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Preliminary Report on the University of Sheffield Excavations in the *Vicus* of the Roman Imperial Estate at Vagnari, Puglia, 2012-2018

Maureen Carroll

Imperial properties in Italy have been studied primarily on the basis of historical texts and epigraphic evidence. The well documented archaeological sequences of occupation and diagnostic assemblages at Vagnari in Puglia offer an invaluable and fresh perspective on profound changes in social and political circumstances, population mobility, and economic regimes in the context of Roman imperial ownership. After seven years of fieldwork here, we are now able to document and better understand the transformation of a late Republican agricultural settlement in private possession into a vast estate owned by the Roman emperor.

Introduction

Since 2012, excavations have been conducted by the University of Sheffield at Vagnari in the rolling hills of Puglia (ancient Apulia), about 12 km north-west of the town of Gravina (Botromagno) (fig. 1). Work has concentrated in the north-western sector of the central settlement (*vicus*) of a vast Roman agricultural estate located near the Via Appia. Geophysics indicated the outlines of a built-up area of about 2,200 square metres, of which we have investigated about 730 square metres (ca. one third), although the tile scatter beyond the area investigated by geophysics indicates that the settlement was larger. It lay on a plateau on the northern side of a natural ravine; the associated cemetery was located on its south side (fig. 2)¹. Various structures for the processing and storage of produce from the estate lands have been excavated in the *vicus*, and these include a *cella vinaria* with large *dolia defossa* inserted into the mortar floor of the winery. The buildings were in use primarily in the second and third centuries A.D., but more recent exploration has shown that the imperial *vicus* is likely to have been installed in the early first century A.D. as a successor to a Republican settlement established in the second century B.C.

To bring this phase of archaeological exploration at Vagnari *vicus* provisionally to an end, excavations were conducted in July 2018, and they will be followed in summer 2019 by a study season of all structures, stratigraphy, and finds in order to prepare a monograph on the results of seven seasons of fieldwork. The primary focus of investigations in 2018 was to clarify the chronology and nature of the Republican settlement and to investigate its transformation into a property owned by the Roman emperor. The following is a brief preliminary report on that work in the context of preceding fieldwork campaigns.

¹ Brief reports on fieldwork at the settlement and the cemetery can be found in Fasti Online. On the analysis of human remains in the cemetery, see PROWE, NAUSE, LEDGER 2014.

