

Marble recycling-workshops nearby the Temple of Roma and Augustus: An interim report of the Ostia-Forum-Project's working campaigns in 2013 and 2014

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After having finished the excavation of the Forum's portico pavements from 2010 to 2012, the working campaigns 2013 and 2014 of the Ostia-Forum-Project (OFP) were focused on the southwest-corner of the Forum (fig. 1), a "missing link" in our project dedicated to the whole Forum¹.

In 2013 we concentrated on a former portico situated between the Domus del Tempio rotondo and the Via del Tempio rotondo (MFD). According to big amounts of little marble cut-offs, remains of stone-cutting-processes, this portico obviously had been turned into a late-antique workshop-area. In 2014 we brought the equipment to document the architecture of this area by laserscanning and 3-D-fotography (fig. 2). A closer examination of the floors showed us a "new" type of material previously neglected, the marble-deposits of former excavators and lime-kilns, which were active in Ostia from late-antiquity to the 19th century.

One of these deposits was still covered with earth inside a shop at the corner of the Via del Tempio rotondo and the southern Cardo. This area next to the famous "ninfeo della Venere" (NDV) was named "Taberna della Venere" (TDV, fig. 1).

The most important marble-deposit in TDV contained more than 200 single architectural fragments with decoration.

Our first question focused on the dating of the depositing-process: Did we find remains from a lime-kiln in the 1830ies or of the excavator's activities from the 1920ies until recently? Or was there a stratigraphy inside the marble-deposit, that means several periods of use and re-use?

The main question: "ancient or not" could also be answered by analyzing the marble finds individually with all kinds of available methods. By examining the surface with special photographical techniques focusing on the stone structure, and by drawing each fragment by hand in a careful way, we found clear evidence showing traces of deliberate cutting with a big chisel, which happened before erosion took place (fig. 3: the chisel lines in the position of a former statue foot lay underneath the rain erosion).

By comparing well-documented lime-kiln-material with our marbles we came to the conclusion that all marble fragments were artificially cut into handsome pieces of a size which seems ideal for burning marbles to chalk. This process took place after some water erosion already had harmed the surfaces: the fragments were obviously stored in a place exposed to the weather. Lime-kilns are usually dated to the early Middle Ages, before the Forum was covered by meters of earth from the vegetation. These meters of earth were first

¹ Thanks to the Superintendency of Rome and the direction of the "Scavi di Ostia" our team had the chance to continue working at the Forum in 2013 and 2014. We would like to thank especially Paola Germoni, Cinzia

Morelli and all contributors including our team. For the team, its work and the results of our former Forum-Portico-excavations compare <http://www.ostiaforumproject.com>.

