Rome. It was connected to Rome by the Via Ostiensis and was bordered to the east by a saltwater lagoon, the *Stagno di Ostia* (Figure 5.1). The early nucleus of Ostia was formed by the *castrum*, which was established on the south side of the Tiber in the late 4th century BCE, with the river acting as the northern boundary of the port henceforth. The early settlement was accessed by the Via Ostiensis and the Via Laurentina, which helped structure its subsequent development. The primary rationale of the early port was strategic, as was the case with the other contemporary *coloniae maritimae*,⁴ and it continued to act as the main naval base for Rome until the reign of Augustus, when the fleet was transferred to the Portus Iulius (Pozzuoli) and then Misenum (Miseno) on the Bay of Naples.⁵ However, it also acted as a conduit for the transmission to Rome of foodstuffs, metals and other products from across the Mediterranean that had been initially

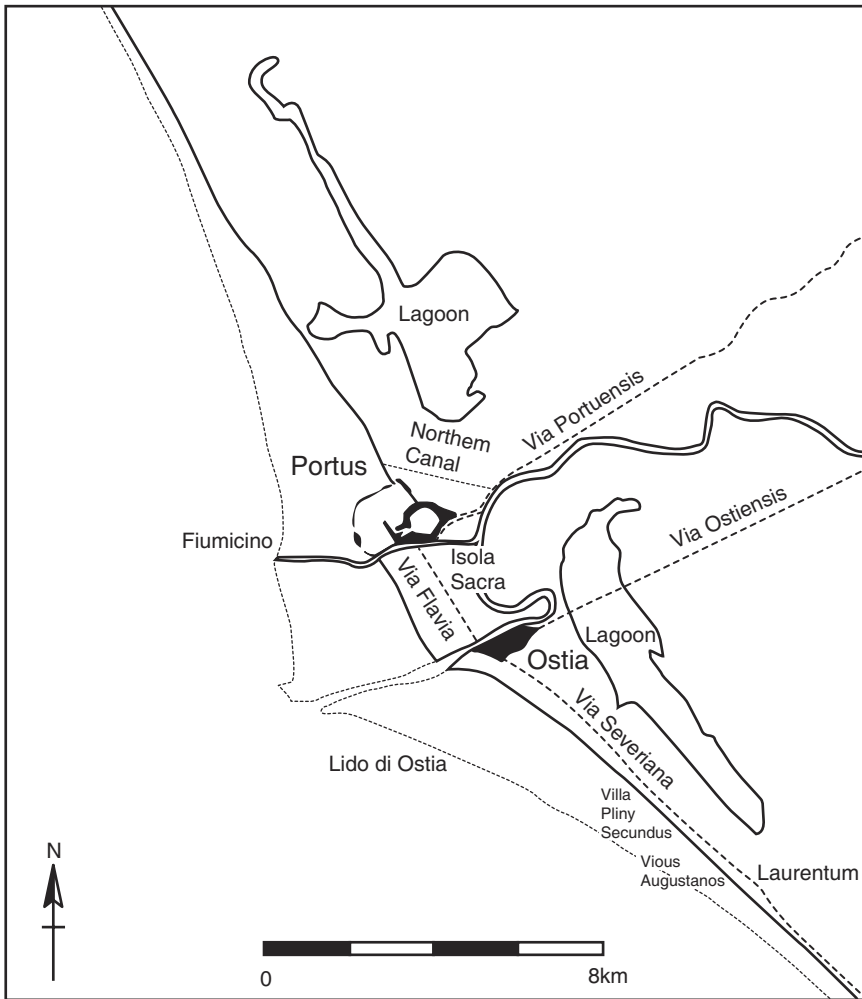
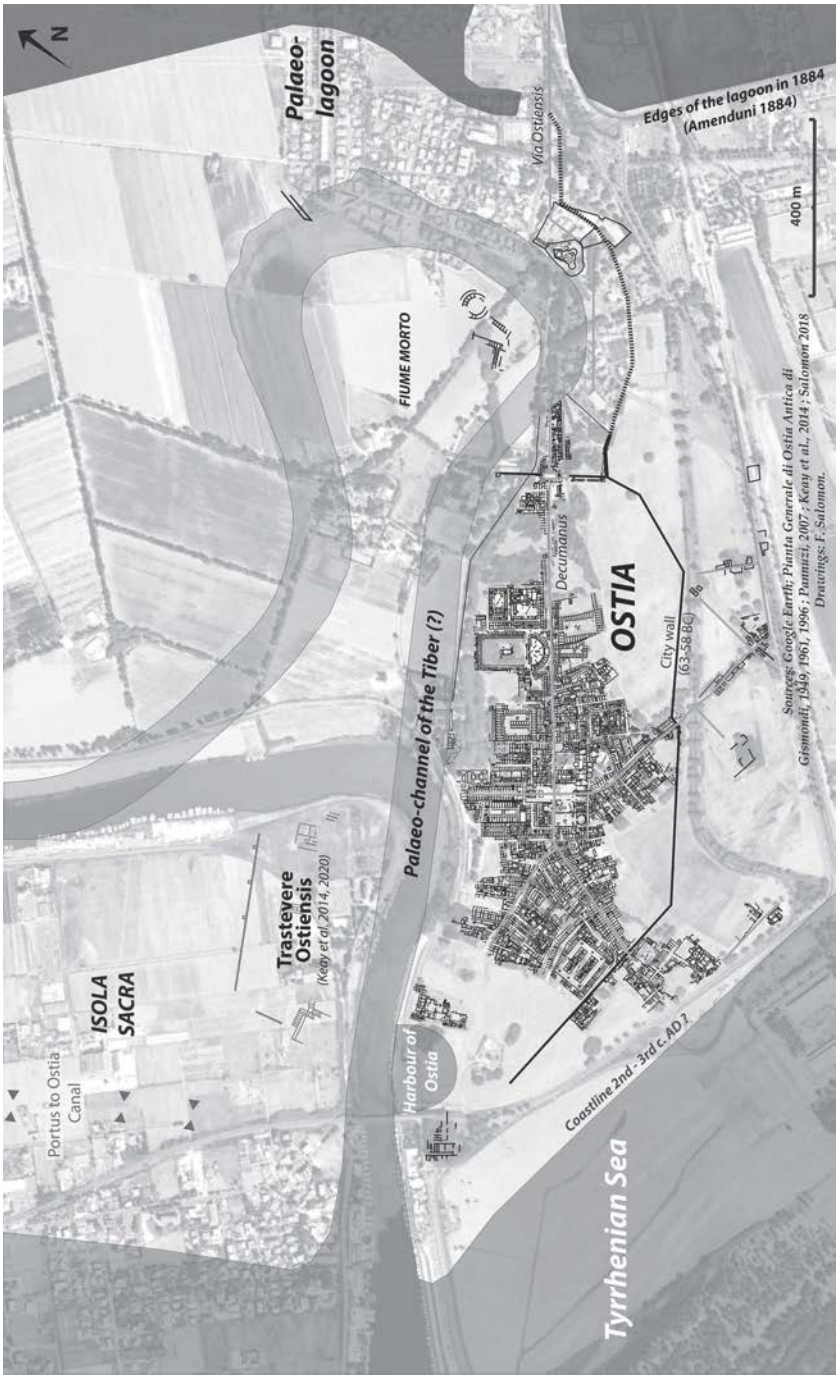


Figure 5.1 Location map of the Isola Sacra, showing Ostia Antica and Portus.

imported to Puteoli (Pozzuoli). Following its receipt of colonial status in the first half of the 1st century BCE, the port was walled in 63–58 BCE to enclose an area of 69 ha⁶ and then developed into the administrative hub for the import of foodstuffs to Rome during the 1st and 2nd century CE (Figure 5.2).

