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Late Roman Type 1a amphora production at the Late Roman site of Zygi-Petrini, Cyprus¹

Sturt W. Manning, Sarah J. Monks,
David A. Sewell and Stella Demesticha*

I. INTRODUCTION

Late Roman Type 1 amphorae (LRA1) are ubiquitous across Late Roman sites of the 5th through mid-7th centuries A.D. in the Mediterranean, and as far as Britain.² They were a major medium of trade, most likely containing wine and/or oil.³ However, for many years their place of manufacture, or origin, was debated. An Egyptian origin was ruled out by Williams,⁴ and during the 1980s, scholars suggested a variety of possible locations on the basis of consistent geology in the northern east Mediterranean, southern Anatolia, Cyprus, or the Aegean.⁵ Cyprus was suggested as a possible source by Williams on the basis of petrographic analyses;⁶ although, as recently as 1986 it was stated that 'the form is not so common in Cyprus'.⁷ Therefore, despite circumstantial evidence for a possible Cypriot origin of LRA1 amphorae, there was a perceived scarcity of actual finds on the Island in work through to the 1980s.

Dr John Creighton for his advice on geomagnetic survey. We thank Dr Ian Todd for his generous permission to refer to information on the site from the work of the Vasilikos Valley Project, and for his permission to let us examine material collected from the site, now held by the Vasilikos Valley Project. We thank Dr David H. Conwell for his advice and assistance. We wish to thank the members of the Maroni Valley Archaeological Survey Project of 1996 and 1997, and especially Andrew Manning and Sabine Laemmel, who carried out much of the on-site recording, and Jo Goffee for drawing Figures 13 and 14. Finally, we thank Professor Michael Fulford for his comments on a draft of this paper. The final publication drawings were completed by Sarah Monks.

2. See e.g. J.A. Riley, "The coarse pottery from Berenice", in J.A. Lloyd (ed.), *Excavations at Sidi Khrebish Benghazi (Berenice)*, Vol. II (LibAnt Suppl. V, Tripoli 1979), 91-467, at pp. 212-6; D.P.S. Peacock, and D.F. Williams, *Amphorae and the Roman Economy* (London 1986), 185-7, class 44; J. Lund, "Pottery of the Classical, Hellenistic and Roman periods", in L.W. Sørensen and D.W. Rupp (eds.), *The land of Paphos Aphrodite. Vol. 2. The Canadian Palaeopaphos Survey Project: artifact and ecofactual studies* (Göteborg 1993), 79-155, at pp. 130-2; F. Pacetti, "Appunti su alcuni tipi di anfore orientali della prima età bizantina. Centre di produzione, contenuti, cronologia e distribuzione", in L. Quilici and S. Quilici (eds.), *Agricoltura e commerci nell'Italia antica* (Rome 1995), 273-9; P.G. van Alfen, "New light on the 7th-c. Yassi Ada shipwreck: capacities and standard sizes of LRA1 amphorae", *JRA* 9 (1996), 189-213, at p. 191 and ns. 7-9.
3. Alfen (*supra*, n. 2), 208 with refs.
4. D.F. Williams, "The heavy mineral separation of ancient ceramics by centrifugation: a preliminary report", *Archaeometry* 21 (1979), 177-82.
5. D.P.S. Peacock, "Petrology and origins", in M.G. Fulford and D.P.S. Peacock (eds.), *Excavations at Carthage. The British Mission Vol. I: 2. The Avenue du President Habib Bourguiba, Salammbô: the pottery and other ceramic objects from the site* (Sheffield 1984), 6-28, at pp. 20-2; Peacock and Williams (*supra* n. 2), 186; C. Williams, *Anemurium: the Roman and Early Byzantine pottery* (Toronto 1989).
6. D.F. Williams, "The petrology of certain Byzantine amphorae: some suggestions as to origins", *Actes, colloque sur la céramique antique, Carthage 23-24 Juin 1980* (Carthage 1982), 99-110.
7. Peacock and Williams (*supra*, n. 2), 186.

* SWM and SJM: Department of Archaeology, University of Reading.

DAS: Environmental Systems Science Centre, University of Reading.

SD: Archaeological Research Unit, University of Cyprus.

1. We thank the Department of Antiquities, Cyprus, for permission to study the site. We thank the then Curator of Monuments and now Director of the Department of Antiquities, Dr Sophocles Hadjisavvas, for visiting the site, and for his support and assistance. The work was funded by a British Academy/Humanities Research Board grant to the Maroni Valley Archaeological Survey Project. We thank Dr Demetri Michaelides for his advice, and Maria Philokyprou for undertaking a drawing of the kiln structure in 1996. We thank Michael Donnelly for his assistance in the field in 1997, and

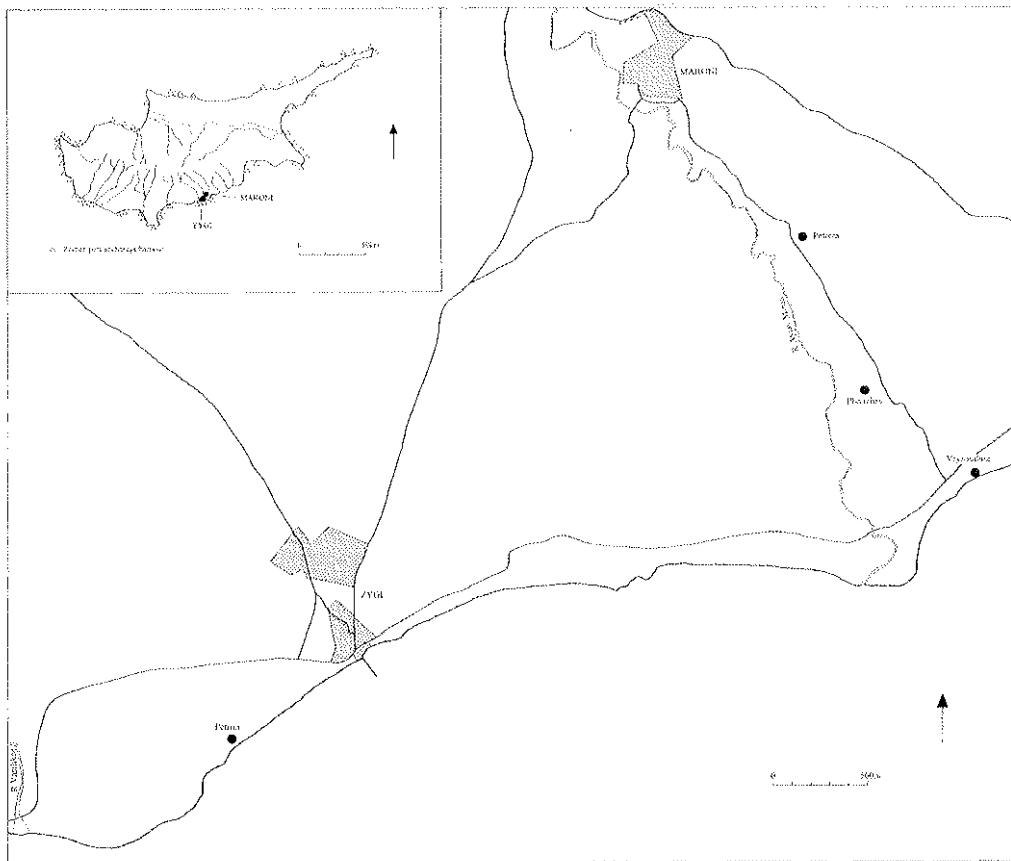


Fig. 1. Map of Maroni valley showing location of Roman sites. Inset: Map of Cyprus indicating the location of Roman ports/ anchorages/harbours (after Leonard, *infra*, n. 70, 240 fig. 11).

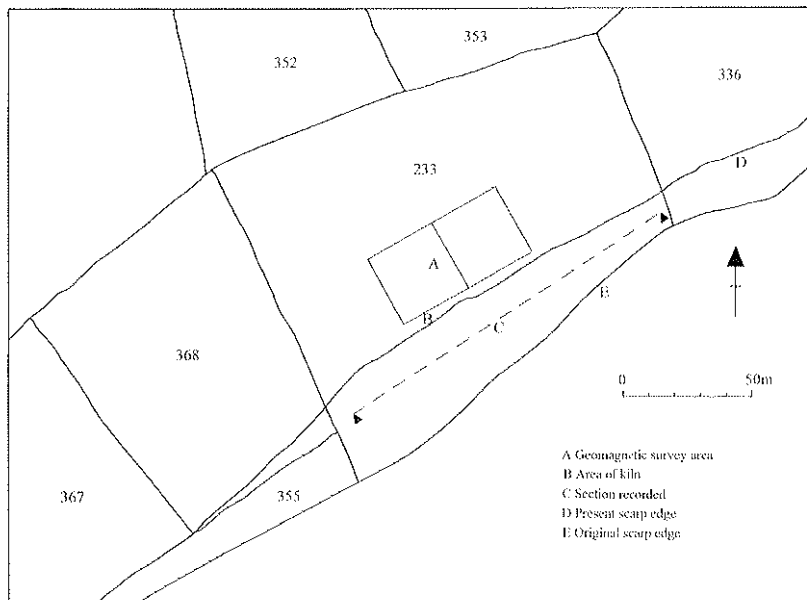


Fig. 2. Location of magnetometry survey and the scarp section.

This scarcity was simply the product of a lack of relevant research on Cyprus. Excavations in the later 1980s of the Late Roman site of Kalavassos-Kopetra in southern Cyprus, for example, immediately found LRA1 to be the most common ceramic type by far,⁸ and in fact LRA1 have been reported from nearly all Late Roman sites on the island (see section III below).⁹ By 1985 Empereur was proposing a possible production centre at Amathous in southern Cyprus based on the discovery of a number of finds including wasters within a well.¹⁰ Finally, in 1988, the discovery and rescue excavation of part of a destroyed kiln at Pafos, in the west of the Island, established that LRA1 had been manufactured in Cyprus (among other places).¹¹

Cypriot manufacture is thus now clear for this type, although the evidence to date is mainly circumstantial or unpublished. The Pafos kiln site unfortunately constituted the rescue excavation of what was already a seriously damaged kiln (bulldozed during modern construction work), and none of the surrounding work area was recovered. Other production sites have been proposed on the basis of survey work in nearby northern Syria and southern Asia Minor.¹² However, these locations have not (yet) been the subject of scientific excavation or detailed study.

This article presents evidence for a probable production centre of LRA1 along the southern coast of Cyprus near the modern village of Zygi, and, more particularly, evidence for a likely production site of the smaller LRA1a sub-type of amphora. Further, since the site in question is being rapidly destroyed by coastal erosion, this paper presents a 'publication of record' for future reference (especially since it is often noted that there are few published data on Roman period kilns and ceramic production loci in the northeast Mediterranean).

II. ZYGI-PETRINI

Investigations at the site

The small Late Roman site of *Zygi-Petrini*

lies immediately to the west of the modern village of Zygi in southern Cyprus (Figs 1, 3: 1). Its extent is about 2ha maximum, but an unknown amount of the site has been lost through erosion.¹³ The site has been known for many years and has been surveyed or examined by the Vasilikos Valley Project (VVP), under the direction of Ian Todd, and by Murray McClellan, Marcus Rautman and William Andreas of the Kalavassos-Kopetra Project. The VVP visited and studied the site first in April 1979, following a small-scale illicit excavation by some children, and made subsequent visits in 1986 and 1989 (VVP site 106).¹⁴ The site was first surveyed by the Maroni Valley

8. M.L. Rautman and M.C. McClellan, "The 1989 field season at Kalavassos Kopetra", *RDAC* 1990, 231-8, at p. 232 n. 7; M.L. Rautman, B. Gomez, H. Neff, and M.D. Glascock, "Neutron activation analysis of Late Roman ceramics from Kalavassos-Kopetra and the environs of the Vasilikos Valley", *RDAC* 1993, 231-64, at p. 235.

