

projects, and with the Italian authorities; and through a generous grant from the Charles K. Williams II Trust, we have a strong basis for continued fieldwork and publication.

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GEOPHYSICS PROJECTS

doi: 10.1017/S0068246217000277

The archaeological geophysics programme of the British School at Rome in collaboration with the University of Southampton (Archaeological Prospection Service of Southampton (APSS)) continued to conduct surveys across a broad geographical area, as well as across a diverse chronological spectrum. We have been working in the heart of Rome on behalf of the University of Southampton and the Sovrintendenza di Roma Capitale; while Rome slept, we conducted a ground-penetrating radar (GPR) survey of the road between the Capitoline Hill and the Theatre of Marcellus. We have also worked in partnership with University College London looking for traces of possible Etruscan buildings at Vulci. It is always a pleasure to collaborate with our colleagues at the Swedish Institute in Rome, and this year we undertook survey work for them at Francavilla in Sicily.

Thanks to the continued funding by The Roger De Haan Charitable Trust, we were able to continue the BSR's research project at Lucus Feroniae. A GPR survey over the southern portion of the settlement has provided further evidence for the layout of the town, and this research will culminate in a collaborative article in *Papers of the British School at Rome* in the near future. The rest of the report focuses on two projects, at Tivoli and Arezzo.

PLUTONIUM AT HADRIAN'S VILLA, TIVOLI

Most of the buildings in the Hadrianic villa complex at Tivoli have been identified and their function is understood. However, one building in the extreme southeast of the villa complex that remains shrouded in mystery is the 'Plutonium'. The archaeological investigation of the Plutonium, led by Milena Melfi (University of Oxford) and Maria Elena Gorrini (Università degli Studi di Pavia) with the help of Sandro Parinello (Università degli Studi di Pavia), aims to map and re-evaluate the building. The contribution of the BSR–APSS collaboration has been to provide a comprehensive and detailed geophysical survey of the area immediately around the extant remains.

The Plutonium is set on a small rise — the 'High Ground' — and overlooks the rest of the palace grounds. There are substantial standing remains, but a definitive plan of its layout and interpretation of its function have remained elusive. The building lies above the 'inferi', a long water canal, quarried out of the tufa bedrock, in a natural valley that culminates in a grotto. Over the centuries the building has been referred to as the 'Temple of Serapis' (Piranesi plan), the 'Temple of Pluto and Persephone' (Penna, 1833: 123; Ricotti, 2001: 307) and the 'Plutonium' by Pierre Gusman in 1904 (MacDonald

and Pinto, 1995: 124). The association of this building and the rock-cut grotto with Pluto and the underworld may have derived from the report on Hadrian's elaborate construction of his villa in the *Historia Augusta*: 'And so that he might omit nothing, he fashioned even a Hades' (*SHA Hadrian* 26.5; cited in Oppen, 2008: 146).

One of the first plans of the Plutonium was drawn by Giovanni Battista Piranesi towards the end of his life, in 1777. From the visible remains, Piranesi conjectured that the plan of the building must be symmetrical, so he conjectured a mirror image of the extant remains, and in so doing created the footprint of one of the largest buildings within the palace complex. Comprised of a large rectangle with a central circular colonnaded structure that partially protruded from the southwestern façade, and a portico along the northeastern façade, Giovanni Battista Piranesi's plan of the building was subsequently little altered by his son, Francesco, in his composite plan of the villa complex, dating to 1781 (Fig. 1). Careful to distinguish between the walls he saw and those that were conjectured, Francesco Piranesi used bold and faint lines in his plan, and it is clear from this that the southern half of the building was a hypothesis.

Subsequent plans of the Plutonium have incorporated, embellished or rejected Francesco Piranesi's elaborate reconstruction, the most recent being that of the Università di Roma Tor Vergata in 2006 (Adembri and Cinque, 2006: foldout plan). As none of the existing plans of the building agree, it was proposed that a geophysical survey could map the layout of the buried remains and provide a definitive plan.

