

Building for the Gods: the Capitolium at Ostia

Janet DeLaine

The early Hadrianic Capitolium at Ostia was the largest and most imposing of the city's temples,¹ erected in a prestige location at the head of the forum and linked to the Tiber by a processional way. The hexastyle pseudo-peripteral temple represents the greatest input of resources in terms of materials and construction in Ostia's religious landscape, and has been argued to have been the gift of the emperor Hadrian.² The podium and cella were in a high-quality version of the brick-faced concrete typical of the period at Ostia,³ but the 38-foot order was marble with Phrygian columns (fig. 1). The marble decoration was exceptional in the context of Ostia, with some elements, including the threshold of Lucullan marble weighing c. 3.5 tonnes, having their closest parallels in the Pantheon at Rome, built just a few years previously.

This paper tests our current understanding of this building project by putting it on a firm economic footing, and comparing it quantitatively both to the other major temple in Ostia and to the Pantheon itself. The calculations of materials, transport and manpower are based on a now well-established approach, and the basic assumptions are well published.⁴ A few assumptions specific to this analysis should be noted. The roof timbers and some minor elements have been omitted, the calculations have been based on a simplified geometry, and all elements have been reduced to equivalents in man-days of unskilled labour (mdle) in order to allow the inclusion of transport and fuel for the production of building materials. For transport I have used the generally accepted ratio of 1 : 8 : 42 for sea : river : land,⁵ but converted it to equivalents of land transport for each km for each tonne, taking the distance from ORBIS.⁶ The resulting figures, rounded to a single significant digit,

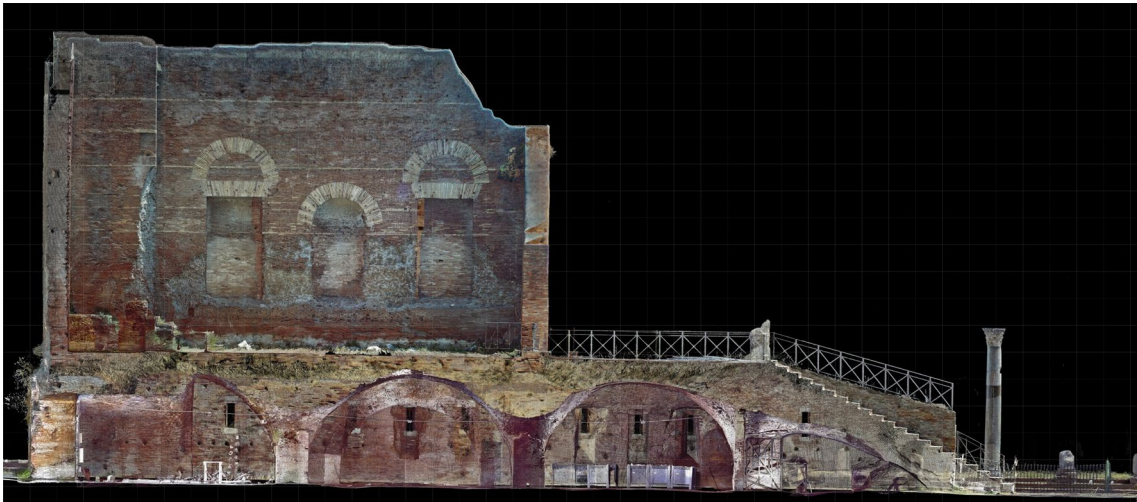


Fig. 1: Ostia, Capitolium, longitudinal section. Laser scan courtesy Yoshiki Hori, Department of Architecture and Engineering, Kyushu University

	quantity (m ³)	produce mdle (000s)	transport mdle (000s)	construct and finish mdle (000s)	TOTAL mdle (000s)	% of total labour	% total including transport
structure	2900	10	15	10	20	20%	10%
orders	590	8	150	60	70	60%	80%
veneer	80	2	15	20	20	20%	10%
TOTAL	3600	20	180	90	270		
% of total including transport		5%	70%	25%			

Table1: Resource requirements of the Capitolium, Ostia, in man-days of unskilled labour equivalents.

are very general estimates designed to give orders of magnitude, based on minimum figures, for purposes of comparison.

The results are summarised in table 1.⁷ Although the main structure accounts for 80% of the total volume of the materials used, it only employs 20% of the total labour, and 10% of the labour plus transport, while the marble orders account for just over 15% of the materials but 80% of the labour plus transport, the remainder being taken up with the marble for veneer. At all stages the orders require the most cost and labour, with transport for the Phrygian column shafts representing the largest single element.