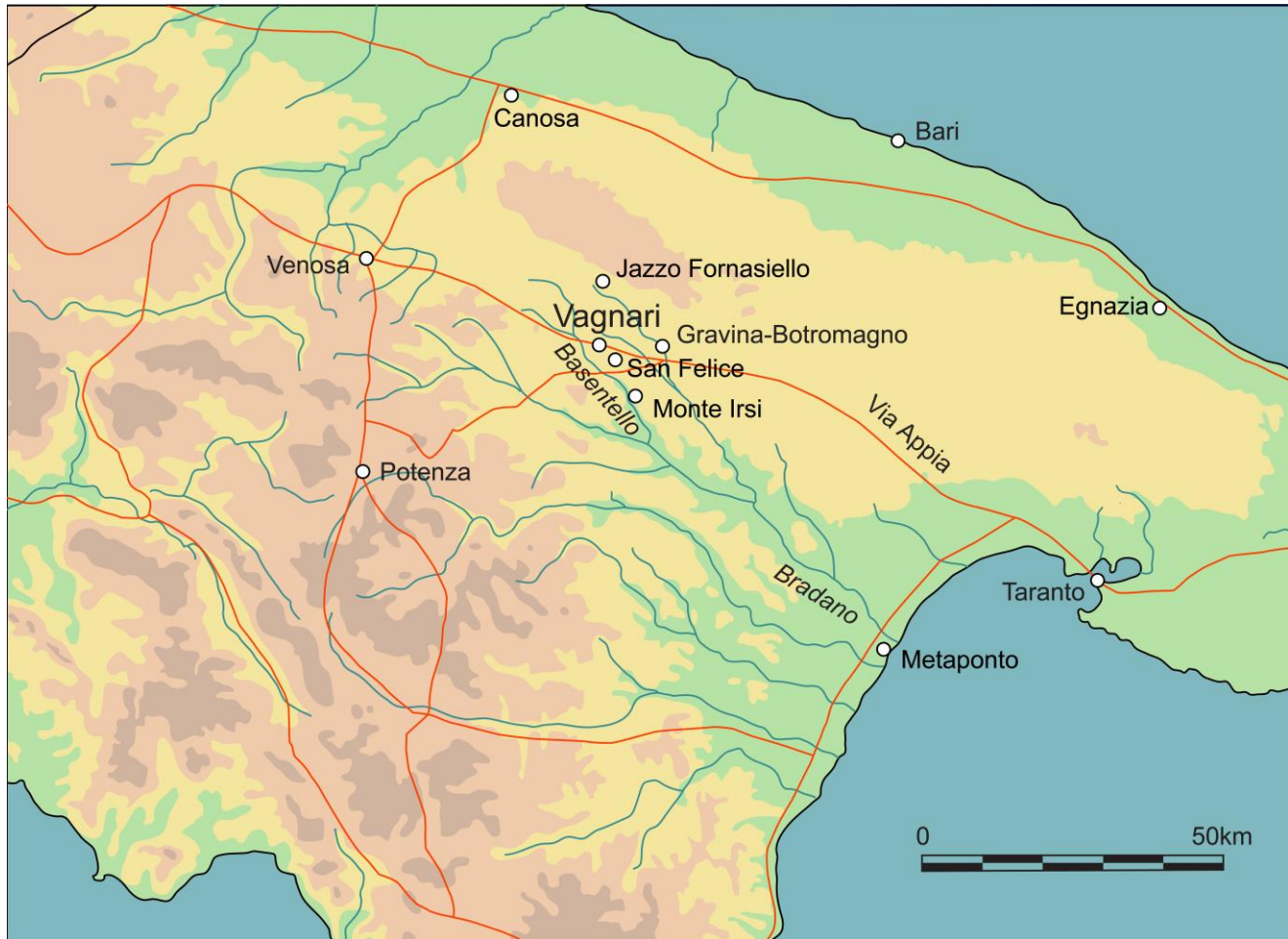


Fig. 1. Map of southern Italy showing the location of Vagnari and other relevant sites. Plan by I. De Luis.



Fig. 2. Drone photograph of the Vagnari vicus site on the edge of the ravine (from the north-east). The Roman cemetery is out of shot on the left on the other side of the ravine. Photo by G. Ceraudo and V. Ferrari, Laboratory of Ancient Topography and Photogrammetry of the University of Salento.

The Republican settlement – second to late first century B.C.

Rome's campaigns against both independent Italic cities and the Carthaginian army of Hannibal in southern Italy had culminated in the third century B.C. in the annexation of territories reaching to the Adriatic Sea. The Peuceti, an indigenous Iron Age people of Apulia whose territory bordered on the Adriatic, had been an independent and wealthy population, but their primary settlement at Botromagno was sacked by the Romans in 306 B.C. (Diodorus Siculus 20.80), and from the third century life ceased here, at least temporarily, as archaeological evidence indicates². Disruption and abandonment at this time appear to have been the case at other smaller Peucetian settlements in the vicinity as well, as recent fieldwork at Jazzo Fornasiello and on the San Felice plateau indicates³. Field survey and surface collection of diagnostic finds by Alastair and Carola Small a decade prior to the Sheffield excavations suggested that occupation had also ceased on the Vagnari plateau in the third century and this is supported by our excavations⁴.



Fig. 3. Objects retrieved from a Republican-period storage pit. Photo M. Carroll.

A Republican Roman settlement at Vagnari is attested by the presence of three circular pits cut into the natural clay and chalk. Almost certainly, these once contained ceramic storage vessels (*dolia*); the pits had been used secondarily to dispose of animal bones, iron objects, and pottery, including fusiform perfume flasks and grey gloss plates and cups, the latter dating to the second to the mid-first century B.C. and potentially of Metapontine manufacture (fig. 3)⁵. Only one of these pits had a partially intact *dolium* still in situ that had been back-filled with pottery, including fragments of grey gloss plates and baking covers (*clibani*), charcoal, and (now much corroded) iron objects (fig. 5)⁶. Loom weights were retrieved from these contexts, and they appear in some quantities also in other Vagnari deposits that stratigraphically belong to this period, although one of them, decorated with a gem stone impression on one side and on the top of the object, might be of third- or even fourth-century date, based on comparisons with Greek loom weights at Metaponto and other sites in southern Italy (fig. 4)⁷. In addition to these contexts, late Republican grey gloss pottery was retrieved in soil deposits lying immediately above the natural soil. Unfortunately, it has not been possible to assign any surviving structural remains to this phase of occupation.

The second-century settlement at Vagnari attests to a resuscitation of occupation and reveals something about the recovery and the changing dynamics of land use in this part of Apulia after the Roman conquest. The

² SMALL 1992: 13-5; SMALL 2001: 44-5.

³ LAMBRUGO, PACE 2017: 36-7; DEPALO 2017:35. See also SMALL 2001: 40, 44; SMALL, SMALL 2017, 14.

⁴ SMALL 2011: 16; C. SMALL 2011: 61-2, fig. 2.13.

⁵ PROWSE, CARROLL 2017: 330-1; VITTORIA 2016: 267-9.

⁶ On *clibani*, see CUBBERLEY, LLOYD, ROBERTS 1988; DI TURSI 2016: 378-80.

