

SOFT, HEAVY, AND DULL: LEAD AND LEAD-PROCESSING ON THE ROMAN IMPERIAL ESTATE AT VAGNARI (PUGLIA)

Maureen Carroll

In 2012 and 2013, the University of Sheffield conducted archaeological excavations in the settlement (*vicus*) of the Roman imperial estate at Vagnari to seek evidence for industrial and agricultural production and to investigate the exploitation of human and natural resources (funded by the British Academy, the Roman Society, and the University of Sheffield).



Fig. 1 Excavating the North Building in the *vicus* at Vagnari where evidence for lead processing was retrieved in 2012 and 2013.

We established that cereal crops were cultivated and that industrial activities involving iron and ceramics took place at Vagnari, but it is the lead-processing in the settlement that represents a major discovery allowing us to pursue research into the living and working conditions on this estate in the second and third centuries A.D. The inhabitants working with this metal, and many of those around them, were clearly living in a toxic environment. But, due to time limitations at the end of both excavation seasons in 2012 and 2013, no complete catalogue of the lead artefacts could be

made. This situation was remedied in 2014.

In July 2014, with support from the Roman Society, a study season was conducted on excavated lead artefacts recovered at Vagnari, and now stored in Gravina in the San Sebastiano monastery, the local branch of the Soprintendenza of Puglia. All lead artefacts found thus far in the *vicus* excavation were photographed, drawn, and catalogued, and it was established which pieces need conservation. In addition, unstudied lead artefacts retrieved during the field-walking surveys of Profs. Carola and Alastair Small at Vagnari in 2000 and 2001, and now housed in the Fondazione Ettore Pomarici Santomasini in Gravina, were catalogued, drawn, and photographed.



Fig. 2 Lead droplet resulting from lead smelting.

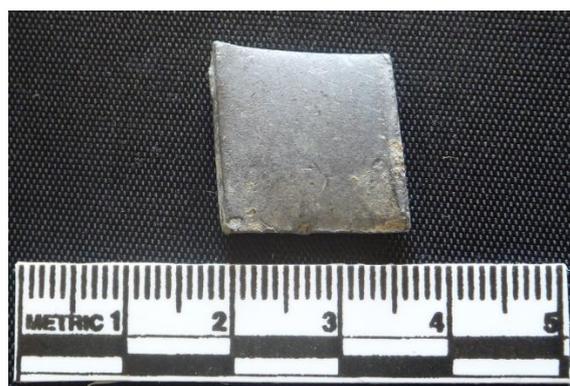


Fig. 3 Lead sheet 2 mm thick cut into a square.

After an assessment of the material, it is evident that the total current assemblage is made up of 99 pieces of lead, with a total weight of 1700g. These include lead droplets from smelting, pieces of sheet lead cut into small squares and rectangles, possible net weights, lead weights, lead scrap for recycling, and other objects of this material.



Fig. 3 Lead weight in the form of a shell



Fig. 4 Piece of lead scrap for recycling

The recording and assessment of the lead from Vagnari is a step in preparation for a collaborative project with Dr. Tracy Prowse (McMaster University, Canada) who has been excavating skeletal remains in the Roman *necropolis* at Vagnari. In this first stage of investigating lead and its effects on the

ancient population, the study of the Roman lead artefacts and manufacturing debris from Vagnari was a pivotal task. The research begun here will lead to the future publication of the archaeological evidence for lead working at Vagnari and its economic, historic, and cultural context.

Furthermore, a sample of artefacts and manufacturing debris was selected for lead isotope and composition analysis (to determine the origins of the ores). In the planned collaborative project with McMaster University, this information will support our investigation of the effects of childhood lead exposure. By then comparing the lead in artefacts from the settlement with the lead in the teeth of skeletons in the cemetery, we will gain a significantly better understanding of the health status, and health risks, of a Roman rural population in the environment in which they lived, worked and died.

Our archaeological fieldwork provides us with clear evidence for industrial activities utilizing lead, giving us exciting insight into the role of the *vicus* in servicing the surrounding countryside under imperial control as well as the range of specialist crafts and industries practiced by the resident manpower. This new information will make a significant contribution towards understanding the socio-economic complexities and conditions of working for the emperor in Roman Italy.

Fieldwork at Vagnari in 2015

The Vagnari *vicus* project will concentrate in July and August 2015 on the remains of a large stone-built structure adjacent to the North Building excavated in 2012 and 2013. The date, function, and appointment of this

unexplored structure to the south will be determined, and its relationship to other known buildings established. In addition to exploring targeted buildings, we aim to locate smelting hearths and retrieve further industrial debris and lead artefacts in the village. Information on the 2015 fieldwork can be found at <http://www.sheffield.ac.uk/archaeology/research/vagnari>.

Excavations by McMaster University also will be conducted in July and August 2015 to investigate burials and to locate and retrieve skeletons of differing ages and sex from various parts of the cemetery for recording and sampling. Information on the 2015 cemetery project can be found at <http://www.anthropology.mcmaster.ca/fieldschools/bioarchaeological-field-school/italy-bioarchaeology-field-school-1>.

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Fig. 5 Bronze cast boar's head, a possible product of the metalworkers at Vagnari.

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