This transformation began with the establishment at the port of officials responsible to the Rome-based Prefect of the State Food Supply (*praefectus annonae*) under Claudius,⁷ together with the construction of warehouses for the storage of grain and other foodstuffs that formed part of the *annona*. There was a step change under Trajan, whose concern for the supply of grain to Rome resulted in



Figures 5.2 Plan of Ostia.

the creation of the *procurator annonae Ostis*, who was based at Ostia, an enlarged programme of warehouse construction,⁸ and the creation of the various *corpora* which were involved in many aspects of the transportation of foodstuffs and other goods to Rome.⁹

By the later 2nd century CE, Ostia had spread well beyond the 1st century BCE walls to encompass c. 100 ha of a very dense portscape with a large population from across the Mediterranean that well exceeded those of other contemporary ports. Furthermore, as the unique gateway community for the many visitors, merchants, shippers and officials moving between Rome and the broader Mediterranean, Ostia provided a range of services that marked it out as an exception amongst the many ports of the Mediterranean. Its spatial organisation is well known on account of the many excavations that took place between 1938 and 1942, as well as a recent geophysical survey which has revealed important new details of the southern area of the port.¹⁰ Ostia had a densely packed portscape with a complex street pattern. The small and centrally placed forum was located within the site of the early *Castrum* at its centre. It was accessed by the *Decumanus* and *Kardo*, which continued the alignment of the earlier *Via Ostiensis* and *Via Laurentina*, off which opened a myriad of smaller streets that define the many *insulae* within the port. The majority of public buildings lay within a relatively narrow band on either side of the *Decumanus*, and to a lesser extent the *Via della Foce* to the west. These included the forum, basilica, theatre, suites of public baths and the garrison block of the *vigiles*. In the space between these buildings, the *Decumanus* and *Via della Foce*, and the *Tiber*, lay the larger warehouses.¹¹ To the east of the forum and immediately to the north of the theatre lay the *Piazzale delle Corporazione*. This complex was a key focus of activity for merchants, shippers and others involved in commercial activity in general, and the supply of food and other material to the capital in particular.¹² Smaller warehouses also occur across the portscape to the south of the *Decumanus*. In addition to these buildings, there was a multiplicity of temples and shrines to a range of Italic and eastern deities across the portscape as a whole, meeting places (*scholae*) for popular associations, *macella*, markets, bakeries, fulling establishments and other lower-level industrial premises.¹³ One of the most impressive characteristics of Ostia, however, is the sheer density of residential occupation across the port as a whole, ranging from wealthy *domus* down to smaller houses, and of course the multi-storey *medianum* tenement blocks.¹⁴ While these buildings and their decoration are indicative of the social stratification and heterogeneity of the inhabitants of Ostia, it is also evident from its exceptionally rich epigraphic record, with well over 6500 texts known,¹⁵ and in the range and decoration of the tombs in the cemeteries which flanked the roads leading from Ostia eastwards to Rome and southwards to *Laurentium*.

Notwithstanding this spectacular development, Ostia was constrained in its ability to supply Rome by both natural constraints and a lack of infrastructure. Anchoring offshore at the mouth of the *Tiber* was hazardous, while the sandbar at its entrance meant that only ships of limited size could sail up the *Tiber* to Rome;¹⁶ furthermore, the river current was very strong. While Ostia did have a small 1 ha

harbour basin, it was too small to handle much traffic and fell out of use in the course of the 1st century CE, a development that may explain Strabo's description of Ostia as a "city without a harbour".¹⁷ Although it would have had extensive quays running along the south bank of the Tiber, these were probably destroyed when the course of the river changed in the 16th century.

There is no real consensus as to the extent of Ostia's territory, which in general terms was bordered by the *territorium* of Laurentum to the south, the *ager Romanus* to the east and Fregeneae (Fregene) to the north (Figure 5.3). Although wealthy senators are known to have had *villae* in the hinterland of Ostia, the archaeological evidence for them is scarce. Those which are known seem to have lain to the east of the *colonia* in the direction of Rome on the south side of the Tiber, or to the south.¹⁸

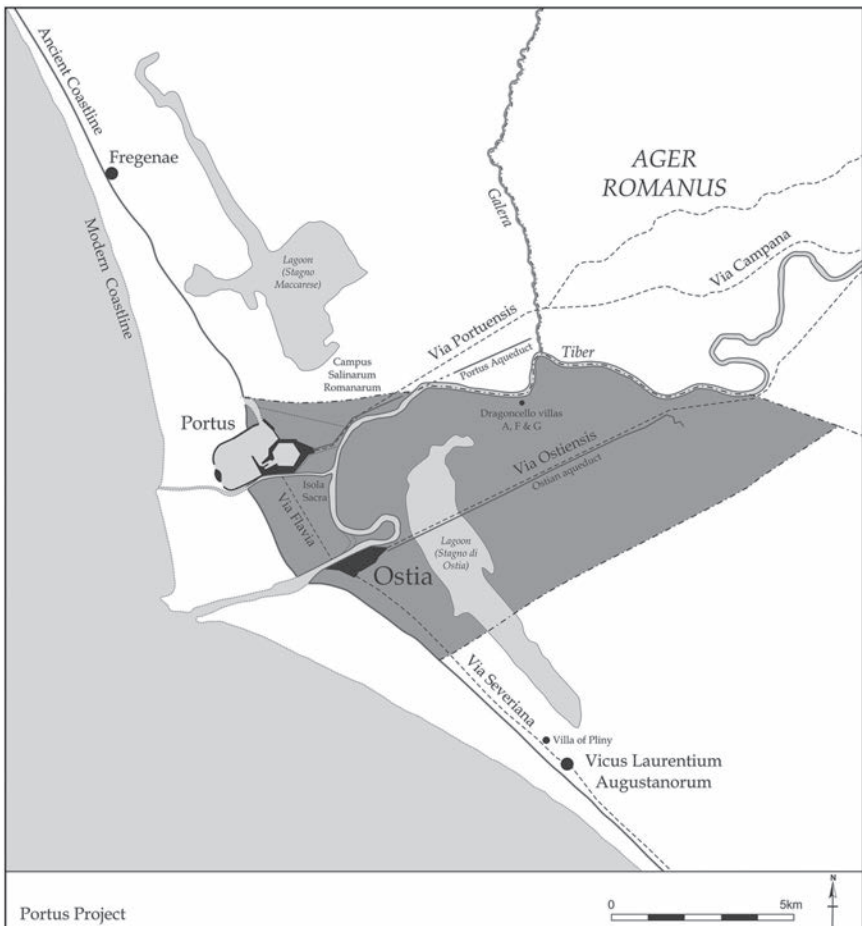


Figure 5.3 Map showing the approximate territory of Ostia, following Pellegrino 2004.

The limitations of Ostia as a port, together with a growing population and the need for a more efficient system for transporting food to Rome led Claudius to create an artificial port at Portus by 46 CE. It lay c. 2.6 km to the north of *Ostia*,¹⁹ within the territory of the *colonia* and close to a key bend in the Tiber and to the south of the saltwater lagoon of the Stagno Maccarese (Figure 5.4). It is important to recognise that Portus was no ordinary port. On the one hand, it lay at the north-western end of the territory of Ostia and was administered by its town council and magistrates,²⁰ as was generally the case with harbours across the Roman Mediterranean.²¹ On the other, a recent reappraisal of inscriptions from Portus has



Figure 5.4 Map showing Portus, the Isola Sacra and Ostia in antiquity, together with some of the principal sites mentioned in the text.

suggested that Portus was built on likely inherited land and thus was an Imperial property,²² which would have made it the port of the emperor *ab initio*. In this context, it was clearly built to enable the emperor to provide more anchorage for ships at the mouth of the Tiber, and thus more effectively fulfil his responsibility to ensure that the people of Rome were well fed. In light of this, one could temper the statement by Meiggs that Portus was “not yet *portus Romae*, but *portus Ostiensis*”²³ by remembering that the Neronian sestertius issued in commemoration of the likely inauguration of the port in 64 CE bore the legend “*portus Ostiensis Augusti*” (*augusti s por ost c*), a name which neatly encapsulates this delicate balance of municipal and imperial involvement in the establishment of the new port.