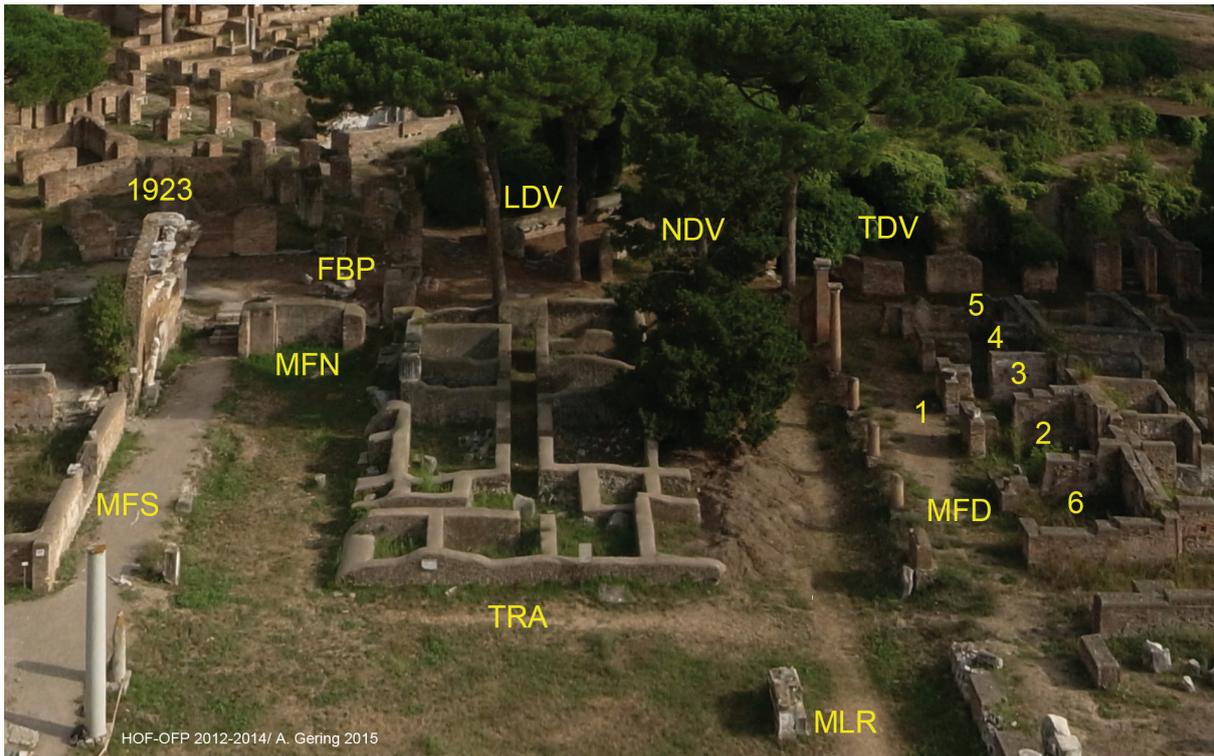


Fig. 1. View to the south part of the Forum of Ostia with the central Temple of Roma and Augustus (TRA) and the Portico MFD with marble recycling industries in the rooms 2-6.



Fig. 2. View into the corner shop TDV with the remains of a huge marble pile after surface-cleaning.

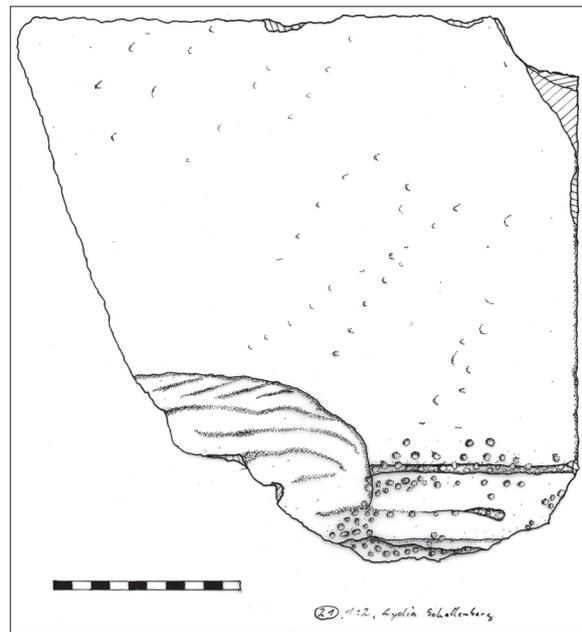


Fig. 3. A cut out statue-tand. Drawing by Felix Huelsebeck.

removed in 1801-1804/5. It can be excluded that the excavators themselves burned their finds in lime kilns. However, Ostia's city history proved to be more complicated: indeed there was a short revival of lime kilns in the first half of the 19th century, following the first excavations of 1801-1804/5.

Fortunately, due to the limits of the old excavations from 1801-1804/5, our room TDV has remained untouched and covered by meters of earth until 1923, which means that our marble-deposit cannot be product of 19th century lime kiln-activities.

Beside all initial doubts regarding its antique origin, we documented the pile with maximum care and all available modern technology. A new feature of the 2014 campaign was the prototype of a photographic sensor, which was developed for biological and medical research in Bavarian laboratories (fig. 4). The big advantage of this machine was its speed. We were able to take the huge number of pictures (which is necessary to create high-resolution 3-D-point-clouds of complex individual finds) in a very limited time by "making a movie".



Fig. 4. Find CAW 1 with depiction of a fish-tail in process of 3-D-documentation.