⁷ See TATTON-BROWN 1992: 219-20, fig. 100; QUERCIA, FOXHALL 2014: 70-2. Residual pottery of the fourth and third centuries has cropped up occasionally in our trenches. Three of our undecorated loom weights are very similar in size and weight to a group of sharply angular loom weights of the second half of the second/first half of the first century B.C. from the Greek settlement at Sant'Angelo Vecchio in the territory of Metaponto: FOXHALL, QUERCIA 2016: 462 (SAV LW 26).



Fig. 4. Loom weight with a gem-stone impression, possibly a chimaera. Photo M. Carroll.

Fig. 5. Excavating a Republican-period dolium. Photo M. Carroll.

picture of renewed occupation driven by Roman economic interests in the late Republican period is also suggested elsewhere in the region, as we know from archaeological exploration. A new Roman villa was built on the ruins of Botromagno in the second half of the second century, for example, and the contemporaneous establishment of a Roman villa built over the remains of Iron Age structures is attested at Monte Irsi on the border between Apulia and Lucania⁸. Furthermore, on the San Felice plateau above Vagnari, a terraced villa was established by the mid-first century B.C.⁹. Interestingly, reoccupation was downplayed by Roman authors such as Appian (*Civil Wars* 1.7) and Horace (*Epode* 3), who, for one reason or another, gave the impression that Apulia long after the Roman conquest was not a desirable or liveable place; they referred to it as “made desolate by war” and “parched and dry”. Archaeology tells another story.

The early imperial vicus

The latest pottery from the Republican settlement dates to about the mid-first century B.C. or shortly thereafter, and the next phase of building activity can be attributed by the ceramics to the early first century A.D. It appears, then, that after a hiatus of a few decades, the Republican settlement, which perhaps had gone into decline, experienced extensive renewed building activity and was enlarged, as witnessed by the stone-built walls uncovered on the site. The earliest walls were well constructed of rectangular limestone blocks of varying sizes, with the interior of these walls skimmed with plaster (fig. 6). In fact, these early walls were the best-built ones of the entire imperial period. Where present, the ceramics in the construction trenches point to a date in the early first century A.D. All walls had a SW-NE orientation; this was adhered to in all later phases and enlargements of the buildings (fig. 7). Several carefully constructed stone-built drains with stone capping were associated with the early Roman structures. Throughout the first century A.D., alterations were made to the buildings, with new walls cutting through drains and some of the earliest walls robbed out for material to be used in the construction of other buildings or additions to them. Whether any of these buildings were used as dwellings, or simply as workshops or store rooms, or were multifunctional, remains uncertain.

Storage appears to have been an important concern in this phase of the settlement. A total of twelve circular or ovoid storage pits dug into the natural soil are attested, the earliest of them probably dating to the be-

⁸ SMALL 1977: 99-101; SMALL 1992: 15-8; SMALL 2001: 39, 44-9.

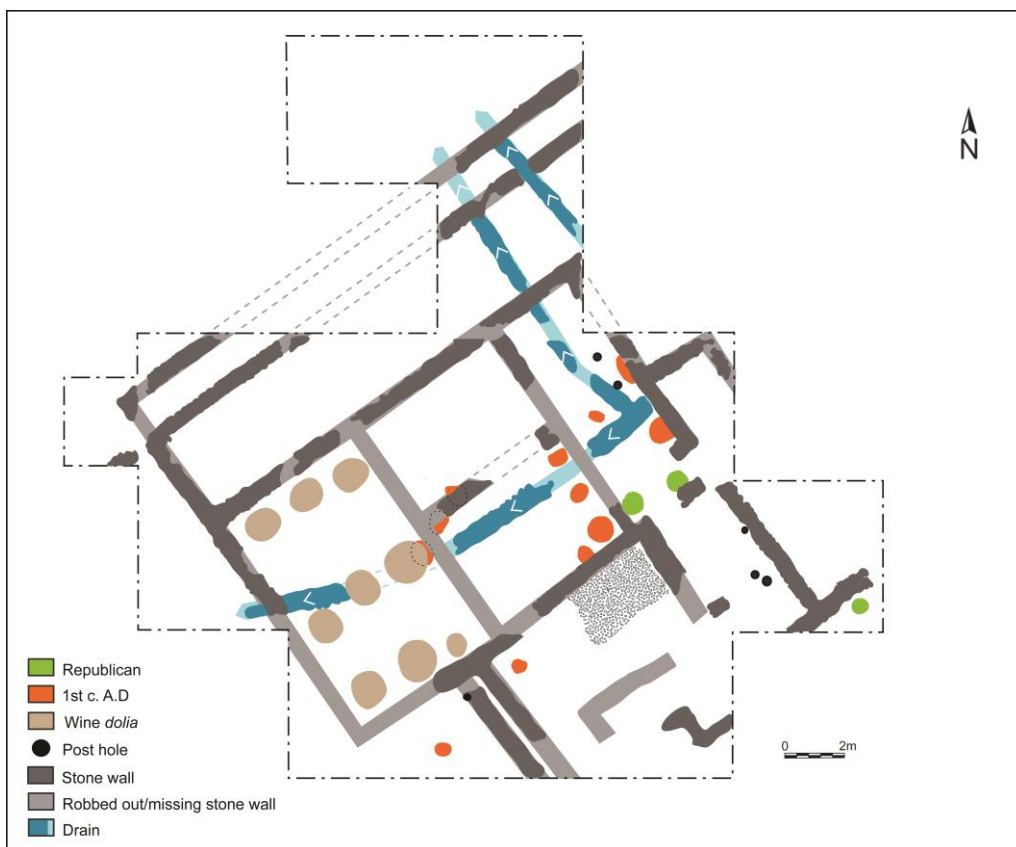
⁹ MCCALLUM *et al.* 2011: 36; MCCALLUM, VANDERLEEST 2017.