9. For other finds on Cyprus, see e.g. Lund (*supra*, n. 2), 131-2; M. Touma, "La céramique proto-byzantine d'Amathonte: remarques sur le matériel trouvé en 1988", *BCH* 113 (1989), 817-75; J.W. Hayes, "Problèmes sur la céramique des VII^{ème}-IX^{ème} siècles à Salamine et à Chypre", *Salamine de Chypre: histoire et archéologie. État des recherches, Lyon 13-17 mars 1978. Colloques Internationaux du Centre National de la Recherche Scientifique 578* (Paris 1980), 375-87.

10. J.-Y. Empereur, "Le port", *BCH* 109 (1985), 984-9, at p. 989; J.-Y. Empereur and M. Picon, "Les régions de production d'amphores impériales en Méditerranée orientale", *Amphores Romaines et histoire économique: dix ans de recherche* (Rome 1989), 223-48, at p. 242. The latter paper also suggests production at Kourion.

11. V. Karageorghis, "Chronique des fouilles et découvertes archéologiques à Chypre en 1988", *BCH* 113 (1989), 789-853, at p. 848; A. Papageorghiou, "Chronique des fouilles à Chypre en 1989", *BCH* 114 (1990), 941-85, at p. 951; S. Demesticha and D. Michaelides, "The excavation of a Late Roman I amphora kiln in Pafos", *Paper presented to the Colloquium 'La céramique byzantine et proto-islamique en Syrie-Jordan'*, Amman, 3-5 December 1994 (forthcoming).

12. Empereur and Picon (*supra* n. 10), who identify 13 locations.

13. Debris can be found on the seabed off the site based on a brief snorkel survey in 1996-97. It is clear that considerable coastal erosion has occurred in this area. An Archaic site a few hundred metres to the west along the coast is also being actively eroded into the sea (Tochni-Lakkia).

14. Information courtesy of I.A. Todd.



1. View across Zygi-Petrini site above the coastal scarp (modern town of Zygi in background).



2. View along scarp showing recording in progress.

Fig. 3

Archaeological Survey Project (MVASP) in 1990, and has been revisited and monitored each year since. Recent erosion of the coastal scarp caused by heavy winter storms exposed a large 'fresh' section through the site which is now literally eroding into the sea. Sections of walls, floors and occupation levels, and part of the oven-chamber and fuel-firing chamber of a pottery kiln, were revealed.¹⁵ Parts of LR Amphora 1 were found *in situ* on the collapsed, wave-eroded, and partly dissolved floor of the firing chamber. Similar finds have also been observed on the pebble beach near the kiln, in the field around the kiln, and lying on the seabed a short distance from the coast: Fig. 12: 1.¹⁶

In view of the finds and the state of the site, MVASP carried out a recording exercise on the extant remains in 1997. A geomagnetometer survey of a 60×30m. area of the *Zygi-Petrini* site, near to the kiln structure, was also carried out in July 1997 to provide some indication of the nature of the remaining intact site area. A short section of the coastal scarp face, including the kiln, was recorded during July 1997, and a further c. 150m. of the coastal scarp face was recorded in September 1997 (Figs 2, 3: 2). Evidence from the scarp was then correlated with the prospection data and we outline below our interpretation of the site prior to any possible future excavation. The kiln area was cleaned and recorded, and *in situ* ceramics from the kiln floor were removed for study and analysis. Ceramic finds from the rest of the site (recovered in 1997), material previously collected and studied by the VVP, and material observed from a brief reconnaissance of the seabed, were found to be typical of Late Roman sites from the 5th through 7th centuries A.D. LRA1/LRA1a sherds were prominent, along with roof tiles, building stones and some architectural fragments. Only a couple of diagnostic fine ware ceramic sherds were found *in situ* in the site section in 1997: rim sherds of Cypriot Red Slip,¹⁷ as well as the rim and base of a glass vessel. These suggest a late 6th to mid-7th century A.D. date, as discussed in section III below.

Interpretation of the evidence from the scarp face and the prospection data

From the study of the exposed section, we can identify at least seven separate buildings, some of which comprised a number of individual rooms, and a number of open courtyard, storage or work areas. In some areas these rooms have a sequence of overlying plaster floors and occupation debris, which attest to structural rebuilding and alteration following episodes of fire damage and/or roof collapse. The open areas, most probably multi-functional, are defined by their pebble or gravel floors, and their location and size compared to interior rooms. The walls of the various structures are largely constructed of river boulders, especially in the lower courses, with more squared stones above. Rubble in-fills, gypsum slabs, tiles, and plaster facings are also features of some of the walls. The results of the geomagnetic survey suggest that a number of further rectilinear structures still exist *in situ* in the area behind the kiln (Figs 4, 5). Debris, including larger blocks and gypsum flooring in a field further to the east—beyond the area of the geomagnetic survey—where there has been recent disturbance by mechanical excavation, suggest the existence of a larger non-domestic building in this vicinity.

The following text discusses individual rooms and buildings from west to east across the coastal-scarp section in summer 1997 (see Figs 6: a-h)—there has already been significant further erosion/damage since then (visits 1998, 1999). The numbers cited refer to contexts and structures, which are indicated on the section drawings:

15. The area with the remains of the kiln was the locus of the original illicit excavation, and much information has been lost.
16. Observations made during the snorkel survey in 1996-97.
17. J.W. Hayes, *Late Roman pottery* (London 1972), 379-82, types 9a and 9b.

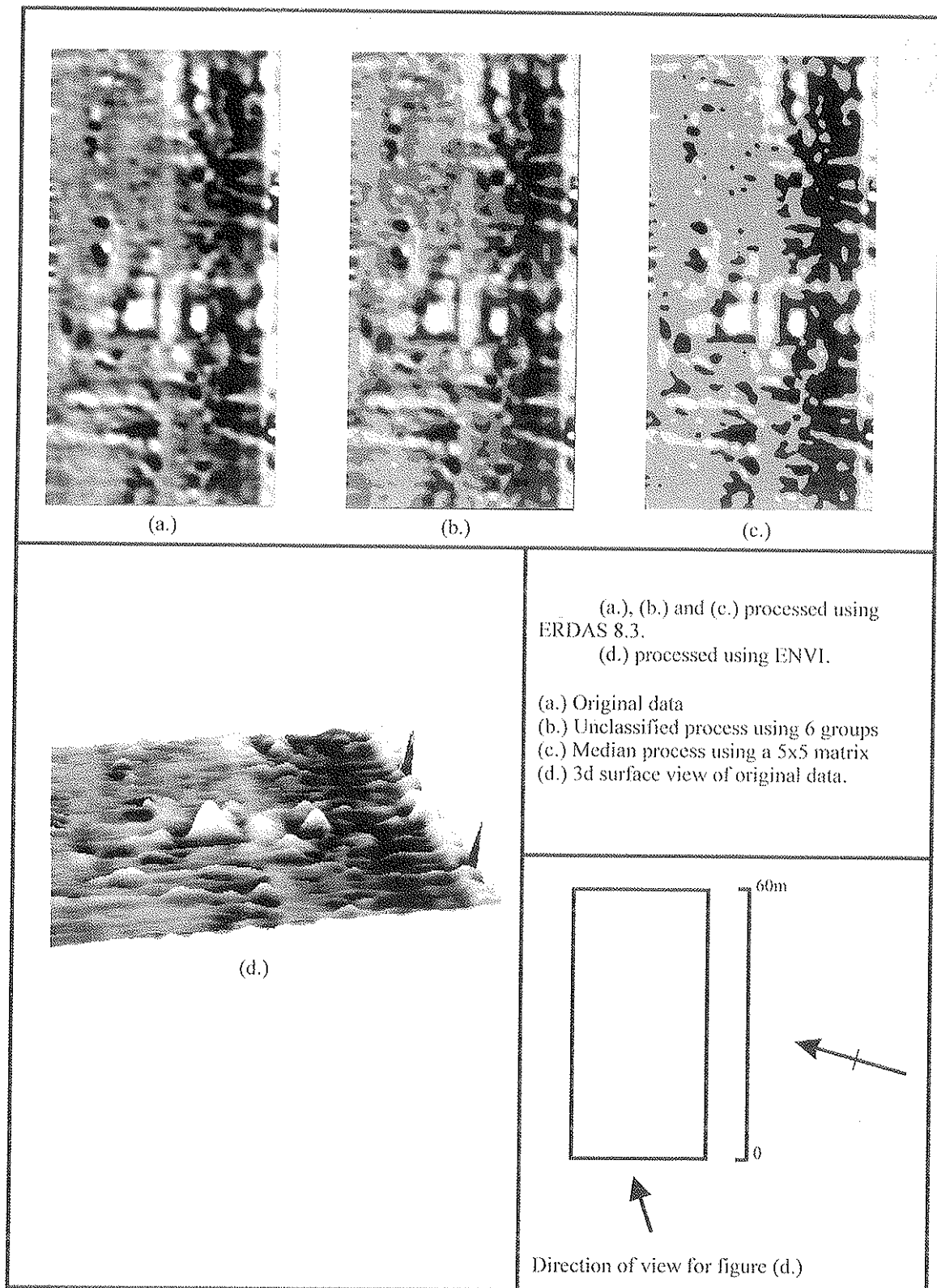


Fig. 4. *a.* Original geomagnetic survey results. *b.* and *c.* Further processing of original data. *d.* Three-dimensional interpolation of the geomagnetic data.

Building 1, Room 1 (Fig. 6: a)

Defined by walls 102.0 and 103.0. A white plaster floor (101.0) lies immediately below the ploughsoil (100.0), and overlies a layer of subsoil contaminated by higher cultural deposits (104.0), and natural layers of terra rossa (105.0) and marl (107.0). A much earlier deposit or pit? (106.0) lies within the natural marl and probably represents the earliest cultural deposit at the site. Occupation debris, probably derived from an eroded floor surface (108.0), lies outside of wall 102.0.

Open courtyard area (Fig. 6: a)

Defined by walls 103.0 and 112.0. Wall 103.0 is well preserved on the southwest side, especially where it is still bonded with plaster, suggesting it is an interior wall. The wall is less well preserved on the other side where it forms the outer wall of an open area. Traces of an early plaster floor (109.0) remain, although the majority has been removed or destroyed by a later pebble floor (110.0) which stretches across to wall 112.0, a distance of *c.* 9.6m. The absence of tile fragments lying on top of this floor or within the topsoil, suggests that this area was not roofed.

Covered? passage alongside the courtyard (Figs 6: a, b; 7: 1)

Defined by walls 112.0 and 113.0. Wall 112.0 represents a large outer wall constructed of substantial boulders and pebbles, without any traces of plaster or other facings. It is suggested that this area may constitute a covered passage, since the distance between the two walls is only *c.* 1.8m. and the only cultural horizon (111.0) consists of a layer of flat roof tiles mixed with a small amount of occupation debris. No compacted floor surface is in evidence.

Covered open area or courtyard (Figs 6: b; 7: 1)

Defined by walls 113.0 and 115.0. Both walls are roughly coursed and constructed from large pebbles and cobbles rather than architectural blocks, neither are faced. The distance between

the walls is *c.* 5.8m. and the main cultural horizon consists of collapsed roof tile on a pebble or gravel surface (similar to 110.0). It seems likely that this area comprises either a second courtyard, albeit roofed, or that it is part of the same open area which would therefore form a very large open area, covered passage, and further covered work area. In this respect, the large wall 112.0 may be a support for the roofed section.