The initial Claudian complex was essentially an artificial anchorage comprising a c. 200 ha basin, a northern canal and an inner basin of 1.07 ha (the Darsena) together with associated warehouses and related buildings.²⁴ Another canal, c. 40 m wide, the so-called *Fossa Traiana* (modern *Canale di Fiumicino*), was excavated in order to link both basins to the Tiber and the sea and was also connected to the Darsena by a third canal (the *Canale Trasverso*). The former defined the southern side of the port, thereby transforming the land between Portus and Ostia to the south from a land bridge into an island, which is referred to by Procopius as the Sacred Isle,²⁵ from which derives its modern name of the Isola Sacra. Somewhat later, towards the later 1st century CE, the Via Flavia was built to connect Portus with Ostia to the south.

Portus was greatly expanded under Trajan century 112–117 CE to include a third basin (32 ha) that was hexagonal in form and lay inland a short distance from the Claudian basin to the east, to which it was connected by the *Canale di Imbocco al Porto di Traiano*.²⁶ Together, these three basins together provided over 233 ha of basin space, and the warehouses that were dependent upon them would have absorbed most of the goods imported to *Portus*, including most of those that were subsequently transported southwards to *Ostia*. A third canal, the Trajanic Canal (*Canale Romano*), which ran between the *Fossa Traiana* and the Tiber, skirted the south-eastern side of the hexagonal basin and acted as a key transshipment area in the new scheme. Geophysical survey by the Portus Project has revealed that a fourth canal, c. 90 m wide, ran southwards from a point close to the nexus between the Trajanic Canal and *Fossa Traiana* in the direction of Ostia.²⁷

The topography of Portus was clearly very different to that of Ostia. It was a port dominated by its topography of its infrastructure in a way that the river port was not. It was carefully planned to enable the ordered processing of incoming and outgoing shipping, control over the movement of cargoes from ships into warehouses and onwards transmission to Rome and the accountability of merchants and shippers in the payment of harbour dues and customs payments.²⁸ Thus, there were major administrative buildings, such as the *Palazzo Imperiale* and the adjacent later complex known as the *Grandi Magazzini di Settimio Severo* at the heart of the port, which may have been used by low-ranking procurators working on behalf of the *praefectus annonae*.²⁹ There was also an Imperial *Navalia* that was later reconverted into storerooms, as well a number of large

warehouse complexes, several temples, occasional bath blocks and other structures whose function remains unknown. Unlike Ostia, however, there was no evidence for the public buildings, such as a forum, basilica, theatre, *macellum*, that were present at Ostia and standard for urban populations in general. Furthermore, epigraphic evidence from the port was scarce. Some 200 texts are known, comprising official dedications (mainly imperial) and altars, together with tombstones and texts relating to associations involved in harbour-related activities, with an absence of the kinds of text that one might expect from an urban context.³⁰

One of the most distinctive characteristics of Portus is the apparent rarity of residential occupation. This despite the fact that the population must have numbered in the thousands throughout the year. They would have included the dockers and shipwrights; the *lenuncularii*, *scapharii* and *codicarii* and the crews of many other kinds of boats, lighters and ships, as well as officials concerned with the registration of ships and their cargoes, merchants and shippers. One possible residential area was situated in the comparatively limited space between the *Canale di Imbocco al Porto di Traiano*, the *Canale Trasverso* and the *Fossa Traiana*, with more scattered settlement on the northern side of the Isola Sacra.³¹ There is no evidence from the geophysical evidence for areas of residential settlement in the flat area between the hexagonal basin and the Tiber to the east, which was largely given over to burials, apart from several substantial buildings close to the intersection between the Trajanic Canal (*Canale Romano*) and the likely *Via Portuensis/Campana*, which have been identified as belonging to a river port.³² The only other possibility seems to be that the crews of moored ships and boats might have stayed on board and that the many workers who would have frequented the port could have lived on the upper floors of warehouses clustered around the hexagonal basin and the Darsena.³³ In light of this situation, the presence of cemeteries at the port is harder to understand. The *Necropoli di Porto*, lying well to the south of the port on the Isola Sacra, and an area of scattered burials lying in the open area between the hexagonal basin and the Tiber, indicate that for whatever reason, the immediate environs of Portus were chosen as a place for burial throughout the Roman period. Little is known archaeologically about rural settlement in the landscape to the north and east of Portus.³⁴ However, this may reflect a lack of sustained research, given that one ancient source of late 1st century CE date states that “part of the land around Portus on the river Tiber, was allocated in *iugera* and granted to townspeople, and they received a declaration according to the evaluation of its fertility.”³⁵

The Land In-Between

A knowledge of the topography of the Isola Sacra is key to understanding the roles and interrelationships of Ostia and Portus. However, until recently this has not been possible. Following the excavations of the *Necropoli di Porto* in the 1940s³⁶ and the settlement on the south side of the *Fossa Traiana* in the 1960s and early 1970s,³⁷ most energies have been invested in protecting the archaeological

heritage from illegal building and recording sites in advance of planned development.³⁸ Nevertheless, the outlines are reasonably clear.

The Isola Sacra encompassed an area of c. 330 ha in antiquity and was defined by the *Fossa Traiana* in the north, the Tiber to the east and south, and the Tyrrhenian sea to the west (Figure 5.5).³⁹ Its northernmost feature is a road that ran along the south side of the *Fossa Traiana* from west to east.⁴⁰ To the east of this lay the *statio marmorum*, or marble yards,⁴¹ which lay close to the junction of the *Fossa Traiana*, with the Tiber at the north-eastern corner of the Isola Sacra. To the south of it lay a scattered settlement which included a bath complex, *Isaeum* and other structures.⁴² Although the development of the settlement is not yet fully understood, it probably began in the mid to late 1st century CE, developed during the 2nd and 3rd century CE and continued down into the medieval period. It was bisected by the Via Flavia, whose shared orientation with the Claudian complex at Portus and the Roman bridge opposite the harbour of Ostia, clearly illustrates the conceptual and functional relationship between both ports. The road was bordered by scattered burials in the vicinity of the settlement,⁴³ as well as the more formally organized *Necropoli di Porto*.⁴⁴ Much less was known about the southern side of the Isola Sacra prior to the Portus Project survey, but it included occasional burials⁴⁵ and structures on the northern bank of the Tiber identified as possible warehouses.⁴⁶

The Portus Project magnetometry discoveries have considerably changed our understanding of the topography of the Isola Sacra (Figure 5.6). In the first instance, a major new structure of uncertain character was discovered in the north near the *Via Redipuglia*, suggesting that the area between the medieval church of Sant' Ippolito and the *statio marmorum* was larger and more intensively settled than had been previously thought,⁴⁷ an indication that the settlement on the south side of the *Fossa Traiana* was larger. Secondly, the survey has revealed that much of the Isola Sacra to the south was largely devoid of structures and that it was subdivided into an orthogonal grid of drainage ditches or channels that ran from west to east (Figure 5.7). These clearly relate at least in part to a field system or artificial drainage system, possibly that mentioned by the *Liber Coloniarum*.⁴⁸ However, the estuarine context of the Isola Sacra was clearly not ideal for agriculture, and it is noticeable that the survey did not reveal traces of the rural settlements. A third discovery was that the west bank of the Tiber was lined with a series of what appeared to be monumental tombs, clearly placed to ensure maximum visibility from ships moving up and down the river.