Fig. 6. View from the south-east of a well-built stone wall of the early 1st century A.D. To the left of the wall are stone drains and pits of the same period. Photo M. Carroll.

Fig. 7. Plan of the excavated remains at Vagnari vicus, 2012-2018. Plan by I. De Luis, after an original by F. Taccogna.

ginning of the first century A.D., although they continued to be dug throughout the century. Most of them were found at the foot of the walls of the buildings and arranged in alignment with the walls. These were back-filled with domestic refuse, including fragments of storage jars, cooking pots, and fine ware vessels, such as regional red-slip platters.

In general, the ceramic evidence gives us a good indication that the period in which the new buildings with stone foundations were erected is the early part of the first century A.D., probably in the reign of Augustus. It is likely that it is in this phase that the emperor acquired the land, expanded it, and began to profit from the revenues from the estate. Roof tile fragments found at Vagnari and nearby, and stamped with the name of an imperial slave (*Grati Caesaris*) responsi-



ble for tile production, make it clear that the estate at Vagnari was owned by the emperor; another tile stamp, probably of Augustan date, at Botromagno names the emperor (*CAESARAUG*)¹⁰. Thus, the emperor appears have been amassing properties in the region at this time, as many senators and *equites* before him had done, and Apulia (as well as Lucania) was a particular focus of the expansion of the imperial *fiscus* in the first century A.D.¹¹ It is not known who exactly owned the late Republican settlement and how it may have passed into the ownership of the emperor, but late Republican tile stamps of private *domini* in the vicinity suggest that large landowners of elite status possessed nearby estates¹². In fact, a tile stamp from the villa at San Felice built above Vagnari after the middle of the first century B.C. suggests that the owner of that villa was a Gnaeus Magnus, potentially Gnaeus Pompeius Magnus¹³. By the late first century B.C., some of the elite landowners may have bequeathed their property to the emperor, or estates may have been confiscated in some cases, as there is hardly any evidence that emperors acquired estates through purchase¹⁴. At any rate, the settlement at Vagnari assumed a place at the heart of the imperial estate and was the central focus through which it was managed.

The imperial vicus in the second and third centuries A.D.



Fig. 8. Excavating the lower third of a wine *dolium* inserted into the mortar floor of the winery. Photo M. Carroll.

In the late first or, more likely, the early second century A.D., the *vicus* underwent substantial alteration that reflects an intensified period of agricultural and industrial productivity. It has been assumed that the production of grain was the main focus of the imperial estate¹⁵. The archaeobotanical analysis of soil samples recovered in our excavations certainly indicates a high number of varieties of cereal species occurring at the processing centre at Vagnari which might reflect a complex and large-scale agricultural framework developed to mitigate risk associated with variable climatic conditions¹⁶. An important addition to the *vicus* now was the *cella vinaria*, indicating indirectly that vineyards were part of the imperial exploitation of the landscape and that the production of

wine had become a staple of the estate economy¹⁷. There appears to have been nine *dolia* of various sizes in this room measuring 8.50 x 5 m internally; no remains of a *lacus vinarius* were detected.

The *dolia* in the *cella vinaria* are currently the subject of a study by Giuseppe Montana and Luciana Randazzo at the Università di Palermo to determine the place of manufacture of these enormous storage vessels (fig. 8). The preliminary (unpublished) results of the fabric analysis indicate that the *dolia* at Vagnari were

¹⁰ SMALL, VOLTERRA, HANCOCK 2003; SMALL 2011: 21-2.

¹¹ SMALL 2011: 20-1. For a major study on imperial properties, see MAIURO 2012. For imperial properties in neighbouring Lucania, see DI GIUSEPPE 2014.

¹² SMALL 2014: 73-77.

¹³ MCCALLUM, VANDERLEEST 2014: 126-127. Alternatively, Gnaeus Magnus might have owned the *figlinae* which produced tiles for his property (and others?).

¹⁴ CHELOTTI 2007: 171-2; SMALL 2011: 20-1; MAIURO 2012.