Building 2, Room 1 (Fig. 6: b)

Defined by walls 115.0 and 116.0. This room consists of a plaster floor (119.0) sealed by a layer of occupation debris, consisting of earth, pottery, and also roof tile, which most likely relates to the collapse of the roof. The floor surface is a mixture of black sand and brown marl with some gravel, and differs from the clean plaster floor in Building 1, Room 1.

Building 2, Room 2 (Fig. 6: b)

Defined by walls 116.0 and 117.0. The cultural deposits discussed above continue on the other side of wall 116.0 (floor 121.0, occupation debris or collapse 120.0). It therefore seems possible that wall 116.0 is a later addition which subdivides the room. Further evidence to support this comes from the walls themselves. Although all three are of similar construction, the bottom of the foundation cuts for both 115.0 and 117.0 are lined with pebbles, a feature which does not appear with wall 116.0.

Open area (Fig. 6: b)

Defined by walls 117.0 and 160.0. There are no floors and little cultural material in the area between these walls. Based on the evidence cited below, it would appear that this open area serves to divide the kiln and firing chamber from the surrounding structures.

Kiln (Figs 6: c, 7: 2; 8: 1, 3, 4)

Defined by outer stone walls 160.0/161.0 and

170.0. The outer wall on the southwest side (160.0) defines the outer limit of the room, whereas 161.0 and 170.0 mark the outer edges of the kiln structure. They comprise roughly coursed river stones with alternating boulders and gypsum slabs. These stone walls are lined with mudbrick, bonded with mortar (162.0 and 165.0), and serve to contain the courses of mudbrick within the inner chamber. The extant kiln chamber itself is cut deep into the natural layers. It is rectangular/quadrangular in shape: Fig. 10.¹⁸ The oven-chamber floor has collapsed into the fuel-firing chamber. It consists of a thick layer of partly dissolved plaster coated with a dark grey deposit from the remains of baked clay, tinged with a greenish substance which may be copper-based. This floor has 'melted' and partly bonded with the relatively thin, smooth and hard dark surface of the fuel-fire chamber underneath (Fig. 8:1 especially). Burnt (vitrified) material is found in the lower kiln chamber and on the sides of the mudbrick walls (Fig. 10).¹⁹ A small opening in the north wall of the firing chamber (164.0), lined with a plaster coating, allowed access to the oven-chamber. The kiln would appear to be of the standard updraught type. Presumably the fuel-chamber was stoked from the southern side, although this part of the kiln is now lost to the sea.

Building 3, Room 1 (Figs 6: c; 8: 2, 5)

The area defined by walls 170.0 and 9.0 measures c. 4.9m. across and comprises a plaster floor (169.0), with three discernible layers of collapsed material or debris on top. The latter consists of a layer of compacted earth, pottery and stones (168.0) immediately above the floor, then a layer of collapsed roof tile (167.0), and lastly, a layer of pebbles and gravel with fragments of pottery and tile (166.0). These three deposits appear to represent the build-up of debris on the floor surface, followed by the collapse of the roof and building superstructure, and finally the placement of a pebble floor surface. At the northeast end of this room, and beneath 9.0, lies a further floor surface consisting of gypsum slabs (10.0).

Stratigraphically, this floor is later than the plaster floor, but earlier than the latest pebble floor. It also predates the imposition of 9.0 which may in fact be a bench or similar feature butted against wall 8.0 and placed on top of an existing gypsum floor.

Building 3, Room 2 (Figs 6: c; 8: 2, 5)

Defined by walls 8.0 and 1.0. The relationship between the feature described above (9.0) and walls 8.0 and 1.0, is not clear. Wall 1.0 runs perpendicular to 8.0 and does not appear to be associated with a floor or similar discernible surface. It is possible that wall 1.0, like 9.0, is a later addition to the building.

Open area (Fig. 6: c)

Between walls 1.0 and 4.0 lies c. 7.3m. of deposit containing very little cultural material. The absence of any form of floor surface, although a small amount of gravel was found, may suggest that this area was not significantly used.

Building 4, Room 1 (Figs 6: d, 7: 3)

Defined by walls 4.0 and 3.0. The early plaster floor (1.4) lies adjacent to wall 3.0 and is contemporary with it, although it is not preserved further to the northeast. This is sealed by a layer of compacted earth (1.5) which most probably accumulated after the abandonment of the floor. Two layers of sherds (2.0 and 27.0) and a layer of packed earth and gravel were dumped on top of this, presumably to level the surface and provide bedding for a later gravel floor (13.0). This floor seals wall 3.0 which then goes out of use. The

18. It is not possible to identify the internal structure of the kiln from the extant remains without excavation. Thus the existence and nature of floor supports, and flue design, etc., is not clear at this time. Cf. D.P.S. Peacock, *Pottery in the Roman world: an ethnoarchaeological approach* (London 1982), 67-73.

19. The dark patches on the kiln walls in Fig. 10 indicate the areas where the temperature was the highest and the actual walls of the kiln started to melt and vitrify.

changes made to this room suggest a change in function through time, most probably separated by a short period of disuse.

Building 4, Room 2 (Figs 6: d; 7: 3; 9: 1, 2)

Defined by walls 3.0 and 125.0/123.0. The earliest deposit in this area (124.0) consists of a terra rossa layer including pottery fragments and pebbles. This may be contemporary with the construction of wall 123.0 and 3.0, and certainly predates wall 125.0. Wall 126.0, to the northeast of wall 123.0, may be contemporary with these changes. Interpretation of the features in this area is rather confused due to the fact that wall 123.0 runs parallel to the scarp face. However, the results of the geomagnetic survey do help in elucidating the relationships between the walls (Fig. 4: b).

External, open area (Fig. 6: d)

An area of c. 6m. between walls 126.0 and 128.0. The deposits within this area are reminiscent of those within the open courtyard area mentioned earlier. Although there is no obvious floor surface in this case, the layer of deposit (127.0) contains many pebble and gravel elements, as well as pottery fragments.

Building 5, Room 1 (Figs 6: d, e)

This small (or narrow) room, c. 2.4m. across, is defined by walls 128.0 and 132.0. Both walls are constructed of smaller stones (when compared to most other walls) and are well bonded with mortar or plaster. An early plaster floor (129.0) lies between the walls, and is sealed by a layer of collapse (131.0). The latter deposit includes much tile and charcoal which must have resulted from the destruction of the roof. This then provided the bedding for a second plaster floor (130.0).

Building 5, Room 2 (Fig. 6: e)

A large room, c. 12.8m. from southwest to northeast, defined by walls 132.0 and 134.0. At

the southwest end the sequence of deposits is the same as that for the previous room (129.0, 131.0/133.0, 130.0), although only the early floor survives, in part, across the majority of the room. It may be that wall 132.0 is a later addition which sub-divided the room and cut through the successive layers of floor, collapse, floor. The later floor has clearly not survived across this large area, if it ever extended that far.

Area characterised by occupation debris/collapse (Fig. 6: e)

Defined by walls 134.0 and 136.0. The deposits within these walls consist of a single mixed layer of marl, tile and stone. There are no floors or other compacted surfaces.

Area characterised by occupation debris/collapse (Fig. 6: f)

Defined by walls 136.0 and 138.0. The deposits within this area are similar to those outlined above, although the lower level of sandy marl and ash (138.0) lies beneath the destruction layer (139.0). The debris includes roof tile which may have been from the collapse of an adjacent building, perhaps Building 6, Room 1.

Building 6, Room 1 (Fig. 6: f)

Defined by walls 138.1 and 142.0. The deposits within this room comprise a plaster floor (141.3), only preserved in the northeast end, with two layers of collapsed material on top. The first (140.0) contained much charcoal and ash and the later level (139.0) consisted largely of tile, pottery and stone from the collapse of the building superstructure.

Building 6, Room 2 (Figs 6: f; 7: 4; 9: 3)

Defined by walls 142.0 and 150.0. The occupation levels within this room comprise two plaster floors (141.0, 141.1) separated by a layer of burnt material (141.2) and overlying an early pit containing a similar burnt deposit (143.0). A fur-

ther layer of burnt material (144.0) overlies the latest floor level and is subsequently sealed by a layer of collapsed roof tile.

Building 6, Room 3 (Figs 6: f; 7: 4)

Defined by walls 150.0 and 219.0. This room contains a single plaster floor (220.0) overlying a layer of mixed earth, pottery and ash (220.1) which was seemingly used to level the ground surface prior to the laying of the floor. As with Building 6, Room 3, this was sealed with a layer of collapsed roof tile (221.0).

Building 6, Room 4 early phase (Figs 6: g; 7: 5)

Defined by walls 219.0 and 213.0. An early floor (217.0) extends beneath wall 216.0 and 215.0 and is possibly contemporary with the plaster floor adjacent to wall 213.0 (214.0).

Building 6, Room 4 late phase (Figs 6: g; 7: 5)

Between walls 219.0 and 216.0 lies a later plaster floor (218.0), containing stones, ash and pottery sherds; this appears to be contemporary with floor 220.0 in Room 3 above. Again, this is sealed by a layer of debris (218.1), similar to that described above (220.1). Between walls 216.0 and 215.0, there is an early floor (217.0) sealed by two layers of stones and pottery fragments (211.0, 211.1), which are in turn associated with a phase of destruction/abandonment. The stratigraphic relationships between floors, walls and layers of collapse suggest that these two walls (216.0 and 215.0) are later additions, after the early floor goes out of use, but before the build-up of debris and the collapse of the superstructure. Between walls 215.0 and 213.0 is a plaster floor (214.0) which is later than the earliest floor described above (217.0) but is sealed by similar layers of collapse (204.0, 211.0) comprising stones, marl and pottery fragments.

Open passageway (Fig. 6: g)

The area defined by walls 213.0 and 212.0 is

most probably a narrow passageway (0.9-1.0m. wide) with no floor surface and little cultural material. However, the layer of collapsed material which covered the later phase of Building 6, Room 4, also affected this area.

Open area? (Fig. 6: g)

The area between walls 212.0 and 210.0 is similarly narrow, and again, has no floor surface and little cultural material. The layer of collapsed material (211.0) stops at wall 210.0 and does not overlie it, suggesting that this wall is a later feature.

Building 7, Room 1 (Fig. 6: g)

Between walls 210.0 and 207.0 is a large area, c. 7.7m. wide. In it lies a thick plaster floor (208.0), burnt in places, sometimes with large amounts of ash visible. At the northeast end this is covered by a layer of pebbles (209.0). Wall 207.0 goes out of use before the abandonment of the site and is sealed by a floor of gypsum slabs (205.0) and a further plaster floor (205.1) on top. Traces of an earlier plaster floor (206.1) lie below these deposits and are cut by wall 207.0, reappearing on the other side.

Building 7, Room 2 (Fig. 6: h)

Defined by walls 207.0 and 203.0. This room contains two floors: an early floor (206.0) of plaster, ash and pottery fragments, and a later floor (205.2) of mixed plaster and ash, separated by a layer of fill (204.1), perhaps as bedding for the second floor.

External open area (Fig. 6: h)

The deposits to the northeast of wall 203.0 consist of a hard marl layer (200.0) including some pottery fragments, and a series of wind blown and natural deposits (201.0, 202.0) signifying an open area outside the main concentration of occupation. This marks the eastern end of the recorded section.