The most extensive feature discovered during the Portus Project survey was a massive canal. It lay to the east of the Via Flavia and ran across the Isola Sacra from the *Fossa Traiana* in the north at a point opposite the mouth of the Trajanic Canal (*Canale Romano*), southwards towards the mouth of the Tiber (Figures 5.4, 5.7 and 5.10).⁴⁹ The canal has a maximum width of c. 90 m, although it narrows significantly to the south, and was clearly used to take maritime traffic moving between Portus and the mouth of the Tiber west of Ostia.⁵⁰ An alignment of magnetic anomalies with a surviving *opus caementicium* pier a short distance to the south of the settlement, indicate that it was traversed by a



Figure 5.5 Aerial photograph of the Isola Sacra, looking southwards from Portus, with the *Necropoli di Porto* visible in the bottom right of the photo, with the Tiber on the left and in the background and Ostia just beyond.

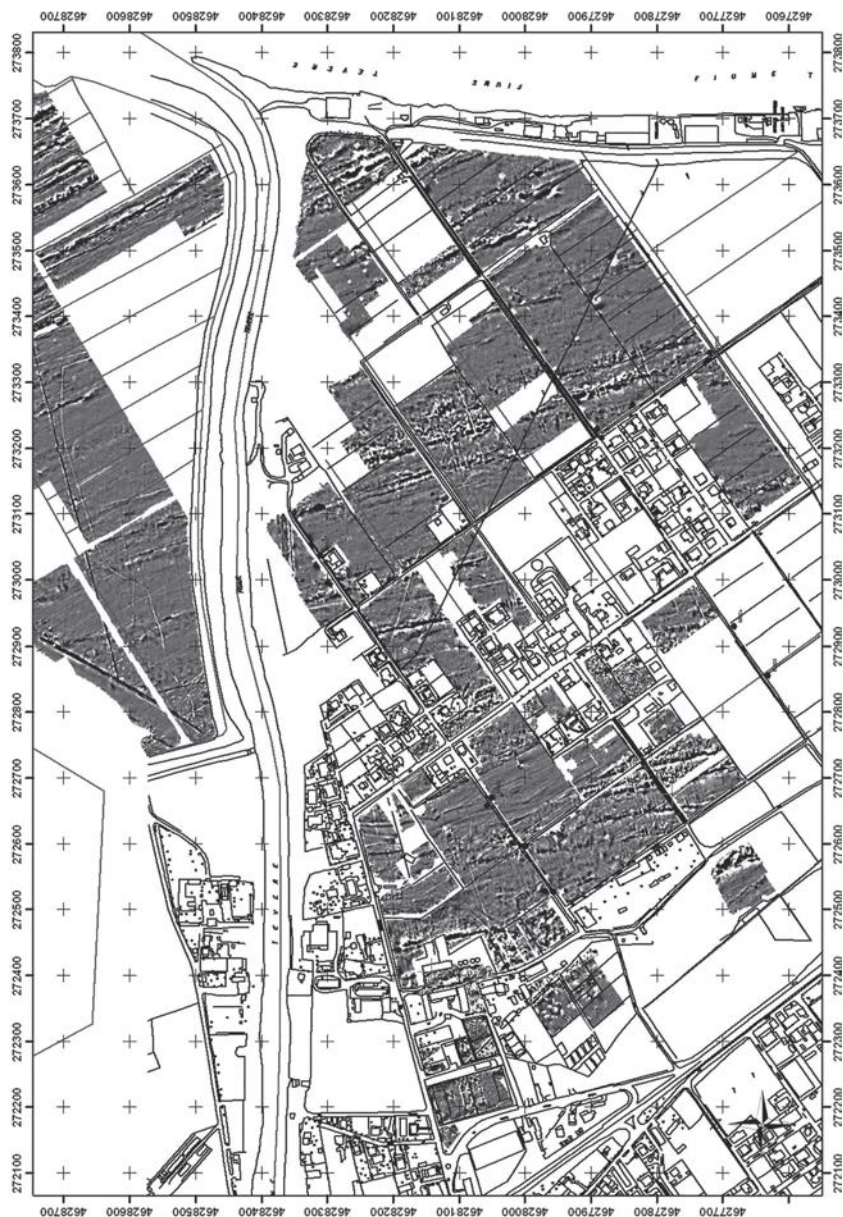


Figure 5.6 Greyscale image of the magnetometer survey results in the more northerly part of the Isola Sacra, showing geological features running from north to south, with the outlines of the Portus to Ostia canal visible on the left side of the image.

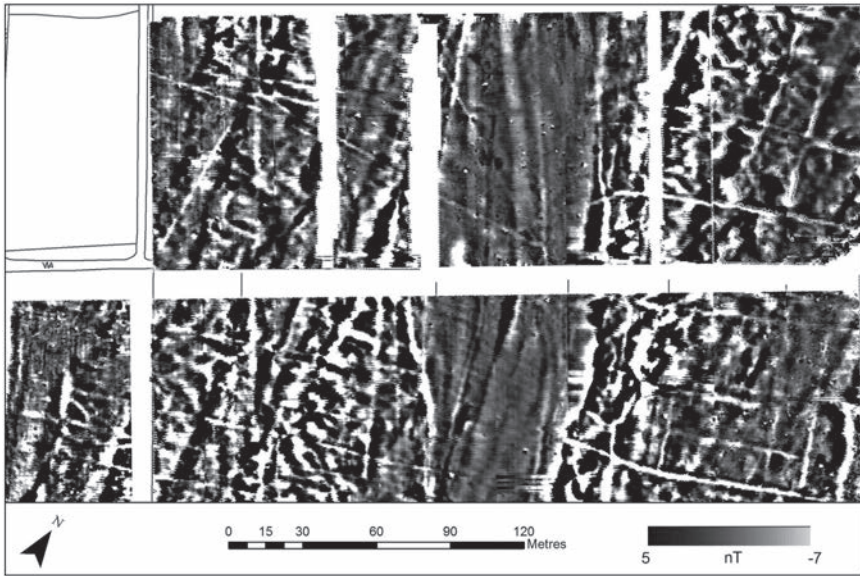


Figure 5.7 Greyscale image of the centre of the Isola Sacra, showing a stretch of the Portus to Ostia canal as well as some of the east–west field alignments.

bridge and that a road branched off the *Via Flavia* and headed north-eastwards towards the *statio marmorum*.

The most unexpected of all the discoveries made by the survey, however, was made in the southern part of the Isola Sacra. The geophysical results reveal a sequence of very large structures that represent a new and hitherto unsuspected extension of Ostia to the northern side of the Tiber. The buildings covered an area of c. 600 m x 200 m and lay some distance to the east of the line of the Portus to Ostia canal (Figures 5.8, 5.9 and 5.10). They are defined to the north by a major defensive wall c. 3–4 m thick with external 6 m x 8 m rectangular bastions, which shares the same alignment as the field divisions detected by the survey in the area to the north. The wall runs for c. 345 m from west to east, with much of the rest of its remaining course probably being destroyed when the Tiber changed direction after the flood of 1557. Since its alignment seems consistent with the 1st century BCE wall that enclosed the west, south and eastern sides of Ostia, there is a logic to suggesting that it formed part of this defensive scheme. However, there is reason to suggest that the wall may have dated to the late antique period.