A main part of the marble-finds showed architectural decoration of Augustan style. The first fragment we have found is characterized by an angle of 22° of the "Zahnschnitt" in relation to the rest of the ornament which is identical with the angle of the pediment of the Roma- and Augustus temple (fig. 5), some other fragments came from the temple-pediment itself.

Why did former excavators leave such high-quality pieces in the pile? The fragment

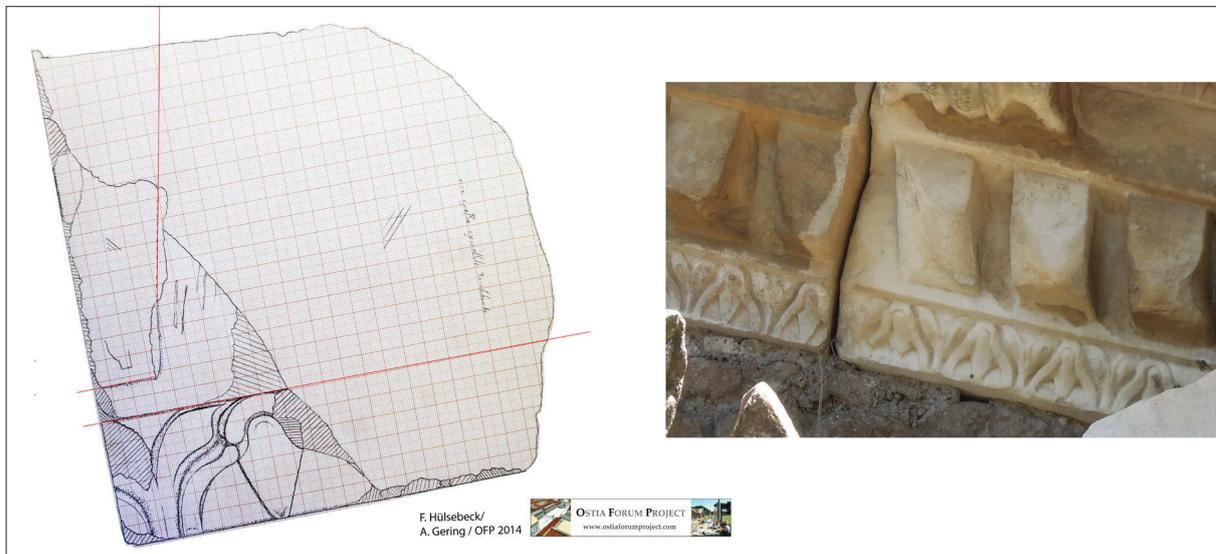


Fig. 5. "Zahnschnitt" from front pediment of the Temple of Roma and Augustus (TRA). <1/2p>

fits directly to the preserved “Zahnschnitt” in the left part of the restored pediment (fig. 6: A): Why was this fragment not used for the pediment-reconstruction of 1924? Or was this material not visible to the former excavators, because it had been buried underneath a cover of low-value fragments of “excavation rubbish”?

The list of fragments, which fitted to the pediment of the Roma and Augustus temple grew every day on site while we were drawing and laser-scanning the pieces.

One fragment from a nearby marble-deposit (CAW) showed a fish-tail (fig. 6), which could be reconstructed as part of a Triton or – due to the unusual straight proportions for a Triton’s body – more probable as a Capricorn.

Until the end of the campaign we had analyzed decorated fragments from more than 25 different parts of the temple-pediment, others from the less well-known areas like the temple door and its inside areas². Many paneling-slabs – with diameters of 6-10cm – were part of the inside walls with several different



Fig. 6. Fragment CAW 1 of a monumental Fish-tail as part of a Capricorn.

types of decoration, some thicker slabs showed the typical features of isodomic wall-imitation outside. Some columns, capitals or pediment- and roof elements were extremely fragmented, but still easy to be classified due to the reconstructed architectural display of all major finds until 1923 (fig. 1: 1923, fig. 7).