A geomagnetic survey was made of an area 60m. wide along the coastal-scarp, and 30m. inland, including the area around and behind the kiln (Fig. 2). Visible modern metallic items were removed from the field before the survey. The survey was conducted with an FM36 Fluxgate Gradiometer with a sample interval of 0.5m. and a transect interval of 0.5m. Data were taken from a setting of 0.1nT, reading Average Off. The data were then processed using Insite 1.1 and ERDAS Imagine 8.3. The presence of a 1.5-2m. high sea-scarp on and into the south edge of the survey area (irregular incursion of c. 0-4m.) could be predicted to cause noise and atypical data in this vicinity. The remainder of the field was more or less flat with an underlying marl-alluvium natural geology. Conditions should be suitable for geomagnetic survey and there is a good correlation between the geomagnetic data and the structures recorded in the section. The geomagnetic data with no processing are shown in Fig. 4: a. Linear features, typically a correlated pair of positive/negative anomalies in the data, should indicate built structures (i.e., walls). Occasional strong small circular dipole readings probably indicate metallic debris or possibly fired debris. Further processing of the data are shown in Figs 4: b and c; both highlight the linear features and other strong anomalies. Fig. 4: d presents the original data in a three-dimensional contour visualisation, and the combined interpretation of features is presented in Fig. 5. The kiln area is clearly indicated. A number of linear features (walls) can be seen running north from the sea-scarp edge, including a pair either side of the kiln. These seem to be the remaining intact parts of the buildings observed in the sea-scarp. Another large rectangular linear feature lies about another 15m. north of the kiln, which correlates with the area of walls 3.0, 123.0, 125.0 in the section (Figs 4: b, 6: d). A 'ribbon' or swathe of more positive readings runs more or less east-west from the middle of the east edge of the survey area into the above noted large clump of paired positive/negative linear readings in the centre of the survey area where a major building seems likely (Fig. 5 no. 7

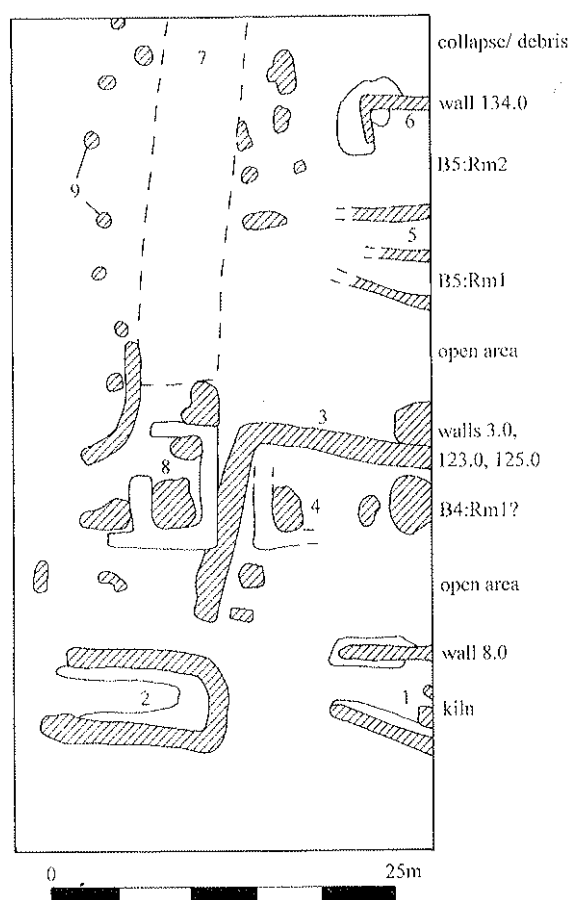


Fig. 5. Interpretation of survey results —shaded areas: strong positive readings; blank areas (delimited): strong negative readings.

and into 8, 3, 4); a series of small, circular features run east-west parallel to feature no. 7 (no. 9). Further sets of positive/negative linear readings lie in a horse-shoe configuration a few metres inland from the kiln, which seem clearly to indicate a structure open at one end (Fig. 5 no. 2).

In the absence of a full excavation, a few preliminary statements can be made regarding the nature of the site and the sequence of cultural deposits. The kiln is the most significant feature within the exposed section, and provides a unique insight into the form and working of a Late Roman kiln in southern Cyprus, as well as containing *in situ* material for more detailed study. Importantly, the area behind the kiln—to which the access door in the north wall of the kiln chamber leads—appears at present to remain in-

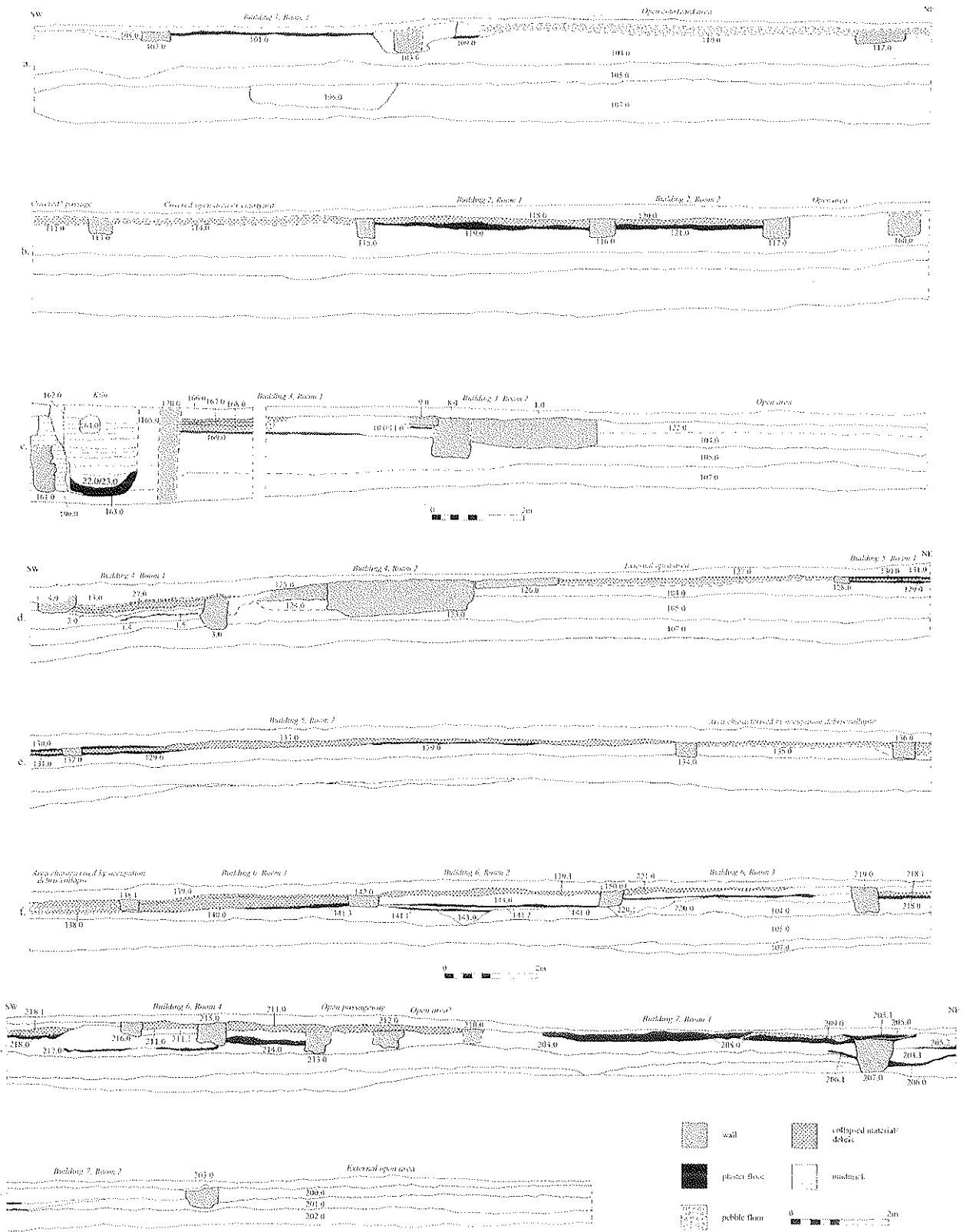


Fig. 6. Schematic sections of coastal scarp.

tact and suitable for examination through excavation. The kiln is associated with open courtyards to the southwest, parts of which were roofed providing covered storage/work areas. Building 3 to the northeast of the kiln, underwent a significant change in function with an occupation phase characterised by plaster floors being replaced (after a period of collapse) by a pebble floor reminiscent of those in the courtyard areas. Two open areas, one immediately next to the kiln, the other outside of Building 3, separated the area of pottery production from the remaining buildings.

Buildings 4, 5, 6 and 7 also underwent at least two major episodes of building alterations and/or destruction. Evidence of fire damage comes from all these areas, but especially Building 6 Rooms 1-3 and Building 7 Rooms 1-2. As in most other areas, re-building appears to have taken place soon after phases of collapse and fire destruction, with debris used as levelling for subsequent floor levels. Since there is little evidence for a hiatus, it seems that the site was occupied continuously from the c.6th to mid 7th centuries A.D. Only a detailed excavation could expand on the claims made here for this site. *Zygi-Petrini* has the potential to reveal much more about small-scale pottery production in the Late Roman period in Cyprus, as well as the domestic occupation of the main settlement area (a typical small coastal crafting/trading locus).

III. CERAMICS

The kiln

LR Amphorae type 1a

Many body fragments together with two amphora necks were collected from the remaining, extant, floor deposit (contexts 22.0 and 23.0) in the eroded interior of the kiln in 1996 (see Fig. 8: 3). Obviously the circumstances deny proof that this material was necessarily produced in the kiln (and it could be the result of subsequent dumping, or erosional deposition), however, it seems likely that these finds are indicative of the production of Late Roman amphorae type 1 in the

kiln, and especially of LRA1a (according to John Riley's typology).²⁰

The LRA1a amphora is probably the smallest variant of a large group of Late Roman amphorae, known as LRA1 (Fig. 13: a, b).²¹ The rim is simple and slightly everted. Below the rim (1-2cm.) there is a horizontal ridge where the handles are usually attached. The shoulder is covered with dense ribbing, which becomes wider at the main body. Around the base, which is hemispherical, there are also grooves. As Riley mentions, 'in fragmentary condition this amphora cannot be distinguished from LRA1'.²² There are some features, though, which do distinguish this sub-type: the neck is narrower and slightly taller and the body is shorter and smaller in volume. It is pear-shaped, 'waisted' in the middle, and the diameter of the lower part is much narrower compared to the common type. Riley notes that, 'the handles are of similar size and proportion to LR Amphora 1'. It is not clear if the same observation holds true regarding their section: one of the characteristic features of the standard type is the deep double off-centre grooving on the handles. The handles of the *Petrini* type have a smoother texture, with two or more very shallow grooves formed symmetrically on the exterior. A typological study of the numerous variants of this Late Roman amphora group has yet to be established,²³ so, at present, we refer to the *Petrini* amphorae as LRA1a.