Between this wall and the banks of the Tiber c. 300 m to the south, was a large open space that was occupied by a sequence of at least five major buildings running from west to east.⁵¹ Available evidence suggests that they were probably constructed some time during the first two centuries CE. The most complete of these lay to the west and measured c. 175 m x 175 m (Building 1). It appears to comprise a range of standardized rooms facing onto a portico which surrounded

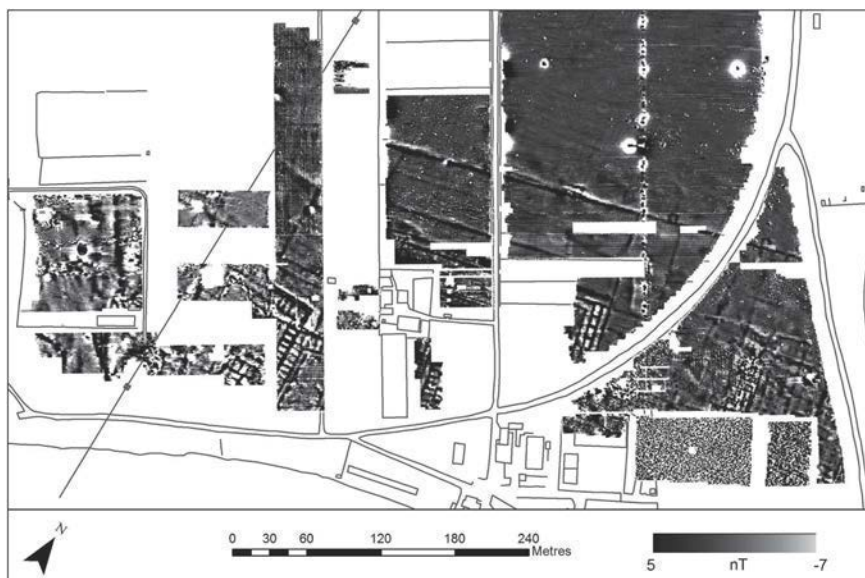


Figure 5.8 Greyscale image of the magnetometer survey results from the south of the Isola Sacra, indicating the warehouses and defensive wall circuit.

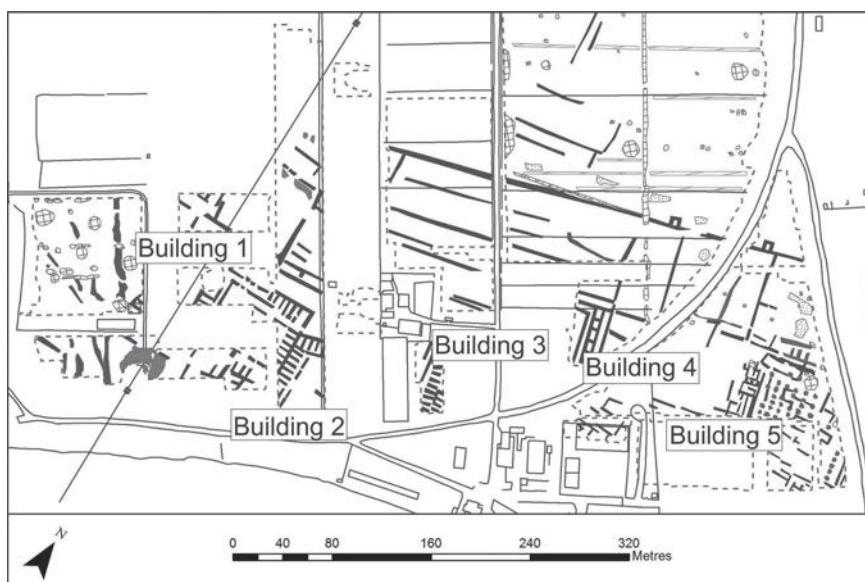


Figure 5.9 Interpretation image of the survey results from the southern part of the Isola Sacra, showing the interpreted outline of the warehouses and defensive wall.

a courtyard, and while the layout of its southern part is uncertain, there may have been a second courtyard facing on to the Tiber. At first glance, the plan of this building bears similarities to that of the *Grandi Horrea* at Ostia and would thus suggest that it was a large warehouse. Adjoining it to the east and sharing a common boundary with it was a further courtyard complex with similar standardized rooms (Building 2), which is also likely to have been a *horreum*. There is a gap in the magnetometry data to the east of this building, although there would be enough space to contain a further *horreum* of similar size. To the east of this lay a building section of similar form (Building 3), with a north–south range of store rooms facing a portico to the west. To the north-east of this lay the corner of another courtyard structure (Building 4), which had a slightly different layout to the other buildings. The rooms were of different proportions and were flanked by a corridor on both sides (Building 4), suggesting a different function to those of Buildings 1–3; it was also more distant from the Tiber. The most enigmatic of all these structures, however, was Building 5. This lay to the east of Building 4 and close to the modern north–south course of the Tiber but was set back from its southern course. It appears to have comprised a structure c. 50 m wide and at least 50 m deep that was divided into two by a north–south wall. The space to the west contains three or perhaps four rows of regularly spaced columns c. 8 m apart. The plan of the building does not resemble a *horreum*, and its function remains uncertain. Since these buildings were all in alignment with the southern stretch of the Tiber, they were presumably approached from it. However, the modern embankment and various buildings have obscured the remains of the quays that are likely to have been associated with them.

Implications for Our Understanding of Ostia and Portus (Figure 5.10)

These results have major implications for our understanding of both Ostia and Portus and their relationship to each another. The first point to make is that the orientation of the newly discovered buildings respects the roughly east–west orientation of the field divisions that were detected across the rest of the Isola Sacra, as well as the alignment of the *Via degli Aurighi* and *Via della Foce* and associated buildings at the western end of Ostia. It differs, however, from the orientation of the street grid centred upon the *Castrum* and the Decumanus Maximus to the east. Presumably this could mean that the newly discovered buildings and field divisions were contemporary to, or later than, the planning of the western part of Ostia port south of the Tiber. Since the buildings in the former were less tightly packed than the latter, however, it is possible that they were a later extension that was not subject to intense subsequent building pressure.

There seems to be little doubt that four of these five buildings were warehouses. As such they would have greatly increased the storage capacity at the port. Little can be said as yet about what might have been stored in these warehouses, and while grain is often assumed, it is also likely to have included a range of other commodities. While the dates of their construction remain uncertain and can only