¹⁵ SMALL 1994; FENTRESS 2013: 754.

¹⁶ This hypothesis, put forward by M. Stirn (our archaeobotanist), will be tested by further analysis in 2019.

¹⁷ CARROLL 2016; CARROLL, PROUSE 2016: 333. The rather more random positioning, and small number, of *dolia* in the Republican period at Vagnari do not suggest a winery with concentrated storage facilities in this phase of the site.

not locally produced, but were manufactured in the area around Rome (including southern Latium), according to the analysis of the volcanic clay of which they were made. They must have been transported from kilns in Latium to Vagnari to set up the new winery at Vagnari on the orders of the emperor, possibly by sea for greater ease of transport around the southern part of the Italian peninsula. According to a residue analysis conducted by Benjamin Stern at the University of Bradford, the pine pitch with which the *dolia* were lined for the preservation and purity of the wine unfortunately did such a good job that the wine had not penetrated into the fabric of the vessels, so there was no chemical signature in the clay to indicate the presence of wine in them. The pitch lining, however, according to Roman agricultural writers, is absolutely typical of wine storage; there is, therefore, no doubt that this commodity was stored in the *dolia*¹⁸.



Fig. 9. A selection of some of the lead smelting debris and lead scrap. Photo M. Carroll.

As in past years, evidence for considerable lead processing and iron working was retrieved in 2018. Lead smelting debris, lead scrap, and manufactured items such as lead weights were found in the deposits of this phase (fig. 9)¹⁹. This evidence forms the basis of a parallel research project funded by the Social Sciences and Humanities Research Council of Canada. The University of Sheffield and McMaster University are investigating lead production and consumption at Vagnari in the Roman imperial period, ranging in scope from the physical context of manufacturing in the estate village, and the procurement and processing of ores, to the physiological effects of this type of industrial production on the people living and dying here. For the latter aspect, the retrieval of human remains from the Roman cemetery at Vagnari, under the direction of Tracy Prowse at McMaster University, has been particularly valuable. Results of the analysis of the lead debris and artefacts, as well as the teeth from men, women, and children, are expected in the coming year.

Various alterations and enlargements to the *vicus* buildings were carried out in the second and third centuries, the walls of this period being constructed with big, unhewn chunks of the natural conglomerate rock and bonded together with clay and sometimes white mortar. All these walls retained the SW-NE orientation of the earlier buildings, and several of them abutted or were partly built on the lower courses of earlier walls.

Whilst excavation and survey data retrieved in the early 2000s had provided almost no evidence for any form of luxury in the *vicus* in this phase, the last three years of the Sheffield excavations have seen the repeated retrieval of sometimes quite large pieces of grey-veined and white marble floor or wall panels (*opus sectile*), white marble mosaic floor pieces, and sections of large window panes (fig 10)²⁰. This evidence, as well as a few pieces of ceramic segmental tiles used to construct columns, suggests that the *vicus* buildings in the north-west part of the site were not of such low status as was imagined at one time²¹. There is no nearby luxury villa

¹⁸ COLUMELLA, *On Agriculture* 12.18.5-7. See also *Geoponica* 6.4.

¹⁹ CARROLL 2014: 7-8, fig. 3; PROWSE, CARROLL 2015: 324-5.

²⁰ Although the window glass might be suggestive of a bath building, there is no indication of a hypocaust heating system in the rooms in our excavation, nor did we recover any ceramic building material normally associated with a bath. However, further south on the edge of the ravine and to the south-west of our site, surface collection in 2000 and 2001 retrieved hypocaust tiles (*pilae* and box tiles), so there may have been baths there: C. SMALL 2011: 58. They were, perhaps, fed by water from a possible cistern south of our site: DALTON 2014: 89-97.

²¹ SMALL 2011: 25; FENTRESS 2013: 750.

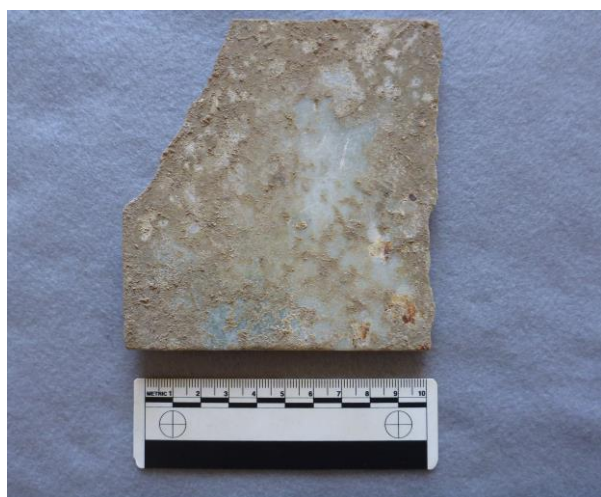


Fig. 10. Marble slab from floor paving or wall lining. Photo M. Carroll.

with marble-clad rooms, including the site on the hill at San Felice above Vagnari, from which this material could have been quarried for reuse, so we are confident that it was brought in directly and primarily to adorn buildings in the *vicus*. Given the evidence for luxury in the early imperial phase at Vagnari, in the forthcoming study season of all excavated remains and artefactual evidence we plan to address the possibility that the *vicus* may, in fact, have been a villa, or perhaps have incorporated a villa, potentially with zones of varying function that were outfitted and adorned in different ways.