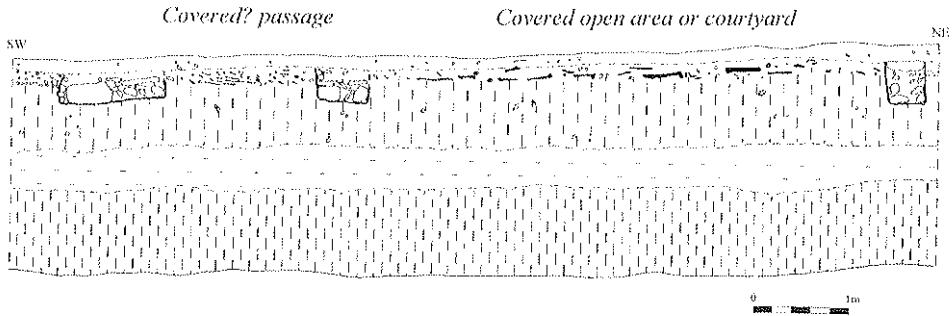
The fabric of these vessels is sandy, reddish or buff (depending on firing) (5YR 6/6) with medium-sized dark and (less) white inclusions. Sometimes, at the surface, traces of light coloured slip (10YR 7/3), which flakes easily, can be noted.

20. Riley (*supra*, n. 2), 212-6.

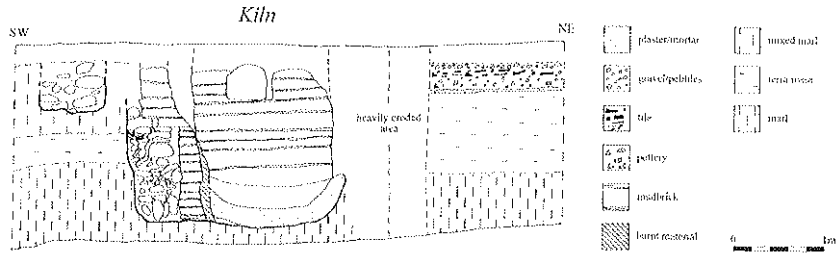
21. See for example, M. Egloff, *Kellia: La poterie copte* (Genève 1979), 112, types 164-166.

22. Riley (*supra*, n. 2), 216. Reference applies also to the subsequent quotations.

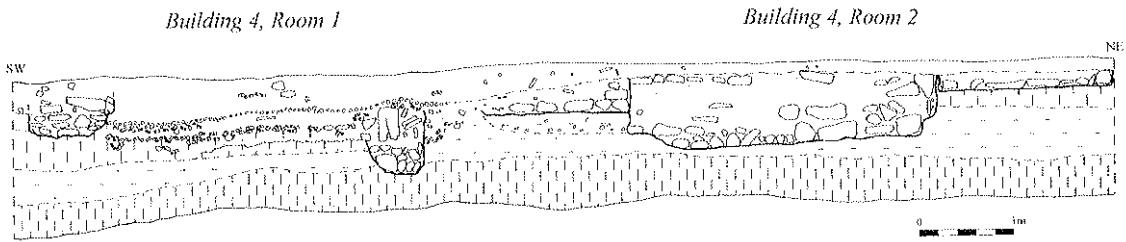
23. An attempt was made by A. Opait, "Beobachtungen zur Entwicklung der zwei Amphoratypen", *Pence IX* (1984), 311-27, at pp. 317-20, but this was mainly based on finds from sites of the Black Sea coast.



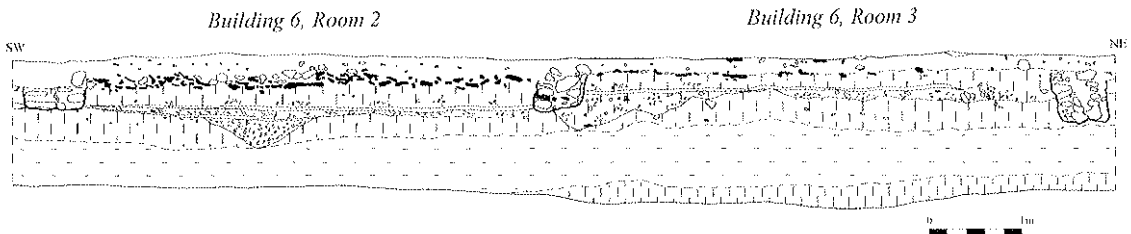
1. Section through passage and courtyard between Buildings 1 and 2.



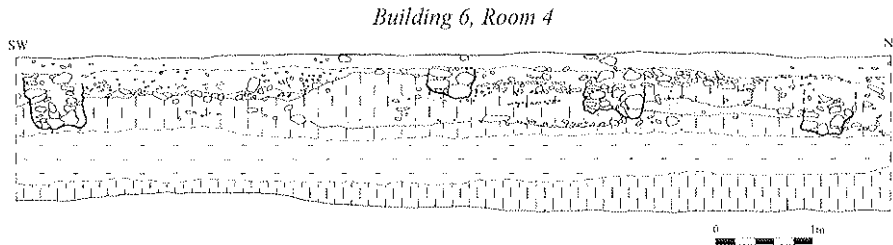
2. Section through kiln.



3. Section through Building 4, Rooms 1 and 2.



4. Section through Building 6, Rooms 2 and 3.



5. Section through Building 6, Room 4.

Fig. 7

Based on our present understanding of the site, it seems that LRA Ia may have been the only amphora type which produced in the kiln at *Petrini*. However, since we have only two necks and a small number of body fragments available for study, we cannot exclude other types.

LRA Ia are not very common. Riley refers to two published amphorae of the same type; one from Sacidava²⁴ and one from Cap Gros in France.²⁵ Neither of these has the narrow lower body nor the tall narrow neck characteristic of the *Petrini* types, and therefore they do not serve as good parallels. A drawing of an amphora from Anemurium,²⁶ which is a potential reconstruction of the LRA I type found at the site, is very similar to the *Petrini* type. Zemer's no. 64²⁷ could be placed in the same category. Also from the Levant, a find from Caesarea Maritima offers another good parallel.²⁸ In the Aegean, and also on the Black Sea coast, where the standard LRA I type has a high concentration,²⁹ the LRA Ia type is rare. An amphora with similar features to those of *Petrini* was found in the Crimean Peninsula, and was dated to the second half of the 7th century.³⁰ Simon Keay presented a very detailed typology of the Late Roman amphoras from the north-eastern coast of Spain, dated between the later 2nd and the later 6th century. LRA I examples are attested in layers of the 5th and early 6th centuries, but the LRA Ia type is not recorded.³¹ The situation in Southern France is similar; the amphoras imported from the eastern Mediterranean continue up to the 7th century A.D., but the LRA Ia type is not recorded so far.³²

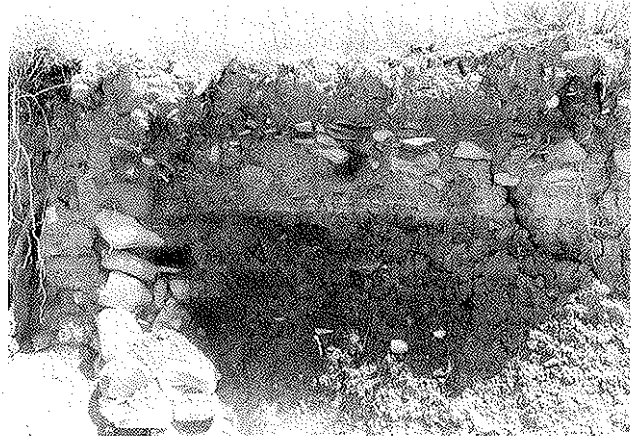
In Cyprus this type is better attested, and it might thus be considered a local or regional type. At Amathous the wasters of another workshop producing this type were found in a well at the port of the ancient city.³³ This well was dated to the late 6th or to the early 7th century A.D.³⁴ An amphora from a site very close to the *Zygi-Petrini* kiln, Kalavassos-Kopetra,³⁵ is also dated in the 7th century. The fabric, 'medium grained very pale brown fabric with abundant lime quartz and red, green, gray and black inclusions that give the surface a sandy texture',³⁶ is similar to examples

from Zygi. At Salamis,³⁷ two complete examples from the 'Oil-Press' building seem to belong to this type. During an underwater survey at Cape Andreas, in the northeast of the island, LRA Ia

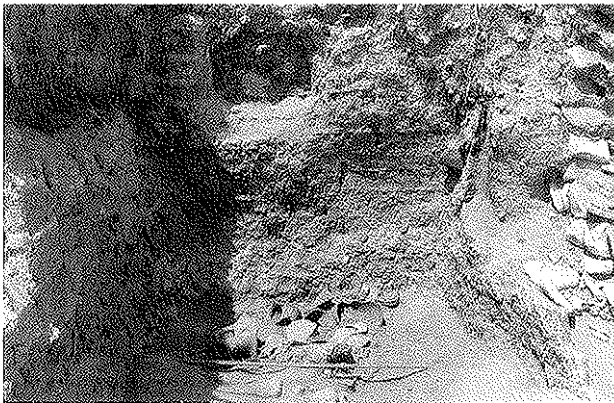
24. Riley (*supra*, n. 2), 216 citing C. Scorpan, "Sapaturile Arheologice de la Sacidava 1969, 1970, 1971", *Pontica* VI (1973), 267-331, at p. 310, fig. 34.
25. Riley (*supra*, n. 2), 216 citing P. Fiori, "Le mouillage antique du Cap Gros", *CahArchSubaq* 3 (1974), 81-102, at fig. III: 8.
26. Williams (*supra*, n. 6), fig. 56.
27. A. Zemer, *Storage Jars in Ancient Sea Trade* (Haifa 1977), 76.
28. A. Adan-Bayewitz, "The pottery from the Late Byzantine Building and its implications (Stratum 4)", in L.I. Levine and E. Netzer (eds.), *Excavations at Caesarea Maritima 1975, 1976, 1979 - Final Report* (Jerusalem 1986), 102, III. 103, the amphora type 5, p. 124 fig. 2: 4.
29. J. Cancova, "Amphores de Moyen age en Bulgarie", *Bulletin de L'Institut Archeologique de Bulgarie* 22 (1959), 243-62, at p. 249; A. Radulescu, "Amfore romane si romano-bizantine din Scythia Minor", *Pontica* 9 (1976), 100-14, at pp. 108-9; C. Scorpan, "Origini si linii evolutive in ceramica Romano-Byzantina (sec. IV-VII) din arile mediteraniana si Pontic", *Pontica* 9 (1976), 155-88, at pp. 178-9; *idem*, "Contribution à la connaissance de certains types céramiques Romano-Byzantins (IV^e-VII^e siècles) dans l'espace Istro-Pontique", *Dacia* 21 (1977), 269-97, at p. 278; A. Sazanov, "Les amphores de l'antiquité tardive et du moyen age: continuité ou rupture? La cas de la mer Noire D'Archimbaud", *La Céramique Médiévale en Méditerranée. Actes du VI^e Congrès de l'AIECM2, Aix-en-Provence (13-18 novembre 1995)* (Aix-en-Provence 1997), 87-88.
30. Opait (*supra*, n. 23). The amphora type similar to LRA Ia is discussed on page 319, and illustrated in pl. XV: 3. For the same vessel, see also Sazanov (*supra*, n. 29).
31. S. Keay, *Late Roman Amphorae in the Western Mediterranean: A typology and economic study: the Catalan evidence* (BAR International Series 196, Oxford 1984), 268.
32. M. Bonifay and F. Villedieu, "Importations d'amphores orientales en Gaule (ve-viie siècles)", in V. Déroche and J.-M. Spieser (eds.), *Recherches sur la Céramique Byzantine* (1989) 17-46, at pp. 23-4; M. Bonifay and D. Piéri, "Amphores du V^e au VII^e s. à Marseille: nouvelles données sur la typologie et le contenu", *JRA* 8 (1997), 94-120, at pp. 106-16.
33. Empereur and Picon (*supra*, n. 10).
34. J.Y. Empereur and C. Verlinden, "The Underwater Excavation at the Ancient Sea Port of Amathous in Cyprus", *JNA* 16.1 (1987), 7-18, at p. 16.
35. M.C. McClellan and M.L. Rautman, "The 1991-1993 Field Seasons at Kalavassos-Kopetra", *RDAC* 1994, 289-307, at p. 306, fig. 10: 35.
36. *Ibid.*
37. C. Diedrichs, *Céramiques hellénistiques, romaines et byzantines (Salamine de Chypre IX)*, Paris 1980, 55, pl.19/20. 211, 212.