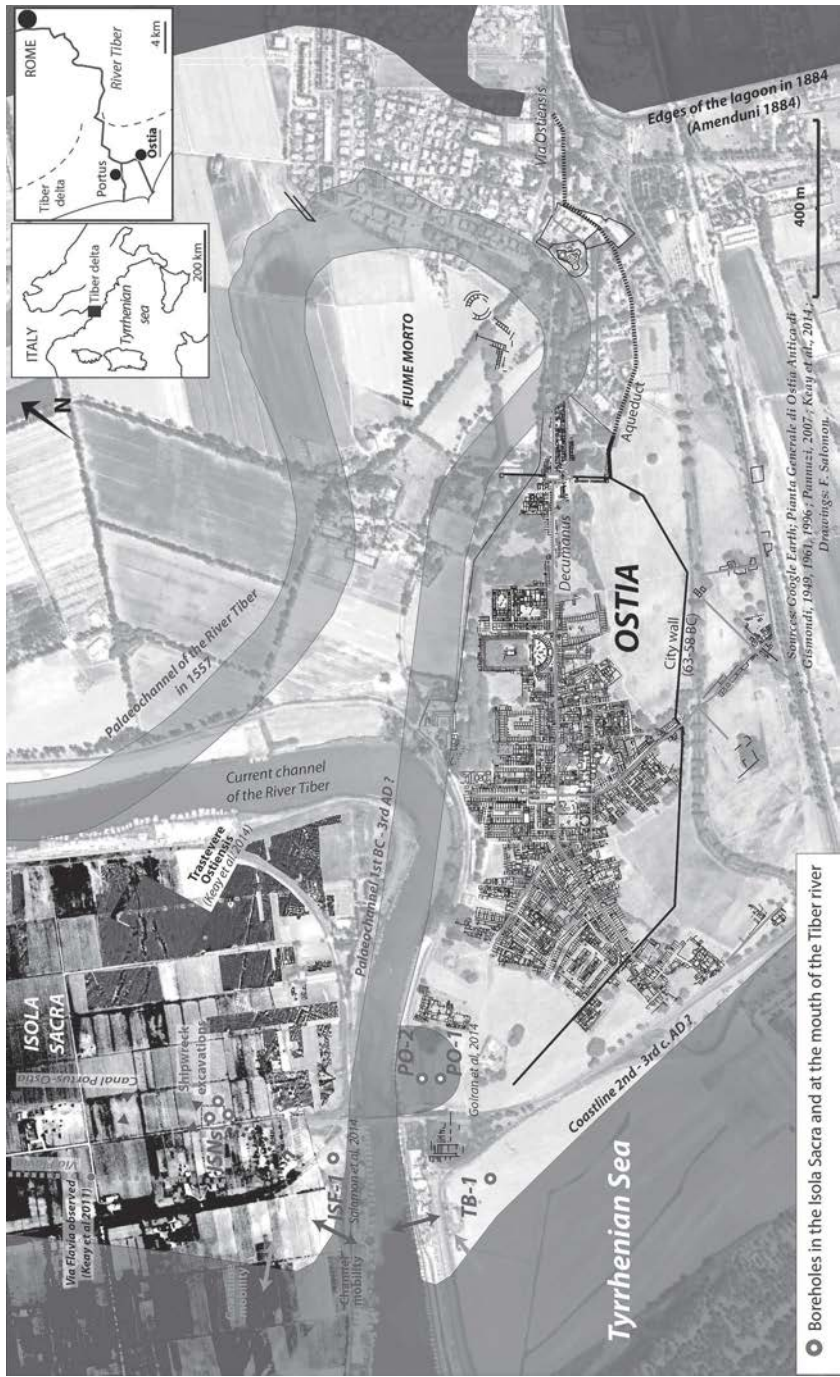


Figure 5.10 Map of the southern sector of Isola Sacra in relation to the ancient and modern courses of the Tiber and Ostia. In particular, it shows the position of the newly discovered warehouses in relation to the Portus to Ostia channel, the Via Flavia, the harbour basin of Ostia and the mouth of the Tiber.

be ascribed to the early imperial period, the most likely horizon would seem to be the Trajanic to Hadrianic period following the enlargement of Portus, as there was a substantial increase in the construction of *horrea* and other buildings in the northern part of Ostia at this time.⁵² As warehouses, these buildings clearly have major implications for our understanding of the storage capacity of Ostia. A recent rough estimate of the total warehouse space at the river port in the early 2nd century CE was c. 31,882 m².⁵³ If, on the basis of the assumption that the three possible warehouses in the southern Isola Sacra are of Trajanic date, and their combined storage space was in the order of magnitude of 26,000 m²,⁵⁴ this would mean that the total storage space at Ostia rises to c. 57,882 m². To this should probably be added the area lying between the modern bend in the Tiber and the *Fiume Morto*, as well as the as yet unpublished evidence for additional warehouses revealed by geophysical survey within the southern half of the walled area of Ostia.⁵⁵ Account should also be taken of the storage area at Portus, which has been estimated roughly at 32,790 m² in the 1st century CE and 59,488 m² in the 2nd century CE. If one combines the evidence for storage space at both ports, there was an increase from 50,457 m² in the late 1st century CE to 117,370 m² in the early 2nd century CE.⁵⁶

This points to the existence of a greater increase in storage space at both ports under Trajan than has been previously thought. However, it is important to remember that there is increasing evidence that, at Portus at least, much of this new construction was still in progress by the time of Trajan's death in 117 CE, and that it may not have been completed well into the reigns of Hadrian and Antoninus Pius.⁵⁷ There is also the vexed question as to whether this investment in infrastructure was a public or private initiative, or a combination of both. The warehouses at Portus are often assumed to have been built by the former,⁵⁸ while it has been argued that those at Ostia south of the Tiber were the work of the latter, including the *ordo* of Ostia, members of *collegia* and freedmen from the *colonia*.⁵⁹ It would be interesting to know how true this might also be for the area to the north.

There are, however, three additional considerations that need to be taken into account when considering these buildings. The first is that the encroachment of Ostia onto the Isola Sacra that is implied by them means that, in effect, Ostia was much "closer" to Portus and the *Necropoli di Porto* than it had been in the past. The second is that the buildings were well placed for rapid communication with Portus by virtue of the new Portus to Ostia Canal and to the west of it by the Via Flavia. The third is that recent research shows that the use of Roman "commercial" space at Rome and Ostia was not strictly functionally specific and that, for example, one should be cautious of assuming that all *tabernae* were used as shops or that warehouses were used solely for storage.⁶⁰ Consequently, while the plans of the warehouses from the Isola Sacra have parallels with similar buildings at Ostia, it is very possible that they hosted other activities in addition to, or instead of, storage. Since the buildings are likely to have had central courtyards, for example, it is possible that they might have been used for auctions and commercial sales, as has been suggested for similar buildings at Ostia.⁶¹

It is also possible that the upper floors of the warehouses in the southern sector of the Isola Sacra could have been used for accommodation, particularly for the porters (*sacarii*), who were arguably amongst the most numerous port workers at Portus,⁶² and many of whom would have been moving cargoes between Portus and Ostia anyway. If this were the case, then it could help us resolve the apparent lack of evidence for residential occupation at Portus, noted earlier.⁶³ The port could have been reached after a walk of c. one hour west and northwards along the Via Flavia, and perhaps also on the boats that moved up and down the Portus to Ostia canal. If there is any truth to these ideas, it means that the newly discovered warehouses could have served a treble purpose related to the enlargement of the harbour facilities at Portus – storage, commercial activity and accommodation for those responsible for moving the transshipped cargoes.

One imagines that a substantial proportion of the goods stored in the warehouses would have been destined for Rome, largely deriving from Portus and being transported southwards down the Portus to Ostia canal. However, there would have been logistical issues in moving the implied volume of goods up the Tiber and past the likely logjam in the vicinity of the *Capo Due Rami*.⁶⁴ A second possibility, therefore, is that a good proportion of the goods were destined to feed the population of Ostia. A third possibility is that the proliferation of warehouses was used to store goods that were re-distributed from Ostia, leaving Portus to process primarily cargoes that had been supplied by shippers and merchants under contract from the *praefectus annonae*. The fourth possibility is a combination of all the earlier three, in other words that the warehouses were used for supplying the population, supplementing goods being shipped up the Tiber to Rome and for re-distribution to other ports across the Mediterranean.

A final consideration is a topographical one. It is that the new evidence shows that Ostia encompassed a much greater area than had previously been thought. It builds upon the work of Heinzelmann to show that not only did the ground area of Ostia extend c. 300 m to the south of the line of the 1st century BCE walls⁶⁵ but that it also extended a similar distance to the north of the Tiber at the central and western ends of the town. Furthermore, there are good grounds for anticipating a similar spread of buildings as far east as the ancient structures that have been uncovered in the bend of the ancient river meander at the *Fiume Morto*. In essence, therefore, the discoveries change our topographic perception of early Imperial Ostia in that the Tiber runs through it, rather than defining its northern side.

Conclusion

It is perhaps too early to develop any of these interpretations. Nevertheless, they build on solid evidence which shows that the development of infrastructure on the Isola Sacra fostered a much more closely integrated relationship between Ostia and Portus than has hitherto been thought to have been the case. There was a clear complementarity between the harbour and storage facilities offered by both ports, as well as in the very different kinds of population that frequented them. Arguably,

this is also evident in the epigraphic record from Ostia and Portus with, for example, texts referring to shippers and members of *collegia* associated with harbour activities appearing at both ports. Central to the success of this relationship was the system of canals and roads which facilitated communication between both ports and between the sea and the Tiber.

This was a gradual development which began in the mid-1st century CE and reached maturity in the later 2nd century CE. It represented a bespoke solution to the logistical problem of how to draw resources from across the Mediterranean to feed the c. 1 million inhabitants of a city that lay 35 km inland from the sea. While impetus from the emperors was a prime mover in the two main horizons of development under Claudius and Trajan, with the involvement of imperial engineers and the recruitment of manpower, it will have also involved municipal authorities and relied upon the engagement of the members of the many associations involved in the transport of building materials and construction. Precisely how these overlapping areas of responsibility mapped onto the system of canals, roads and the expansion of Ostia on the northern side of the Tiber, however, is unclear.