The late Roman vicus and the end of the settlement

By the middle of the third century A.D., the winery appears to have gone out of use, and the *dolia* were either removed completely or smashed into pieces. Some of the *dolia* may, of course, have been reused elsewhere,

but we have no evidence for them in this part of the site. The southern and eastern walls limiting the *cella vinaria* were at least partially dismantled around this time, leaving robber trenches behind (fig. 11).

The roofed room to the east of the winery suffered severely in a catastrophic event, the entire tile roof collapsing on the floors and deposits below (fig. 12). Whether this event was, perhaps, a fire, we cannot say for certain, but there were dense pockets of ash and burning in places under the tile collapse. The ceramics and the coins suggest that the collapse and subsequent robbing out of walls took place in the late third or early fourth century A.D. The



Fig. 11. Drone photo (from the west) of the trenches opened in 2018. 'Ghost' walls and robber trenches can be seen clearly in the lower trench. Photo by G. Ceraudo and V. Ferrari, Laboratory of Ancient Topography and Photogrammetry of the University of Salento.

latest coins from contexts of abandonment or demolition date to the mid-fourth century. Interestingly, in several places running roughly parallel to dismantled walls were individual post-holes cut into the underlying chalk, which we interpret as the remains of scaffolding erected by a demolition crew to remove stone from the walls from top to bottom.

Perhaps parts of the buildings remained in place, if ruinous, until the late fourth and fifth centuries, since some of the pottery from late disturbance deposits dates to this period. Presumably the imperial *vicus* served as a stone quarry for the new village or hamlet now established on the south side of the ravine and inhabited into the seventh century A.D.²²

²² FAVIA *et al.* 2005; SMALL 2011: 25; FENTRESS 2013: 750. ALL 2011: 29-34.

Chronological and historical overview

The excavated evidence confirms renewed settlement activity after the devastations of the expansionist campaigns of Rome and the Hannibalic war in southern Italy in the third century B.C. In the second century, not only Vagnari, but also other sites, show revival, possibly as a result of the (not always lawful) acquisition and exploitation of Roman public land (*ager publicus*) by powerful elites and senatorial families from Rome who, as Appian tells us, grew rich in the second century by colonising areas following the Roman conquest of Italy (*Civil Wars* 1.7-8). Vagnari could have been one of these properties that entered imperial hands through inheritance or confiscation.

The evidence indicates that in the early first century A.D., new buildings with well-built walls were erected and the settlement was substantially enlarged. It is likely that it became the administrative and distributive centre of the imperial estate in this period. By the early second century, at the latest, vineyards formed part of the resources of the estate and a winery was added to the *vicus*, the basins for the *dolia* having cut through two stone drains of the first century A.D. making them obsolete. The winery was probably in operation until the middle of the third century. Although this particular *cella vinaria* later was demolished, it is not impossible that another similar room was laid out somewhere else on the site, with production of wine continuing. Much building activity took place in the second and third centuries, largely for what appears to be functional structures for processing crops, working metals, and storage. By the early fourth century, at least the north-west corner of the *vicus* had fallen into disrepair and was dismantled. The process of salvaging useful building stone from the *vicus* carried on in the late fourth and fifth centuries A.D.

We have been able to correct a number of misconceptions about the appearance and nature of the imperial *vicus*. We have not found any evidence of slave quarters, and the apparent 'small chambers' in the northern building range seen in the original geophysics plot-out (see the long building in fig. 7), and interpreted as potential slave quarters, turned out to be non-existent²³. The idea that there is no evidence for wine production also can now be refuted. And we must question, in contrast to earlier assumptions, whether at least some sectors of the *vicus* were not indeed of elevated status, given the discovery of marble architectural fragments and glazed windows²⁴. In fact, sites in this region usually are classified as villas on the evidence of architectural structures and decoration, the presence of luxury materials such as marble, mosaics, glass, and building materials includ-



Fig. 12. Collapsed tile roof east of the winery. Photo M. Carroll.

²³ STRUTT, HUNT, SMALL 2011: 79, fig. 3.10; FENTRESS 2013: 751; CARROLL 2014: 5. The geophysics appeared to show a row of similarly-sized rooms in the long northern building (fig. 7) which we thought might be slave quarters, but the excavations have proven that at least some of the "walls" of these rooms were, in fact, stone-built drains under the floor of the building. There is no indication at all how this building was subdivided internally.