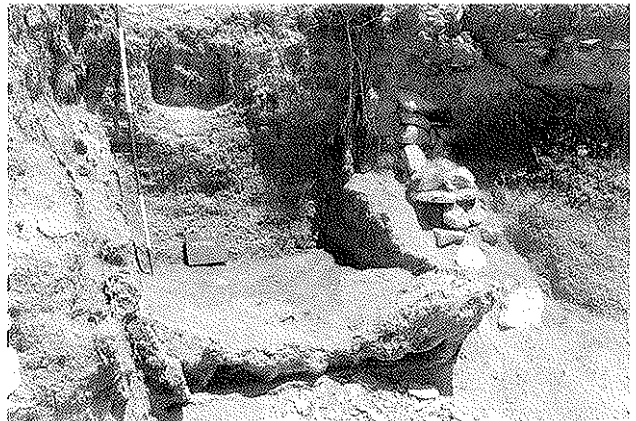
1. Kiln structure in 1996, prior to cleaning (1/2m. scale). The hard, thin floor of the fuel-firing chamber is visible under the collapse of the oven chamber, floor, roof etc.



2. Building 3 Room 1: east of the kiln with wall 170 in the far left.



3. Interior of kiln after preliminary cleaning, showing pottery *in situ* (cm. scale).



4. Interior of kiln after the removal of pottery: note the mud-bricks at the back of the kiln structure and hard firing floor.



5. Building 3 Rooms 1 and 2: showing walls 1.0, 8.0, 9.0.

Fig. 8

amphorae were found at two possible wreck sites.³⁸

Coarse wares

It seems that in the Zygi-Petrini workshop (or workshops of the vicinity) other coarse wares, apart from amphorae, were also being produced. Their fabric is the same as that of the local LRA Ia amphorae. When comparing their relative scarcity with the abundance of amphora sherds, we can assume that their production was secondary and aimed at meeting local needs.

A. Fragments of basins were found during the survey of the scarp (Fig. 13: d, e). These are of two different sizes, but of the same type: flat base, straight walls, thickened horizontal rim with an incised wavy line on the upper part.

B. A fragment of a vessel very similar to the typical Cypriot 7th century cooking pot was found (Fig. 13: c).³⁹ The Petrini example can be compared to vessels from other sites, both within Cyprus (Diorios,⁴⁰ Salamis,⁴¹ Kalavastos-Kopetra⁴²) and outside of Cyprus (Kellia, Egypt⁴³), although they are not always of the exact type and of the same fabric.⁴⁴

C. All three groups of roof tiles reported at Kalavastos-Kopetra were attested at Zygi-Petrini.⁴⁵ Type 3 in particular, 'a large Corinthian Style roof tile', has a fabric very similar to that of our workshop.

D. A fragment of a ring-shaped small amphora support was found during the survey (Fig. 13: f). Vessels with a hemispherical base can easily stand on supports like this. They were used from antiquity⁴⁶ until modern times⁴⁷ in many variants, according to the shape of the vessel that they were designed to support. Names are inscribed on some examples, probably indicating the owner of the supported vessel.⁴⁸ Apart from household use,⁴⁹ their presence in association with pottery workshops indicates that they were used as supports of vessels during drying or as kiln furniture. They are attested in workshops producing fine wares⁵⁰ and also amphorae⁵¹ and cooking pots: in Diorios, Cyprus, eight supports of the

same type as the one from Zygi-Petrini were found, in layers of the 7th century A.D.⁵²

38. J.N. Green, "Cape Andreas Expedition Report, 1969", *Report from the Research Laboratory for Archaeology* (Oxford 1970), 23-4; *idem*, "An underwater archaeological survey of Cape Andreas, Cyprus, 1969-70: a preliminary report", Blackman, D.J. (ed.), *Marine Archaeology: proceedings of the twenty-third symposium of the Colston Research Society held in the University of Bristol, April 4th to 8th, 1971* (London 1973), 141-80 at 161, fig. 21.
39. Hayes (*supra*, n. 9), 378, *idem*, "The Pottery", *Excavations at Sarayhane in Istanbul*, Vol. 2, *The pottery* (Princeton 1992), 57.
40. H.W. Catling, "An early Byzantine Pottery Factory at Diorios in Cyprus", *Levant* 4 (1972), 1-82, at p. 11, fig. 7, P96.
41. H.W. Catling and A.I. Dikigoropoulos, "1970 The Kornos Cave: An Early Byzantine Site in Cyprus", *Levant* 2 (1972), 38-62, at p. 54, fig. 7, P56.
42. McClellan and Rautman (*supra*, n. 35), 306, no. 36.
43. Egloff (*supra*, n. 21), 103, type 41.
44. Egloff (*supra*, n. 21), 103, types 138-141.
45. M.L. Rautman *et al.* (*supra*, n. 8), 235, fig. 3. For Late Roman roof tiles see also F. Hadjichristophi, "Les tuiles de la basilique", in "Travaux de l'École Française à Amathonte en 1988", *BCH* 113 (1989), 875-8.
46. Riley (*supra*, n. 2), 353-4, Mid Roman Plain Ware 9; *ibid.* 289, Hellenistic Plain ware 11.
47. R. Hampe and A. Winter, *Bei Töpfern und Töpferinnen in Kreta, Messenien und Zypern* (Mainz 1962), 7, Abb. 7.
48. B. Adamscheck, "The Pottery", in L. Ibrahim (ed.), *Kenchreai, Eastern Port of Corinth: Results of investigations by the University of Chicago and Indiana University for the American School of Classical Studies at Athens*, Vol. IV (Leiden 1979), 120, pl. 33; J.W. Hayes, "Four Early Roman Groups from Knossos", *BSA* (1971), 249-75, at p. 271; G.H.R. Wright, "Excavations at Tocra", *PEQ* (1963), 22-64, at p. 31.
49. S. Dyson, "The Commonware Pottery. The Brittle Ware". *The Excavation at Dura Europos Final Report IV*, Part 1, Fasc. 3 (Newhaven 1968), 41-2; D. Oates and J. Oates, "Ain Sinu. A Roman Frontier Post in Northern Iraq", *Iraq* 21 (1959), 207-42, at p. 235.
50. P.D.C. Brown, "Roman Pottery Kilns in Jericho", *Levant* 3 (1971); F. d'Andria, "Les potiers de Metaponte", *Archaeologia* 147 (1980), 41-50, at p. 44; G.R. Edwards, "Hellenistic Pottery", in L. Talcott, *et al.*, *Small Objects from the Pnyx II* (*Hesperia* Supplement 10, part II, Princeton 1956), 79-112, at pp. 88-9.
51. D.P.S. Peacock, "Recent discoveries of Roman amphora kilns in Italy", *Ant. J.* 57 (1977), 262-9, at p. 266, fig. 3: 15; W.W. Rudolph, "Excavations at Porto Cheli and Vicinity. Preliminary Report V: The Early Byzantine Remains", *Hesperia* 48 (1979), 295-321, at p. 309.
52. Catling (*supra*, n. 40), 59, fig. 7, nos P100-104, 155, 166, 167. Riley 1979 (*supra*, n. 2), 353-4 no. 960 is of similar form.



1. Building 4 Room 2: showing walls 123.0, 125.0, 126.0.



2. Building 4 Room 2: close-up of wall 123.0.



3. Building 6 Room 2.

Fig. 9

Fine wares

Only a small number of fine wares were recovered. They are typical wares of Cypriot Late Roman sites. Cypriot Red Slip ware (CRS)⁵³ was the main type among the collected fragments⁵⁴ (Fig. 12: 2). A fragment of Hayes Form 9A was found in association with the foundation of Wall 123.0. A rim fragment of Hayes Form 9B was associated with the kiln and some of Form 9C⁵⁵ and Form 7⁵⁶ were scattered on the field. The only piece of fine ware, not belonging to the CRS group, was a fragment of a Late Roman C ware, Form 10.⁵⁷

Lamps

One piece of mouldmade lamp was found in association with CRS Form 9. Although the piece is small, the two ridges at the rear and the stub handle permit its comparison with Oziol's type 19.⁵⁸ This type is dated approximately to the 7th century A.D.

Other amphorae

Apart from the local LRA1a amphorae, fragments of the standard LRA1 type were also found. Two main fabrics can be distinguished: **Fabric A:** Brown-red with many small dark inclusions, scarce white ones, often with small pieces of clay in the matrix. **Fabric B:** light brown to buff, relatively condensed with various small inclusions (red, white, dark). The surface is much lighter in colour than the core and smooth. Since it is impossible to reconstruct the body, we can only describe the neck:⁵⁹ it is cylindrical in shape, with a large rim diameter (often the diameter is the same as the height of the neck). The quality of the shaping of the neck and the attaching of the handles, which are deeply grooved on the side, is poor. The rim is simple with the characteristic ridge below.

The predominant imported amphora type was LRA4⁶⁰ and some (rare) sherds of LRA5/6⁶¹ were also found. The few fragments of the LR4 amphorae seem to belong to the latest variant of the type, characteristic of which is the thickened

rim with irregular accretions of fired clay below.⁶² In Cyprus, amphorae of this type are attested at Pafos⁶³ and at Kalavassos-Kopetra.⁶⁴ An earlier variant was also found among the finds of the 4th century destruction layer in Kourion.⁶⁵

Date

In the typological evolution of LRA1 types proposed by Opait, the LRA1a amphora is in the last phase of the series: that is in the 7th century

53. Hayes (*supra*, n. 17), 371-86. For recent detailed bibliography see Lund (*supra*, n. 2), 111-6.
54. The date of the series has been doubted. For an overview see Lund (*supra*, n. 2), 112. B. Johnson, "The Pottery", in G.D. Weinberg (ed.), *Excavations at Jalame: site of a glass factory in Late Roman Palestine* (Columbia 1988), 154, proposed a much earlier date (end of the 4th century) for Cypriot Red Slip ware.
55. Hayes (*supra*, n. 17), 379-82.
56. Hayes (*supra*, n. 17), 377-9; J. du Plat Taylor and A.H.S. Megaw, "Excavations at Ayios Philon, ancient Carpasia", *RDAC* 1981, 209-20, at p. 221, no. 350, fig. 41.
57. Hayes (*supra*, n. 17) 343-6; Lund (*supra*, n. 2), 107-11; du Plat Taylor and Megaw (*supra*, n. 56), 221, no. 352, fig. 41 and 239, nos 412-413, fig. 55. See also F. Giudice *et al.*, "Pafos, Garrison's Camp. Campagna 1991", *RDAC* 1996, 171-268, at p. 228.
58. T.-J. Oziol, *Les Lampes du Musée de Chypre (Salamine de Chypre VII (1977))*, 254, 4^e Série. See also J.M. Webb, *Cypriote Antiquities in Australian Collections I, Corpus of Cypriote Antiquities* 18 (*SIMA* 20:18 Jonserved 1997), no. 73.
59. For similar forms see Hayes (*supra*, n. 39), pl. 15a; A.L. Yacobsen, "Srednevekovie amfiori sernogo prichernomoya", *SovArch* 15 (1959), 325-44, at p. 329, fig. 3: 14.
60. Riley (*supra*, n. 2), 219-23.
61. See Riley (*supra*, n. 2), 224-25.
62. For a typology (with a detailed bibliography) of LR4 amphorae, see G. Majcherek, "Gazan Amphorae: Typology Reconsidered", in H. Meyza and J. Mlynarczyk (eds.), *Hellenistic and Roman Pottery in the Western Mediterranean-Advances in Scientific Studies. Acts of the II Nieborow Pottery Workshop, Nieborow, 18-20 December 1993* (Warsaw 1995), 163-78. For the chronology in Black Sea sites, see Sazanov (*supra*, n. 29), 88.
63. Ch. Bakirtzis, "Description and metrology of some clay vessels from Agios Georgios, Pegeia", in V. Karageorghis and D. Michaelides (eds.), *The Development of the Cypriot Economy from the Prehistoric Period to the Present Day* (Nicosia 1996), 159, fig. 10; Lund (*supra*, n. 2), 132-3.
64. McClellan and Rautman (*supra*, n. 35).
65. D.F. Williams, "Roman Amphorae from Kourion, Cyprus", *RDAC* 1987, 236-7, at p. 237.