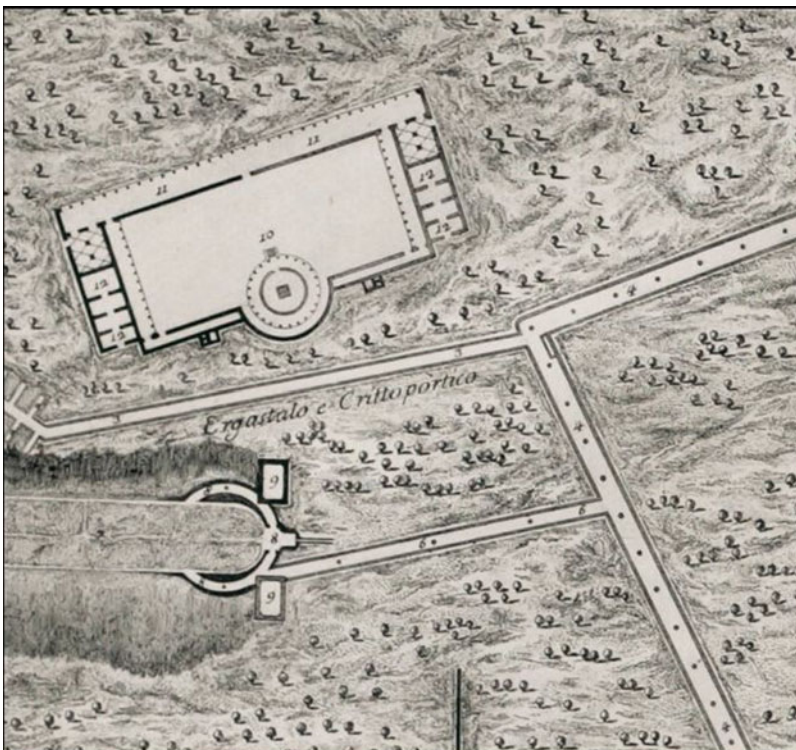


Fig. 1. Francesco Piranesi's plan of 1781, referred to as the 'Temple of Serapis'.



Fig. 2. Geophysics results from the Plutonium.

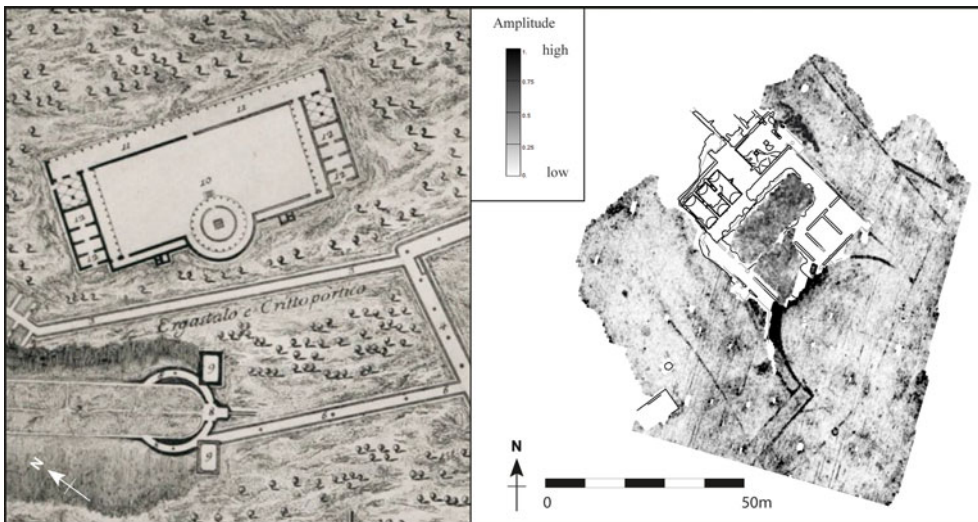


Fig. 3. Comparison between Piranesi's plan and the geophysics results.

The survey covered both the open land in the immediate vicinity of the standing remains of the Plutonium and as much of the interior of the building as was possible. The GPR survey data were very clear, and the results confirm that the elaborate plans imagined by early surveyors of Hadrian's Villa have been exaggerated (Fig. 2). Most striking of all is the observation that the building clearly does not extend southwards, as Giovanni Battista Piranesi suggested; the mirroring of the extant remains was pure conjecture. The large circular feature is only a semicircle, with a quarter-circle protruding from the southwestern façade. This section of the curved wall terminates against a pair of parallel walls perpendicular to the building, which changes the form and orientation of this monument considerably. The results also showed evidence of the

northeastern face of the building. There is no sign of internal divisions, so it could have been a portico or long room with a view over the valley below.

Overall, there is very clear evidence in the geophysical survey results for the structural remains directly associated with the Plutonium, but they occupy a much smaller footprint than was envisaged by the creative early reconstructions of the building (Fig. 3).