²⁴ FENTRESS 2013: 750.

ing tiles, all of which are present, even if in small quantities, at Vagnari²⁵. Because we have such limited physical and archaeological knowledge of working rural estates in imperial possession and about the nature, function, and appearance of the buildings, and the make-up and status of an estate population, we will need to focus on a broad range of evidence types in the forthcoming study season to better understand and characterise the settlement and its context at Vagnari.

Vagnari is ideally situated and preserved to shed new and crucial light on the nature and identity of the pre-Roman and Roman inhabitants and to recognize profound changes in the development of the region by different groups. Our work sheds light not only on the Republican and imperial phases of occupation at Vagnari, but also on the end of the settlement and the robbing and final destruction of it. The excavation, in conjunction with earlier survey work, gives us a more complete picture of phases of occupation, changes in landscape use, and historical connections in Apulia.

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REFERENCES

- CARROLL M., 2014, 'Vagnari 2012: New Work in the *vicus* by the University of Sheffield', in A.M. SMALL (ed), *Beyond Vagnari. New Themes in the Study of Roman South Italy*, Bari: 79-88.
- CARROLL M., 2016, 'Vagnari. Is this the winery of Rome's greatest landowner?', in *Current World Archaeology* 76: 30-33.
- CARROLL M., PROWSE, T., 2016, 'Research at the Roman Imperial Estate at Vagnari, Puglia (Comune di Gravina in Puglia, Provincia di Bari, Regione Puglia)', in *Papers of the British School at Rome* 84: 333-336.
- CHELOTTI M., 2007, 'La proprietà imperiale nella Apulia et Calabria', in D. PUPILLO (ed), *Le proprietà imperiali nell'Italia romana*, Florence: 169-194.
- CUBBERLEY A.L., LLOYD J.A., ROBERTS P.C., 1988, 'Testa and *clibani*. The baking covers of Classical Italy,' in *Papers of the British School at Rome* 56: 98-119.
- DALTON, A., 2014, 'The excavation of the cistern at Vagnari: An update', in A.M. SMALL (ed), *Beyond Vagnari. New Themes in the Study of Roman South Italy*, Bari: 89-97.
- DEPALO M.R., 2017, 'Piana San Felice: un sito archeologico pluristratificato nel territorio di Gravina in Puglia', in L. COSSALTER, M.R. DEPALO (eds), *Il paesaggio storico ricostruito. L'insediamento di Piana San Felice a Gravina in Puglia*, Bari: 25-38.
- DI GIUSEPPE H., 2014, 'Imperial estates in inland Lucania', in A.M. SMALL (ed), *Beyond Vagnari. New Themes in the Study of Roman South Italy*, Bari: 213-225.
- DI TURSI A., 2016, 'Cooking Ware', in F. SILVESTRELLI, I.E.M. EDLUND-BERRY (eds), *The Chora of Metaponto 6. A Greek Settlement at Sant'Angelo Vecchio*, Austin: 355-392.
- FAVIA P., GIULIANI R., SMALL, A.M., SMALL C., 2005, 'La valle del Basentello e l'insediamento rurale di Vagnari in età tardoantica', in G. VOLPE, M. TURCHIANO (eds), *Paesaggi e insediamenti rurali tra Tardo Antico e Alto Medioevo*, Bari: 193-222.
- FENTRESS E., 2013, 'The patrimonium and the peasant', in *Journal of Roman Archaeology* 26: 750-754.

²⁵ GOFFREDO 2010: 27; MANGIATORDI 2011: 426.