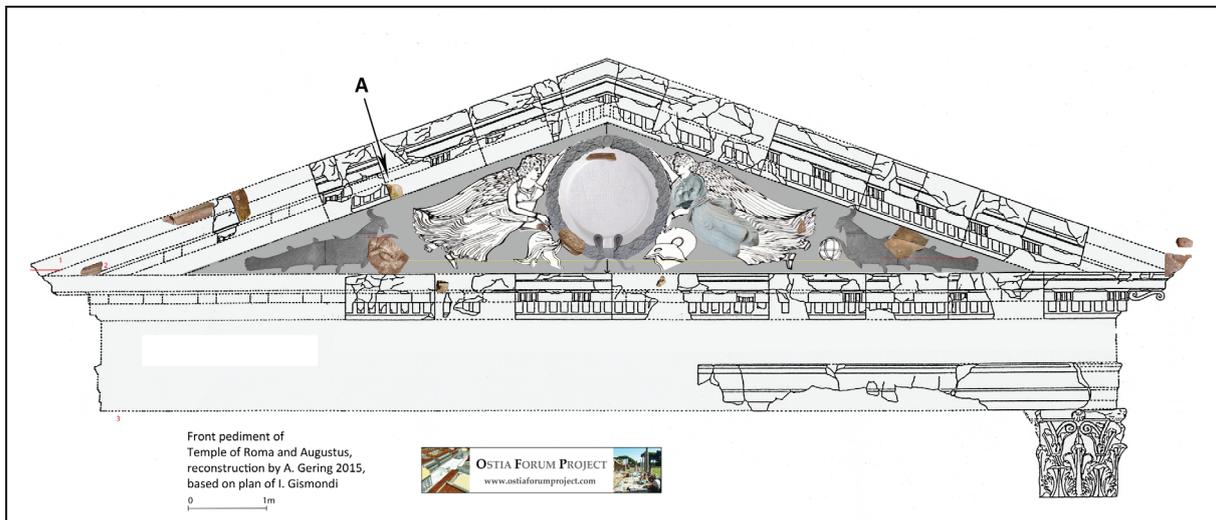


Fig. 7. The temple front with old and new finds included: reconstruction as work-in-progress.

² More details are published in the article: Gering, “Brüche in der Stadtwahrnehmung”. Another detailed analysis will follow in the *Römische Mitteilungen*.

The remains from the 1920ies excavations of the temple-pediment were analyzed in detail by the excellent study of R. Geremia-Nucci³. We could supplement her reconstruction by the heraldic Capricorns in the pediment-corners holding the globe and a new – and stylistically better fitting – wreath (fig. 8: B) in the middle which once surrounded a *clipeus virtutis*⁴. The pediment shows the full range of Augustus' concept of power and "propaganda" with a direct link to the emperor's chosen sign of the zodiac.

Fundamental for the 3-D-reconstruction-modell, which will help us to fit in more pieces, is the pointcloud of G. Calza's pediment (fig. 9). Visible are also the various camera positions, which were used to get the pediment photographed from all possible angles with the necessary overlapping for 3-D--models.



Fig. 8. Marble pile in TDV with wreast-fragment of oak-leafs (B: full diameter reconstructed 160 cm).

A second group of material beside the deliberately fragmented Roma- and Augustus temple consisted of half-finished decoration elements or so-called exercise pieces of an