The Capitolium can be compared to the hexastyle Temple to Roma and Augustus at the other end of the forum.⁸ Erected probably later in the reign of Augustus with a 32 Roman foot order, it has been calculated to have used 328m³ of Luna marble, with the main structure of concrete.⁹ While the linear measurements are roughly three-quarters of those of the Capitolium, the volume of construction is more like a half, and sourcing the marble in Italy should have further reduced the costs.

The near-contemporary Pantheon has a completely different cost profile.¹⁰ Just looking at the work on site without production and transport, construction accounts for 70% of the labour requirements and the orders 30%, while for the Capitolium the construction is only 15% and the orders 85%. This study therefore demonstrates the overwhelming importance of large marble columnar orders in the overall cost of traditional temples, even where the main structure was made of rubble construction. For Ostia, it has reinforced Pensabene's suggestion that the Capitolium, as well as the Temple of Roma and Augustus, required imperial input to provide the high quality marbles for the main orders. For traditional temples, therefore, the orders alone could be used as an indication of the relative cost range of buildings; the Pantheon is quite another story.

Acknowledgements

This research was carried out as part of a Leverhulme Research Fellowship. The author is grateful to the Director of the Parco Archeologico di Ostia Antica, Dott.ssa Mariarosaria Barbera for kind permission to carry out this work.

Notes

¹The analysis is based on Albo 2002. Many thanks to Yoshiki Hori for making available a detailed laser scan of the building (fig. 1).

²Pensabene 1996, 198 f.

³DeLaine 2002, 65–71.

⁴DeLaine 1997; 2001; 2017; 2018.

⁵Russell 2013, 95–97.

⁶Scheidel – Meeks 2012.

⁷Thanks are due to Mark Griffiths for his invaluable help with the calculations.

⁸Geremia Nucci 2013.

⁹Pensabene 2007, 135–144.

¹⁰DeLaine 2015.

Image Credits

Fig. 1: Laser scan courtesy Yoshiki Hori, Department of Architecture and Engineering, Kyushu University. –

Table 1: by the author.

References

Albo 2002

C. Albo, *Il Capitolium di Ostia*, MEFRA 114, 2002, 363–390.

DeLaine 1997

J. DeLaine, *The Baths of Caracalla in Rome: a Study in the Design, Construction and Economics of Large-Scale Building Projects in Imperial Rome*, JRA Suppl. 25 (Portsmouth 1997).

DeLaine 2001

J. DeLaine, *Bricks and Mortar: Exploring the Economics of Building Techniques at Rome and Ostia*, in: D. J. Mattingly – J. Salmon (eds.), *Economies beyond agriculture in the Classical World*, Leicester–Nottingham Studies in Ancient History 9 (London 2001) 230–268.

DeLaine 2002

J. DeLaine, Building Activity in Ostia in the Second Century AD, in: C. Bruun – A. Gallina Zevi (eds.), *Ostia e Portus nelle loro relazioni con Roma*, *ActaInstRomFin* 27 (Rome 2002) 41–101.

DeLaine 2015

J. DeLaine, The Pantheon Builders – a Preliminary Estimate of Manpower for Construction, in: T. A. Marder – M. Wilson Jones (eds.), *The Pantheon: From Antiquity to the Present* (Cambridge 2015) 160–192.

DeLaine 2017

J. DeLaine, Quantifying Manpower and the Cost of Construction in Roman Building Projects: Research Perspectives, *AArchit* 22, 2017, 13–19.

DeLaine 2018

J. DeLaine, Economic Choice in Roman Construction: Case Studies from Ostia, in: A. Brysbaert – V. Klinkenberg – A. Gutiérrez Garcia-M. – I. Vikatou (eds.), *Constructing Monuments, Perceiving Monumentality and the Economics of Building. Theoretical and methodological Approaches to the Built Environment* (Leiden 2018) 241–268.

Geremia Nucci 2013

R. Geremia Nucci, *Il tempio di Roma e di Augusto a Ostia* (Rome 2013).

Pensabene 1996

P. Pensabene, Committenza pubblica e committenza privata, in: A. Gallina Zevi – A. Claridge (eds.), *'Roman Ostia' Revisited: Archaeological and Historical Papers in Memory of Russell Meiggs* (London 1996) 185–222.

Pensabene 2007

P. Pensabene, *Ostiensium marmorum decus et decor. Studi architettonici, decorative e archeometrici*, *Studi Miscellanei* 33 (Rome 2007).

Russell 2013

B. Russell, *The Economics of the Roman Stone Trade* (Oxford 2013).

Scheidel – Meeks 2012

W. Scheidel – E. Meeks, *ORBIS: The Stanford Geospatial Network Model of the Roman World*, <<http://orbis.stanford.edu/>> (last accessed 20/5/2018).