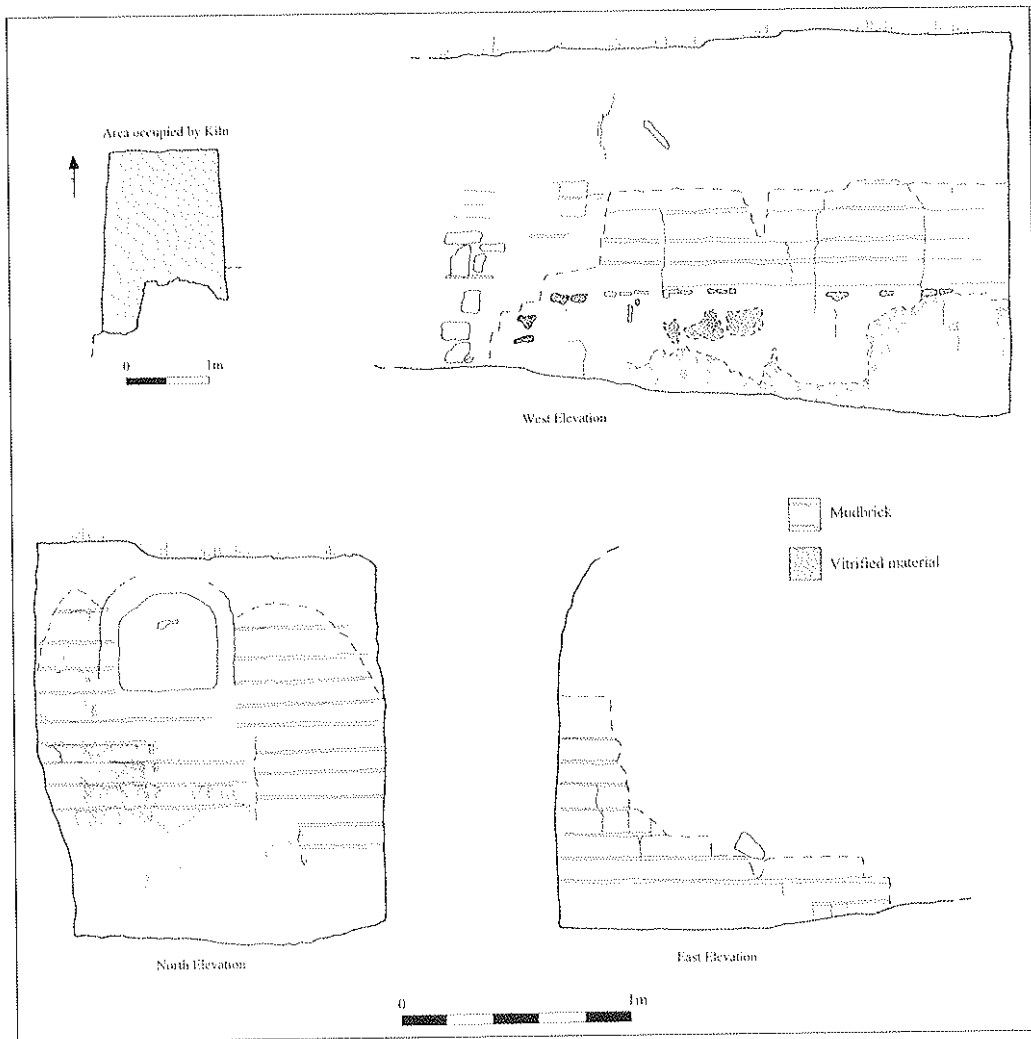


Fig. 10. Kiln elevations.

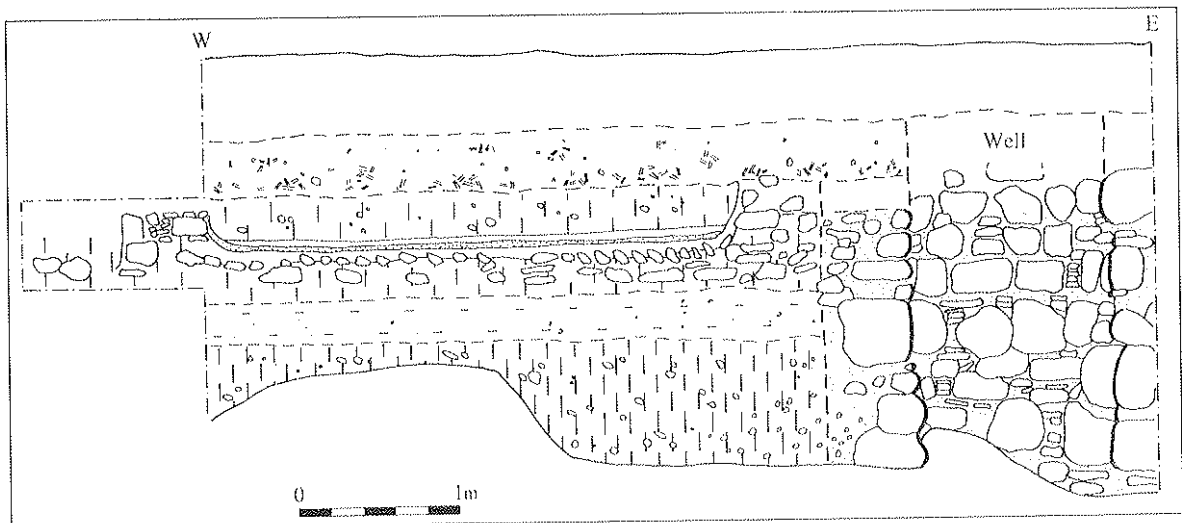


Fig. 11. Part of the sea-scarp section at Maroni-Vryssoulia as visible in 1992 (key as for Fig. 7: 2).

A.D.⁶⁶ The earliest of the diagnostic sherds from *Zygi-Petrini* was found in association with the foundation of wall 123.0 and is dated to the second half of the 6th century A.D. The rest of the CRS, the Gaza amphoras (type 4), the cooking pot, and the lamp fragment, suggest that the workshop was in operation during the 7th century A.D.

However, the late date of LRA Ia has yet to be confirmed by the systematic excavation of this site, or by evidence from other sites within or outside of Cyprus.

Other artefacts

Two noteworthy finds include the rim and base of a small glass vessel (Fig. 15) and an roof tile with an added pre-firing inscription (Fig. 14); the extant inscription reads 'AMICUS ALTER EGO EST[.?.]': 'A friend is a second self'. Such a late (6-7th century A.D.) Latin inscription is unusual for provincial Cyprus.

IV. THE CONTEXT OF THE ZYGI-PETRINI SITE

Zygi-Petrini is just one of a number of Late Roman settlements in the neighbouring Maroni and Vasilikos valleys (Fig. 1). MVASP has carried out a rescue excavation of parts of a Late Roman church and elements of associated structures at Maroni-*Petrera* a few kilometres inland from the coast. This comprises a two phase, three-aisled, church/basilica dating to the 6th-mid 7th centuries A.D.⁶⁷ A larger religious complex, comprising three buildings similar to those at *Petrera*, as well as a series of secular buildings, has been explored at Kalavastos-*Kopetra*, in the Vasilikos valley.⁶⁸ Analysis of the survey pottery recovered from the environs of *Kopetra*, revealed that more than half of the sherds belonged to storage or transport vessels, the dominant form being the LRAI. More than 90% of the identified amphora sherds belonged to this category, which occurs in the valley in at least four different fabric types of local and imported manufacture;

'such variety of commercial containers reflects the complexity of the Late Roman economy, in which *Kopetra* played its own small part'⁶⁹

Pedestrian survey within the Maroni valley also revealed the site of Maroni-*Fouches*, c. 1km. to the southeast of *Petrera* (Fig. 1). Although the site is badly bulldozed and eroded, diagnostic pottery relating to the 1st-2nd century A.D. and Late Roman period were recovered. The pottery scatter within the surveyed area (250×250m.) shows a dense concentration in the northeast corner where the poorly defined site is centred. A kilometre southeast of *Fouches* and 3km. east of *Zygi-Petrini* lies the Late Roman site of Maroni-*Vrysoudia* (Fig.1). Like *Petrini*, a section through a small part of the *Vrysoudia* site has been revealed eroding out of the coastal scarp (Figs 11; 12: 3). The section shows two floors: a plaster floor overlying an earlier pebble surface. The two walls in the east of the section are thought to delimit a well cut deep into the natural geological layers. These three sites (*Petrera*, *Fouches* and *Vrysoudia*) stretch along the Agios Minas river, from the base of the hill at Vouni just outside the modern village, to the coast.

The discovery of these sites and other finds by the VVP, testifies to the widespread occupation of the Maroni and Vasilikos valleys during the 6th and 7th centuries A.D., until the disruption of the first Arab invasions. The location of *Petrini* and *Vrysoudia*, suggests that they were engaged in sea-transportation along the southern coast of Cyprus, and most probably further

66. Opait (*supra*, n. 23), 319, Taf. XV.

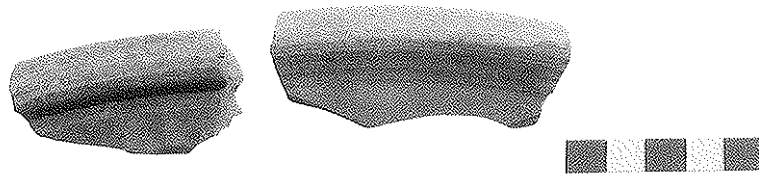
67. S.W. Manning and M.J. Ponting, "Maroni-*Petrera*: Preliminary report on the survey and rescue excavation at a Late Roman site, 1992-1993", *RDAC* 1994, 356-67; and see forthcoming publication by S.W. Manning *et al.*

68. Rautman and McClellan (*supra* n. 8); M.C. McClellan and M.L. Rautman, "The 1990 Field Season at Kalavastos-*Kopetra*", *RDAC* 1991, 225-36; McClellan and Rautman (*supra*, n. 35).

69. Rautman and McClellan (*supra*, n. 8), 232.



1. LRA1 amphora necks and handle from the seabed.



2. Finewares (Cypriot Red Slip ware) found at Zygi-Petrini.



3. Maroni-Vrysoudia section showing well feature.

Fig. 12

afield.⁷⁰ The Maroni-*Tsaroukkas* seabed survey, and information obtained from local fishermen and other informants, supports these claims, with evidence of Late Roman pottery and other debris, including anchors and weights on the seabed.