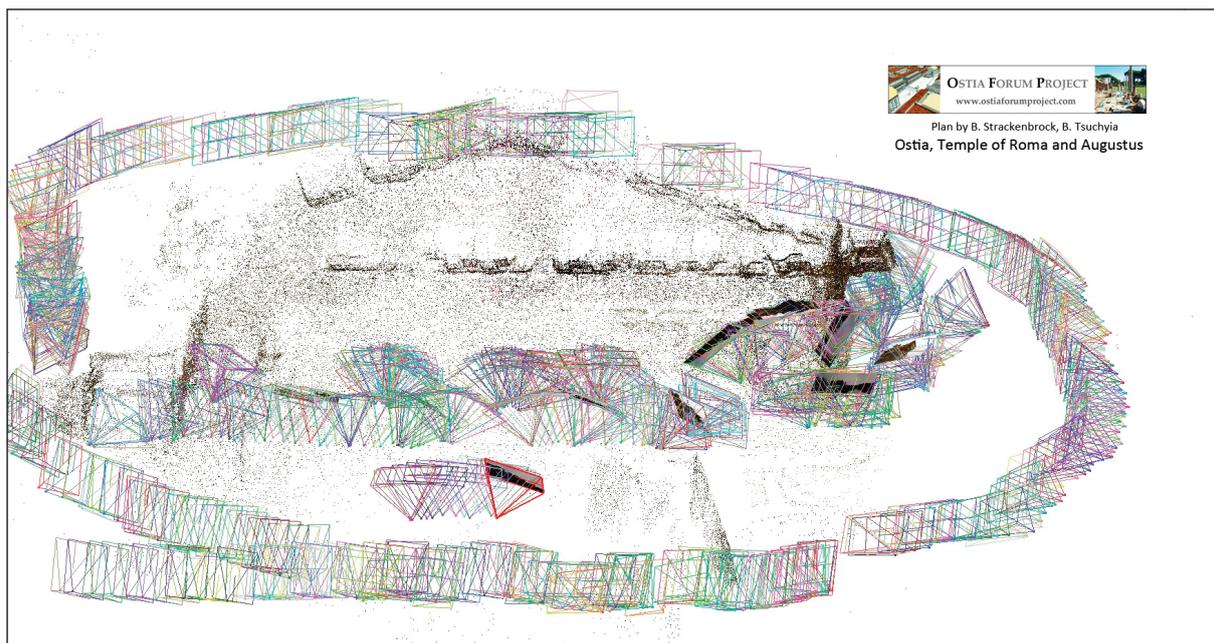


Fig. 9. 3-D-processing of the temple pediment by members of the German Aerospace (DLR).

³ Geremia Nucci, *Il Tempio di Roma e Augusto*.

⁴ Compare footnote 2.

artisan's workshop, verified by random chisel marks or very uneven lines. We also found parts of a half worked marble water basin, which occurs frequently in the context of early Christian churches (fig. 8: C, earlier examples of this type exist, but are very rare).

Based on our results from the working campaign in 2013, we started to understand the processes of recycling the collapsed temple of Roma and Augustus for new building- and decoration-activities in the 5th century AD in a more detailed way. Lime-kilns probably were – due to statistic reasons – only in rare occasions left “not yet burned”. What we have found was more probably material from a deposit which had been built in the near of a lime-kiln to guarantee a constant support and workflow. Due to reasons which we may never get to know, many of these deposits were left in situ before they could have been used for burning chalk. Maybe the building-market and the demand for cement and spolia had declined dramatically before the material itself, stored in various deposits in and around the Forum, had been used up completely.

The whole area around the Temple of Roma and Augustus (TRA, fig. 1) consisted of piles or deposits of mixed and properly sorted recycling materials, ranging from columns and bigger statue fragments to piles of extremely fragmented coloured marbles and stucco-ceiling fragments. The floor of the portico MFD is a mixture of marble-cut-offs, characteristic for artisans' marble-workshops until today, which had been reused as filling-material in the latest concrete floor.

Remains of sorted recycling material were preserved even underneath the latest shop-floor levels. This allowed to reconstruct the functions of the rooms before and after a

big collapse-catastrophe, when the architectural elements of the portico were reused elsewhere and a simple roof was built until the area was completely abandoned. Fortunately, MFD showed an almost perfectly preserved surface stratigraphy in 2013, datable by coins embedded in different mortar layers. Here nature helped us: a roughly 70 year old pine tree, planted immediately after excavation, had started to “eat up” the mortar layers by turning mortar slowly into simple earth. Due to our principles of documentation with only minimal invasive work we had the chance to analyze the content of a formerly massive concrete-layer⁵. Instead of invasive work which would have been necessary to gain results of an unknown value here it was vice-versa: By simply documenting the natural erosion we actually saved almost 100 coins from getting “archeologically useless”, that means without context. Due to the exact documentation of the root-growth, the original position of the coins could be reconstructed in the layers inside the latest floor levels of the shops which were built most probably after the earthquake and fire-catastrophies of 442/443 AD⁶.

A complete new view onto the existing marble deposits started: Could other marble piles be antique as well? Could their position or at least their content be more or less *in situ* and therefore representative for the last active period in the development of the antique city?