COLLE DEL PIONTA, AREZZO

In 1561 Cosimo I de' Medici ordered the demolition of the cathedral of Arezzo, founded between 1015 and 1032, which was situated in a strategic position on the small hill of Colle del Pionta, a short distance outside the city walls. The cathedral had been designed by the architect Maginardo, who had been sent to Ravenna to take inspiration from the church of San Vitale. Whilst historical records refer to the cathedral, including a fresco by Pietro Buonamici and a plan of the cathedral at the Uffizi Museum attributed to Vasari the Younger, the location of the building has not been identified.

In the 1960s the first systematic excavations were undertaken on Colle del Pionta. These brought to light a rectangular structure dated to the late fifth century AD. The continuation of these excavations revealed a later phase of the church, built sometime between the end of the eighth century and the beginning of the ninth century, which had a cruciform form, with three apses and a central nave (Melucco Vaccaro, 1991). This basilica has been identified as the cathedral of the city of Arezzo in the medieval period, that is the church of Santa Maria and Santo Stefano. A period of intense building activity at Colle del Pionta followed around the beginning of the tenth century. The burial of San Donato was believed to be located a short distance from the church, and it was this that inspired Bishop Elemperto to commission Maginardo to build a new cathedral on Colle del Pionta.

In the summer of 2016 the BSR and APSS were invited by Alessandra Molinari (Università degli Studi di Roma Tor Vergata) and the Associazione Culturale Accademica for Colle del Pionta to undertake a GPR survey with the aim of locating the precise position of the cathedral commissioned by Bishop Elemperto, which had been hypothesised as being below the Oratorio di Santo Stefano, built in 1610 by Bishop Usimbardi, a short distance from the church of Santa Maria and Santo Stefano. The Oratorio, built in memory of those buildings destroyed in 1561, was constructed above a small crypt dug into the bedrock, where traces of graffiti dating to the thirteenth century are visible, and which has been hypothesised as being the burial place of San Donato.

The survey, which covered an area of 0.3 hectares, focused on two areas on the terrace of Colle del Pionta: a car park around the Oratorio di Santo Stefano, and open parkland 20 m to the north, where more recent excavations (Molinari, 2008) had revealed a large ecclesiastical structure dating to around the tenth century. The GPR survey around the Oratorio revealed a significant number of subsurface features immediately to the west of the building, behind the apse. These features were subsequently targeted by excavation (conducted by the Università degli Studi di Roma Tor Vergata), which revealed that the GPR anomalies had recorded an access point to the crypt, as well as some substantial foundation footings to the west. It is unclear if these foundations relate to the old cathedral of Arezzo commissioned by Bishop Elemperto.

The GPR survey in the park 20 m to the north recorded numerous clear subsurface features that also were subsequently verified by excavation. At a depth of approximately 1 m a series of linear anomalies (representing walls) and areas of high

amplitude (representing ancient floor/ground surfaces or spreads of rubble) were recorded by the GPR, in particular showing a continuation of structures extending north and eastwards from the earlier excavations. These features, when placed with the plan of the earlier excavations, show a sort of colonnaded way, or the passage of a roadway, leading up the hill towards the site of the Oratorio di Santo Stefano.

Whilst the GPR survey recorded a series of medieval structures on Colle del Pionta (subsequently confirmed by excavation), the survey was unable to confirm the location of the old cathedral of Arezzo as recorded by Pietro Buonamici and Vasari the Younger, mostly due to the encroachment of modern buildings around the Oratorio and the shallow geology across the hill. However, we were able to show the extensive nature of the complex of ecclesiastical buildings across this important site, which were contemporary with the old cathedral of Arezzo.

Further details and a full summary of all of the work, both past and present, conducted by the BSR and APSS can be found on the *Fasti Online* database (www.fastionline.org), as well as on the archaeology research pages of the BSR website (www.bsr.ac.uk/research/Archaeology).

Acknowledgements

The survey at the Plutonium in Hadrian's Villa would not have been possible without the help, support and collaboration of the Soprintendenza Archeologia del Lazio e dell'Etruria Meridionale, in particular Dott.ssa Benedetta Adembri, and the Polo Museale del Lazio. We also wish to thank Sig. Mauro Mariottini, president of the Associazione Culturale Academo, which financed the research at Arezzo.

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