The future importance of the *Zygi-Petrini* kiln find is that the working area behind the kiln, and the associated production locus, and settlement, are largely intact, with a reasonable degree of preservation. Thus the site offers the prospect of the first controlled excavation of a LRA1a kiln and associated functional areas, production debris, and so on. In line with observations made elsewhere, *Zygi-Petrini* appears to conform to a pattern of small workshops for the production of

LR amphorae.⁷¹ Apart from offering local provenance data⁷² and especially direct data to discriminate between Cypriot and Sicilian production, information should be available on the organisation of such workshops, their capacities, their repertoires, and their technology. Such data are sorely needed to elucidate the mechanisms of Late Roman trade.⁷³ To date, no such production site has been excavated on Cyprus, or anywhere else in the east Mediterranean, relevant to LRA1, and especially LRA1a. The associated areas were unavailable to the Pafos rescue work, and the only other Late Roman/Early Byzantine kiln from Cyprus was subject to a rushed partial rescue excavation conducted many years ago at Diorios in northwest Cyprus.⁷⁴

CATALOGUE OF *IN SITU* FINDS IN THE 1997 SECTION

(by context: cf. Figs 6, 7, 10)

Abbreviations:	CRS	Cyprus Red Slip (Late Roman D ware)	22.0 (2)	2 sherds of RR+
	LRC	Late Roman C ware		1 sherd of YR+
	RR+	Red Roof Tile		1 body sherd of an imported ware (n.d.)
	YR+	Yellow Roof Tile	23.0	7 body sherds of YR+ (vitrified)
	n.d.	non-diagnostic		4 body sherds of RR+ (vitrified)
				25 body sherds, 1 no. rim, 1 no. handle of local LRA1a
1.0	Fragments of LRA1 body sherds			
2.0	1 rim fragment from CRS, Hayes Form 9B-C			
	1 rim fragment from LRC, Hayes Form 10 (rim diam. 28cm.)			
	10 local LRA1a			
	2 body sherds of LRA1, Fabric B			
	1 body sherd of LRA1, Fabric A			
	1 neck fragment of LRA1			
	1 lamp fragment, Oziol Type 19			
	1 body fragment with wavy incised grooves (LRA2?)			
	1 rim fragment from Gaza amphora (LRA4)			
11.0	2 body sherds from LRA1 (1 no. local, 1 no. Fabric B)			
22.0 (1)	3 sherds of RR+			
	1 body sherd of LRA1			

70. Fig. 1 inset shows the location of Roman anchorages, ports, harbours and coastal settlements along the Cypriot coastline after J.R. Leonard, "Evidence for Roman ports, Harbours, and Anchorages in Cyprus", in V. Karageorghis and D. Michaelides (eds.), *Cyprus and the Sea: Proceedings of the International Symposium: Cyprus and the Sea, Nicosia, 25-26 September 1993* (Nicosia 1995), 227-45. *Zygi-Petrini* is cited as a likely anchorage (compare p. 235 fig. 7 and p. 240 fig. 11).

71. D.P.S. Peacock, F. Bejaoui and N. Ben Lazreg, "Roman Pottery production in central Tunisia", *JRA* 3 (1990), 59-84.

72. Rautman *et al.* (*supra*, n. 8).

73. R. Tomber, "Quantitative approaches to the investigation of long-distance exchange", *JRA* 6 (1993), 142-66.

74. Catling (*supra*, n. 40).

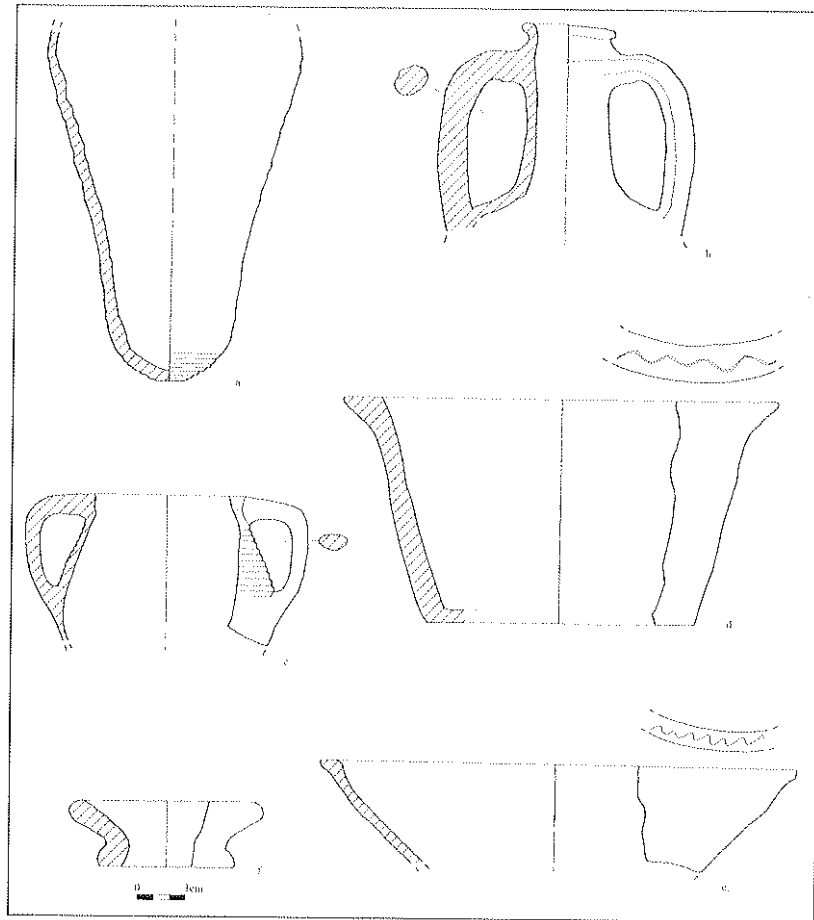


Fig. 13. *a, b*. LRA1 base and neck recovered from *Zygi-Petrii*. *c*. Cooking pot recovered by VVP. *d, e*. Ceramic basins recovered by VVP. *f*. Amphora support.

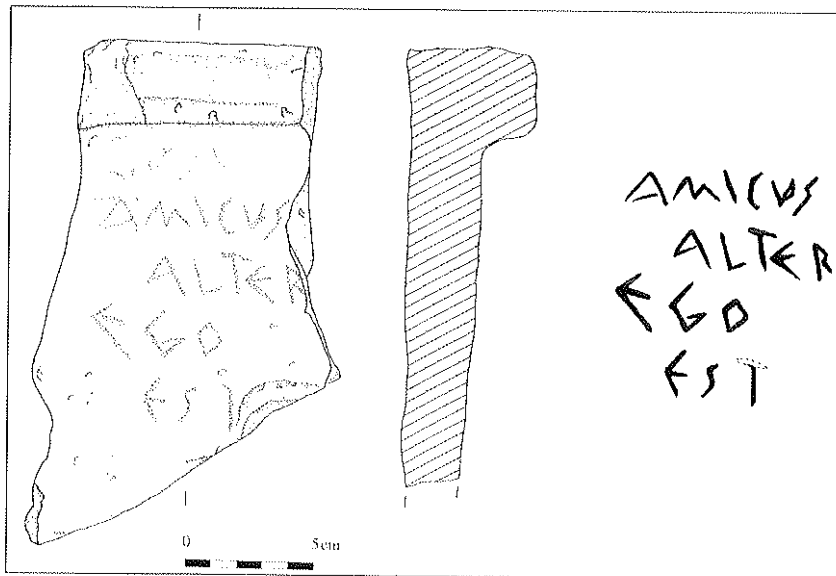


Fig. 14. Inscribed roof tile.

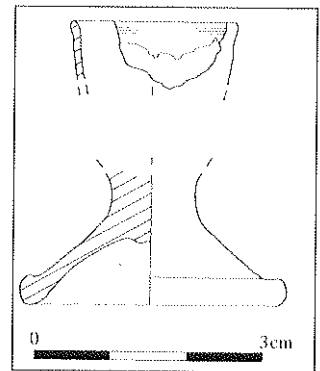


Fig. 15. Glass vessel.

27.0	2 large body sherds of local LRA1a	131.0	1 fragment of RR+ 1 fragment of cooking pot (n.d.)
100.0	1 rim and 1 no. body fragment of Gaza Amphora (LRA4) 17 body sherds from LRA1 of standard type, Fabric 4 4 body sherds of LRA1, Fabric B 2 no. necks, 2 no. handles, 1 no. body sherd from LRA1, Fabric B	136.0	1 neck of LRA1 1 body sherd of LRA1, Fabric B
111.0	1 body sherd of local LRA1a (burnt on one side)	140.0	3 body sherds of LRA1, Fabric B 3 sherds of amphora 1 sherd of local RR+ 1 rim of open coarseware vessel (probably Cypriot) (rim diam. 26cm.) 3 body sherds of local LRA1a 4 body sherds of LRA1, Fabric B
120.0	1 large fragment of RR+	161.0	1 RR+ 1 handle of LRA5/6 6 body sherds of local LRA1a
123.0	1 large fragment of local RR+, large pithos 1 rim fragment from CRS, Form 9A (rim diam. 29cm.) 1 handle of LRA1	164.0	3 fragments of RR+ 1 fragment of YR+ Large number of fragments of LRA1a
124.0	6 body sherds of local LRA1a (one burnt)	208.0	2 body sherds (n.d.), 1 no. neck of LRA1
129.0	1 large body fragment (n.d.) from imported vessel 1 shoulder fragment of LRA1 (local fabric?)	211.0	3 body sherds of LRA1, Fabric B 1 body sherd of local LRA1

ΠΕΡΙΛΗΨΗ

Ήταν γνωστή εδώ και καιρό μια Υστερορωμαϊκή θέση στην τοποθεσία Ζύγι-Πέτρινη. Η θέση αυτή χρόνο με το χρόνο χανόταν μέσα στη θάλασσα. Το Αρχαιολογικό Πρόγραμμα Επιφανειακών Ερευνών της Κοιλιάδας Μαρωνίου (MVASP) είχε ελέγξει την περιοχή ήδη από το 1990. Μέσα στην παρειά πάνω από την ακτή είχε εντοπιστεί και καταγραφεί ένας φούρνος. Η διάβρωση που παρατηρήθηκε κατά τα έτη 1995-1996 ήταν πολύ μεγαλύτερη από τη συνήθη με αποτέλεσμα το τμήμα εκείνο του φούρνου το οποίο είχε κτυπηθεί από πριν από τα κύματα να μείνει εκτεθειμένο. Η MVASP κατέγραψε τότε το σύνολο των ερειπίων. Το 1997 κατά την διάρκεια γεωμαγνητικών επιφανειακών ερευνών στην περιοχή πίσω από το φούρνο, ερευνήθηκε έκταση μήκους 150 μέτρων κατά μήκος της παρειάς πάνω από την ακτή. Αυτό το άρθρο παρουσιάζει τα δεδομένα της δουλειάς που έγινε μεταξύ των ετών 1996 και 1997. Τότε ήταν ακόμη σαφές, παρά το ότι ένα τμήμα του χώρου είχε ήδη χαθεί μέσα στη θάλασσα, ότι διατηρείτο ακόμα ανέπαφος ένας αριθμός κατασκευών μέσα στο χωράφι που βρισκόταν κατά μήκος της ακτής. Οι κατασκευές αυτές ανήκουν στο εργαστήρι που βρισκόταν πίσω από το φούρνο. Από την έρευνα που έγινε σε σχέση με το κεραμικό υλικό του φούρνου και της γύρω περιοχής προέκυψαν ενδείξεις για τοπική παραγωγή του Υστερορωμαϊκού αμφορέα του τύπου 1α.