The close relationship between Ostia and Portus underpinned the broader network of ports that has been labelled as the “port system of Imperial Rome”.⁶⁶ The enhanced communication between Ostia and Portus relied upon the spinal role played by the Tiber, with the network of river ports between them and the *Emporium* at Rome representing the key link between Rome and its Tyrrhenian ports. These in turn acted as key nodes of communication with the port of Centumcellae (Civitavecchia) to the north and a string of ports ending with Puteoli (Pozzuoli) to the south.

Notes

- 1 Meiggs 1973; Descoeudres 2001; Pavolini 2016 provide good introductions to the more recent work.
- 2 Germoni et al 2011, 2018; Keay et al 2020.
- 3 This paper was written in the context of research being undertaken as part of the ERC-funded *Portuslimen* (RoMP) Project Grant agreement n° 339123.
- 4 Meiggs 1973, 16–27.
- 5 Meiggs 1973, 304.
- 6 Zevi 1998.
- 7 Rickman 1980, 73–79.
- 8 Rickman 1980, 85–86, 89–93; Bruun 2002, 163–166.
- 9 Meiggs 1973, 311–336; Pavolini 1991, 129–139.
- 10 Heinzelmann 2002, Abb.1.
- 11 Heinzelmann 2002, Tafel IV.2.
- 12 Terpstra 2014 for a recent interpretation of its function.
- 13 Hermansen 1982.
- 14 Packer 1971; Hermansen 1982.
- 15 C  beillac-Gervasoni et al 2010 provide an overview of these.
- 16 Strabo, *Geography*, V.3.50; Dio Cassius 60.2.
- 17 *Geography* 5.3.5.
- 18 Pellegrino 2004; Keay forthcoming.
- 19 Lugli and Filibeck 1935; Testaguzza 1970; Keay et al 2005; Keay and Paroli 2011.

- 20 Meiggs 1973, 62.
- 21 An issue that is discussed at length by Arnaud 2015.
- 22 Maiuro 2012, 191–192.
- 23 Meiggs 1973, 56.
- 24 Keay et al 2005, 271–281.
- 25 Procopius, *History of the Wars* V.26.5–6.
- 26 Keay et al 2005, 281–288.
- 27 Germoni et al 2011.
- 28 Keay 2018.
- 29 Keay et al 2011.
- 30 Thylander 1952 is the most recent catalogue of these. On the Imperial *Navalia*: Keay et al 2012.
- 31 Keay et al 2005, 312.
- 32 Keay et al 2005, 281, 288ff.
- 33 Keay et al 2005, 312.
- 34 *Villae* and other rural settlements in the immediate hinterland of Portus are relatively rare. Recent excavations have revealed several small rural establishments and kilns on the west bank of the Tiber in the *Campus Salinarum Romanarum* but are mainly Republican in date (Morelli et al 2008, Areas 1–6; see also the rural settlement located closer to Portus in Keay et al 2005, Chapter 5 Site F10). The only other known sites lie some distance to the north of the port within the territory of Fregene, such as that at Fregene (De Franceschini 2005, Sito 68) and the *villa maritima* at Torre Palidoro (Lafon 2001, RM 48) to its north.
- 35 *Liber Coloniarius* 222.11–13: Campbell 2000; Keay et al 2005, 322.
- 36 Calza 1940.
- 37 Veloccia Rinaldi and Testini 1975.
- 38 Germoni et al 2011, 2018.
- 39 It measured 2.7 km from north to south and 1.6 km from east to west.
- 40 Germoni et al 2011, Fig. 6, Site 3.
- 41 Germoni et al 2011, Fig. 6, Site 28a.
- 42 Germoni et al 2011, Fig. 6, Sites 7 and 12, 13, 14; Veloccia Rinaldi and Testini 1975.
- 43 Germoni et al Fig. 6, Sites 32, 34–5.
- 44 Baldassare 1978; Calza 1940; Germoni et al 2011, Fig. 6, Site 35.
- 45 Germoni et al 2011, Fig. 6, Sites 39 and 40.
- 46 Zevi 1972, 406–407; Germoni et al 2011, Fig. 6, Sites 41–46.
- 47 Germoni et al 2018, Fig. 12.
- 48 See earlier, pp. 99.
- 49 Germoni et al 2011; Salomon et al 2016; Germoni et al 2018.
- 50 Recent rescue excavations in advance of preparatory work for a new bridge over the Tiber on the eastern margin of the *Via della Scafa* revealed the remains of two ships (Boetto et al 2012) which probably sank in the canal during the 2nd century CE.
- 51 Traces of which had been found during rescue excavation in the 1960s (Zevi 1972, 406–407).
- 52 Mar 2002, 144–153; DeLaine 2002, 75ff; Rickman 2002, 355.
- 53 Keay et al 2005, Table 9.1.
- 54 Germoni et al 2018.
- 55 Heinzelmann 2002, Tafel IV.2.
- 56 Keay et al 2005, Table 9.1.
- 57 Bukowiecki et al 2011.
- 58 Which makes sense given the view of the imperial impetus behind the development of the port and the concern expressed by the emperors in imperial edicts over the use of the *horrea fiscalia* at Portus in the late 4th century CE (viz. *Cod. Theod* XV.1.12).
- 59 DeLaine 2002.

- 60 Tabernae as shops: Holleran 2012, 2017. Warehouses solely for storage: DeLaine 2005.
- 61 DeLaine 2005, 39–45.
- 62 Martelli 2013; Virlovvet 2015 provide a good analysis of these key workers and the extent of their remit at Ostia and Portus.
- 63 See earlier, pp. 95, 99.
- 64 Keay 2012, Fig. 2.9.
- 65 Heinzelmann 2002, Abb.1.
- 66 Keay 2012.

Bibliography

- Arnaud, P. 2015. 'Cities and Maritime Trade Under the Roman Empire', in C. Schafer (ed.), *Connecting the Ancient World. Mediterranean Shipping, Maritime Networks and Their Impact. Pharos, Studien zur griechisch-römischen Antike Band 35*, Rhaden: 117–134.
- Baldassare, I. 1978. 'La necropolis dell'Isola Sacra. Un decennio ricerche archeologiche', *Quaderni della Ricerca Scientifica* 100: 487–504.
- Boetto, G., Germoni, P., Ghelli, A. and Luglio, A. 2012. 'Due relitti d'epoca romana rinvenuti a Isola Sacra, Fiumicino (RM): primi dati sullo scavo e sulla struttura delle imbarcazioni', *Archeologia Marittima Mediterranea* 9: 15–38.
- Bruun, C. 2002. 'L'amministrazione imperiale di Ostia e Portus', in Bruun and Gallina Zevi 2002: 161–192.
- Bruun, C. and Gallina Zevi, A. (eds.). 2002. *Ostia e Portus nelle loro relazioni con Roma, Acta Instituti Romani Finlandiae 27*, Rome.
- Bukowiecki, É., Panzieri, C. and Zugmeyer, S. 2011. 'Portus. Les entrepôts de Trajan', *Chronique des activités archéologiques de l'École française de Rome*, MEFRA 123–1: 351–359.
- Calza, G. 1940. *La necropoli del Porto di Roma nell'Isola Sacra*, Rome.
- Campbell, B. 2000. *The Writings of the Roman Land Surveyors*, London.
- Cébeillac-Gervasoni, M., Caldelli, M.L. and Zevi, F. 2010. *Epigrafia Latina. Ostia: Cento iscrizioni in contesto*, Rome.
- De Franceschini, M. 2005. *Ville dell'agro romano. Monografie della Carta dell'Agro Romano 2*, Rome.
- DeLaine, J. 2002. 'Building Activity in Ostia in the second century AD', in Bruun and Gallina Zevi 2002: 41–101.
- DeLaine, J. 2005. 'The Commercial Landscape of Ostia', in A. McMahon and J. Price (eds.), *Roman Working Lives and Urban Living*, Oxford: 29–47.
- Descœudres, J.P. 2001. *Ostia. Port et porte de la Rome antique*, Geneva.
- Germoni, P., Keay, S., Millett, M. and Strutt, K. 2011. 'The Isola Sacra: Reconstructing the Roman Landscape', in S. Keay and L. Paroli (eds.), *Portus and Its Hinterland, Archaeological Monographs of the British School*, Rome 18: 231–260.
- Germoni, P., Keay, S., Millett, M. and Strutt, K. 2018. 'Ostia Beyond the Tiber: Recent Archaeological Discoveries', in F. Zevi, M. Cébeillac-Gervasoni, and N. Laubry (eds.), *Ricerche su Ostia e il suo territorio. Atti del terzo seminario ostiense (Roma), École française de Rome, 21–22 ottobre 2015*, <http://books.openedition.org/efr/3734> DOI: 10.4000/books.efr.3734.
- Heinzelmann, M. 2002. 'Bauboom und urbanistische Defizite – zur stadtbaulichen Entwicklung Ostias im 2. Jh.', in Bruun and Gallina Zevi 2002: 103–121.
- Helltula, A. 1995. 'Observations on the Inscriptions of Isola Sacra and the People of Portus', *Acta Antiqua Academiae Scientiarum Hungaricae* 36: 235–244.