- FOXHALL L., QUERCIA A., 2016, 'Loom Weights', in F. SILVESTRELLI, I.E.M. EDLUND-BERRY (eds), *The Chora of Metaponto 6. A Greek Settlement at Sant'Angelo Vecchio*, Austin: 455-467.
- GOFFREDO F., 2010, 'Persistence and change in settlement patterns in the Ofanto valley near Canusium and Cannae (Apulia) (late 4th c. BC – 1st c. AD)', in *Journal of Roman Archaeology* 23: 7-33.
- LAMBRUGO C., PACE A., 2017, 'Il "Complesso Alfa", fasi di vita e rituali di abbandono', in M. CASTOLDI (ed), *I Peuceti a Jazzo Fornasiello. Scavi archeologici a Jazzo Fornasiello, Gravina in Puglia*, Milan: 31-40.
- MANGIATORDI A., 2011, *Insedimenti rurali e strutture agrarie nella Puglia centrale in età romana*, Bari.
- MCCALLUM M., VANDERLEEST H., VEAL R., TAYLOR A., COONEY L., BROWN L., MUNRO M., 2011, 'The Roman Villa at San Felice: Investigations, 2004-2010', in *Mouseion* 11: 25-108.
- MCCALLUM M., VANDERLEEST H., 2014, 'Research at San Felice: The villa on the imperial estate', in A.M. SMALL (ed), *Beyond Vagnari. New Themes in the Study of Roman South Italy*, Bari: 123-134.
- MCCALLUM M., VANDERLEEST H., 2017, 'Roman villa at San Felice: Canadian excavations 2005-2013', in L. COSSALTER, M.R. DEPALO (eds), *Il paesaggio storico ricostruito. L'insediamento di Piana San Felice a Gravina in Puglia*, Bari: 19-24.
- MAIURO M., 2012, *Res Caesaris. Ricerche sulla Proprietà imperiale nel Principato*, Bari.
- PROWSE T., CARROLL M., 2015, 'Research at Vagnari (Comune di Gravina in Puglia, Provincia di Bari, Regione Puglia)', in *Papers of the British School at Rome* 83: 324-326.
- PROWSE T., CARROLL M., 2017, 'Exploring the *vicus* and the *necropolis* at the Roman imperial estate at Vagnari (Comune di Gravina in Puglia, Provincia di Bari, Regione Puglia)', in *Papers of the British School at Rome* 85: 330-334.
- PROWSE T., NAUSE C., LEDGER M., 2014, 'Growing up and growing old on an imperial estate: Preliminary palaeopathological analysis of skeletal remains from Vagnari', in A.M. SMALL (ed), *Beyond Vagnari. New Themes in the Study of Roman South Italy*, Bari: 111-122.
- QUERCIA A., FOXHALL L., 2014, 'Temporality, Materiality and Women's Networks: The Production and Manufacture of Loom Weights in the Greek and Indigenous Communities of Southern Italy', in K. REBAY-SALISBURY, A. BRYSBART, L. FOXHALL (eds), *Knowledge Networks and Craft Traditions in the Ancient World: Material Crossovers*, London: 62-82.
- SMALL A.M., 1977, 'The historical context', in A.M. SMALL (ed), *Monte Irsi, Southern Italy. The Canadian Excavations in the Iron Age and Roman Sites, 1971-1972*, BAR Suppl. Series 20, Oxford: 97-101.
- SMALL A.M., 1992, 'Botromagno: an introduction', in A.M. SMALL (ed), *Gravina. An Iron Age and Republican Settlement in Apulia, Vol. 1, The Site*, London: 1-18.
- SMALL A.M., 1994, 'Grain from Apulia. The changing fortunes of Apulia as a grain-producing area in the Hellenistic and Roman periods', in M.O. JENTEL, G. DESCHÊNES-WAGNER (eds), *Tranquillitas. Mélanges en l'honneur de Tran tam Tinh*, Laval: 543-555.
- SMALL A.M., 2001, 'Changes in the pattern of settlement and land use around Gravina and Monte Irsi (4th century BC – 6th century AD)', in E. LO CASCIO, A. STORCHI MARINO (eds), *Modalità insediative e strutture agrarie nell'Italia meridionale in età romana*, Bari: 35-53.
- SMALL A.M., 2011, 'Introduction', in A.M. SMALL (ed), *Vagnari. Il villaggio, l'artigianato, la proprietà imperiale*, Bari: 11-36.
- SMALL A.M., 2014, 'Tile stamps of *privati* from the Basentello Valley field survey', in A.M. SMALL (ed.), *Beyond Vagnari. New Themes in the Study of Roman South Italy*, Bari: 73-77.
- SMALL A.M., VOLTERRA V., HANCOCK R.G.V., 2003, 'New evidence from tile-stamps for imperial properties near Gravina, and the topography of imperial estates in SE Italy', in *Journal of Roman Archaeology* 16: 178-199.
- SMALL C., 2011, 'The Surface Collection', in A.M. SMALL (ed), *Vagnari. Il villaggio, l'artigianato, la proprietà imperiale*, Bari: 53-72.
- SMALL C., SMALL A.M., 2017, 'Surface collection on San Felice 2006-2008', in L. COSSALTER, M.R. DEPALO (eds), *Il paesaggio storico ricostruito. L'insediamento di Piana San Felice a Gravina in Puglia*, Bari: 9-17.
- STRUTT K., HUNT, J. SMALL A.M., 2011, 'The Geophysical Surveys', in A.M. SMALL (ed), *Vagnari. Il villaggio, l'artigianato, la proprietà imperiale*, Bari: 73-86.
- TATTON-BROWN V., 1992, 'Loomweights, bobbins and spindle-whorls', in A.M. SMALL (ed), *Gravina. An Iron Age and Republican settlement in Apulia, Vol. 2. The Artifacts*. London: 218-226.

VITTORIA E., 2016, 'Grey Ware', in F. SILVESTRELLI, I.E.M. EDLUND-BERRY (eds), *The Chora of Metaponto 6. A Greek Settlement at Sant'Angelo Vecchio*, Austin: 265-276.

Project Website:

<https://www.sheffield.ac.uk/archaeology/research/vagnari>