1. Marble workshop later reused as lime-kiln deposit?

“Deposits” of marbles can be found throughout the city of Ostia, they are mostly remains of quite recent excavation activities. The interpretation of an antique “depot” is

⁵ www.ostiaforumproject/aims_and_methodology

⁶ Compare Gering, “Brüche in der Stadtwahrnehmung”; Gering, *Ostias vergessene Spätantike*.

based on several sources, partly on the old diaries and photos from 1907-1923, and partly on a supplementing archeological surface re-cleaning of the area in 2013/14. When the marble-fragments had been brought into the former shop TDV, this shop had lost its ceiling already and was turned into an “open-air”-deposit. This is verified by the eroded wall-plaster behind the marble-pile (fig. 10: B3) and the remaining superficial stratigraphy on one hand, by the erosion of many marbles on the other hand. At least the collection of the materials of this depot (E2) is surely antique, covered by excavation-rubbish of the 1920ies (H) and more recent times (I). The depot on top of the collapsed ceiling (D1) seems to be the last indicator of activities on the Forum before its final abandonment in the 6th century AD.

The former shop doors of MFD (fig. 1: rooms 3-5, 6) had been closed by secondary walls. These walls had been almost completely removed by Guido Calza during the excavation in 1923, only some minimal traces of their foundation survived and were drawn in 2013 by our team.

The closing of MFD's broad shop entrances with walls instead of wooden doors can only be explained with an intention to secure the marbles behind these walls for a long term perspective, a typical function of a well-protected deposit. One room attached to the “deposit” shows signs of a round structure, which could be interpreted as a lime-kiln itself (fig. 1: room 6), separated from the (former?) working rooms 3-5 by a broadly accessible room (2). Maybe some lime-kilns were already contemporary with late antique production- or construction-sites. Here it seems more probable that the lime-kiln was put secondarily in the best possible context, an (already abandoned?) marble-recycling-workshop.

MFD's main function as a recycling-workshop seems to correspond with our latest newly built shop floor dating to the second

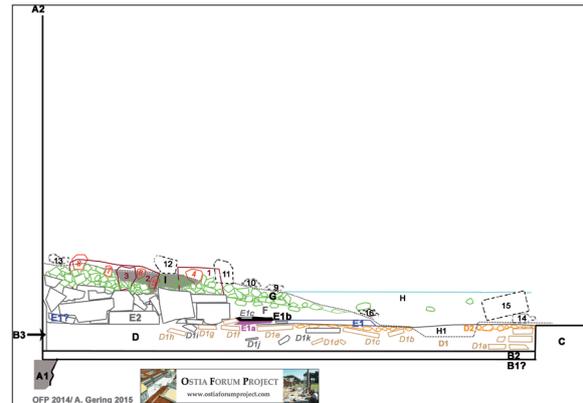


Fig. 10. The marble deposit in TDV and its stratigraphy (based on archeological surface cleaning and documentation 2012/2014).

half of the 5th century AD. The solid concrete floor with thousands of implemented reused marble fragments (cut-offs from the previous or contemporary working processes) was designed for a regular use including many persons and/or heavy objects. This has nothing to do with a “squatter-occupation-area”, where abandoned rooms were used as random material deposits without any new building activities included. Unfortunately, the evidence of the lime-kiln in room 6 appears almost completely lost today due to erosion since its excavation in 1923. Therefore, it is so far not possible to date the kiln either contemporary to the workshop, which was installed soon after the collapse of the predecessor-por-ticoe in the middle of the 5th century AD (earthquake 442/443 AD) or in a later phase. However, it cannot be dated later than the early 7th century, characterized by massive level-raising above ruins, due to its connection to the same floor level as the workshop.

In the area of MFD and TDV, marbles from the nearby temple of imperial cult (TRA) and other monuments from the Forum, mostly also dedicated to the imperial cult, but also from other abandoned private or public buildings, were obviously separately stored for different types of reuse. This material demon-

states the continuing demand for new marble decoration and building material by transforming bigger marbles into new forms like pavement repair slabs, wall veneers or parts of highly skilled opus sectile mosaics – at least

until the end of the 5th century. Marble depots, in this regard, can be understood as “side effects” of late antique artisan’s workshops rather than indicators of the end of the Roman city in the Middle Ages.