- Helttula, A. (ed.). 2007. *Le iscrizioni sepolcrali latine nell'Isola Sacra*, *Acta Instituti Romani Finlandiae* 30, Rome.
- Hermansen, G. 1982. *Ostia. Aspects of Roman City Life*. Edmonton.
- Holleran, C. 2012. *Shopping in Ancient Rome. The Retail Trade in the Late Republic and the Principate*, Oxford.
- Holleran, C. 2017: 'Finding Commerce: Tabernae and the Identification of Roman Commercial Space', *PBSR* 85: 143–170.
- Keay, S. 2012. 'The Port System of Imperial Rome', in S. Keay (ed.), *Rome, Portus and the Mediterranean*, *Archaeological Monographs of the British School at Rome* 21, London: 33–67.
- Keay, S. 2018. 'The Role Played by the Portus Augusti in Flows of Commerce Between Rome and Its Mediterranean Ports', in B. Woytek (ed.), *Infrastructure and Distribution in Ancient Economies. The Flow of Money, Goods and Services. International Congress 28–31 October 2014*, Austrian Academy of Sciences, Vienna: 147–192.
- Keay, S. Forthcoming. 'The Hinterland of Early Imperial Ostia and Portus', in M. Pasquinucci (ed.), *Atti del Convegno Internazionale di Archeologia* (Livorno).
- Keay, S., Earl, G., Felici, F., Copeland, P., Cascino, R., Kay, S. and Triantafyllou, C. 2012. 'Interim report on an enigmatic new Trajanic building at Portus', *JRA* 25: 486–512.
- Keay, S., Millett, M., Paroli, L. and Strutt, K. 2005. *Portus: An Archaeological Survey of the Port of the Imperial Rome*, *Archaeological Monographs of the British School at Rome* 15, London.
- Keay, S., Millett, M., Strutt, K. and Germoni, P. 2020. *The Isola Sacra Survey. Ostia, Portus and the Port System of Imperial Rome*, MacDonald Institute Monograph, Cambridge.
- Keay, S. and Paroli, L. (eds.). 2011. *Portus and Its Hinterland*, *Archaeological Monographs of the British School at Rome* 18, London.
- Lafon, X. 2001. *Villa maritima. Recherches sur les villas littorales de l'Italie romaine (IIIe siècle av. J.-C./IIIe siècle ap. J.-C.)*, *Bibliothèque des Écoles françaises d'Athènes et de Rome* 307, Rome.
- Lugli, G. and Filibeck, G. 1935. *Il porto di Roma imperiale e l'Agro Portuense*, Bergamo.
- Maiuro, M. 2012. *Res Caesaris. Ricerche sulla proprietà imperial nel Principato*, Bari.
- Mar, R. 2002. 'Ostia, una ciudad modelada por el comercio. La construcción del foro', *MEFRA* 114.1: 111–180.
- Martelli, E. 2013. *Sulle spalle dei saccarii. Le rappresentazioni di facchini e il trasporto di derrate nel porto di Ostia in epoca imperiale*, *BAR International Series* 2467, Oxford.
- Meiggs, R. 1973. *Roman Ostia*, 2nd edn., Oxford.
- Morelli, C., Carbonara, A., Forte, V., Giudice, R. and Manacorda, P. 2008. 'The Landscape of the *Ager Portuensis*, Roma: Some New Discoveries, 2000–2002', in G. Lock and A. Faustoferri (eds.), *Archaeology and Landscape in Central Italy. Papers in Memory of John A. Lloyd*, *Oxford University School of Archaeology Monograph* 69, Oxford: 213–232.
- Morelli, C., Carbonara, A., Forte, V., Grossi, M.C. and Arnoldus-Huyzenveld, A. 2011. 'La topografia romana dell'agro portuense alla luce delle nuove indagini', in S. Keay and L. Paroli (eds.), *Portus and its Hinterland. Recent Archaeological Research*, *Archaeological Monographs of the British School at Rome* 18, London: 261–285.
- Packer, J. 1971. *The Insulae of Imperial Ostia*, MAAR XXXI, Rome.
- Pavolini, C. 1991. *La vita quotidiana di Ostia*, Bari.
- Pavolini, C. 2016. 'A Survey of Excavations and Studies on Ostia', *JRS* 106: 199–236.

- Pellegrino, A. 2004. 'Il territorio ostiense nella tarda età repubblicana', in A. Gallina Zevi and J.H. Humphrey (eds.), *Ostia, Cicero, Gamala, Feasts, and the Economy. Journal of Roman Archaeology Supplementary Series Number Fifty-Seven*, Portsmouth, RI: 33–46.
- Rickman, G. 1980. *The Corn Supply of Ancient Rome*, Oxford.
- Rickman, G. 2002. 'Rome, Ostia and Portus: The Problem of Storage', *MEFRA* 114.1: 353–362.
- Salomon, F., Keay, S., Strutt, K., Goiran, J.-P., Millett, M. and Germoni, P. 2016. 'Connecting Portus with Ostia: Preliminary Results of a Geoarchaeological Study of the Navigable Canal on the Isola Sacra', in C. Sanchez and M.P. Jézégou (eds.), *Les Ports dans l'espace méditerranéen antique. Les systèmes portuaires fluvio-lagunaires*, *Revue Archéologique Narbonnaise* 44, Montpellier-Lattes: 293–304.
- Terpstra, T. 2014. 'The "Piazzale delle Corporazioni" Reconsidered. The Architectural Context of Its Change of Use', *MEFRA* 126–1: 119–130.
- Testaguzza, O. 1970. *Portus: illustrazione dei Porti di Claudio e Traiano e della città di Porto a Fiumicino*, Rome.
- Thylander, E.A. 1951–1952. *Inscriptions du port d'Ostie* (2 vols), Lund.
- Veloccia Rinaldi, M.L. and Testini, P. 1975. *Ricerche archeologiche nell'Isola Sacra, Rome, Istituto Nazionale d'Archeologia e Storia dell'Arte (Monografie II)*, Rome.
- Virlouvet, C. 2015. 'Les métiers du port: les saccarii, dockers du monde romain antique', *JRA* 28.2: 673–683.
- Zevi, F. 1972. 'Ostia (Roma). – Scoperte archeologiche effettuate casualmente nei mesi di Settembre e Ottobre 1968, nell'Isola Sacra, presso la sponda della fiumara grande tra il ponte della Scafa e l'ansa – (Pianta catastale Comune di Roma, foglio 1065 sez B – mappa 17 – particelle 53 e 33)', *Notizie degli Scavi di Antichità*: 404–431.
- Zevi, F. 1998. 'Costruttori eccellenti per le mura di Ostia della Porta Romana', *Rivista dell'Istituto Nazionale d'Archeologia e Storia dell'Arte* III. XIX–XX 1996–1997: 61–112.