

Archaeological feedback

The whole is greater than the sum of the parts: combining fieldwalking data and geophysical survey in the study of minor Roman centres

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The paper presents the results of work carried out in the project “Fora, stationes and sanctuaries: the role of minor centres in the economy of Roman central Italy” (funded by NWO Grant No. 360-61-030), and focuses in particular on how fieldwalking data and geophysical data have been used in the project in tandem to inform fieldwork strategies and interpretations. Although both the urban and rural landscapes of Roman Italy have received due attention in current debates on the Roman economy, this is less true for the highly variable group of intermediate sites, here conveniently labelled as ‘minor centres’, and their role within economic systems (Tol *et al.* 2014). Our research in Italy focused on two such minor centres, Forum Appii and Ad Medias, situated in the Pontine plain (Lazio, Central Italy) along the Via Appia (see Fig. 1). Our research aims to elucidate the function of these two road stations in both their local rural settlement system and within regional trade networks. In addition, these examples allow us to assess variations in size and function within the generic class of minor centres.

INTRODUCTION

The project uses an integrated non-invasive approach, common in the study of urban sites: a (GIS-based) desktop study of topographic and cartographic sources is combined with geophysical survey and systematic fieldwalking. Together, these methods allow us to reconstruct the layout and central place functions of these minor centres as well as their development over time. Here, we will specifically consider how the geophysical and fieldwalking data inform each other and allow richer interpretations of the archaeological evidence.

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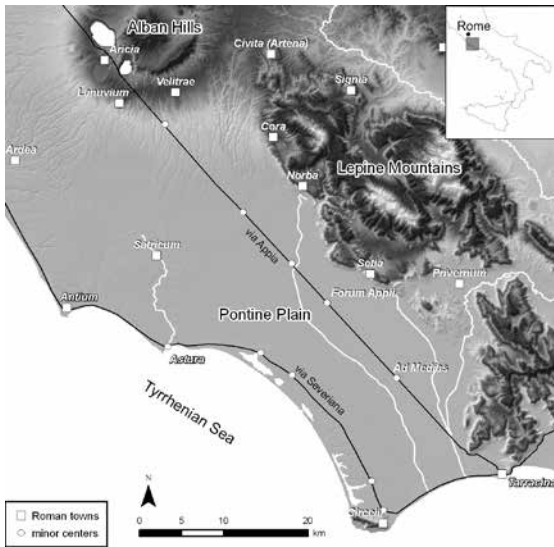


Fig. 1. The Pontine region with main sites, roads and rivers (Tymon de Haas/RUG/GIA)

METHODOLOGY

The geophysical surveys were carried out using magnetic gradiometry (fluxgate gradiometers¹), and aimed to identify and interpret buried structural remains at both sites. The chosen technique is particularly suited to detect the type of features associated with the economic functions we are seeking to identify, such as local artisanal production (e.g., kilns) and trade-related facilities (e.g., warehouses, infrastructural remains). Such features typically include materials fired at high temperatures (e.g., kiln remains, slag and brick walls) and should thus be well-visible in magnetic prospection. We acknowledge that our chosen methodology has limitations in terms of what buried materials can be reliably detected; magnetometry will only reveal buried materials with contrasts in either magnetic susceptibility or a degree of remnant magnetism. However, it is routine practice to employ magnetic surveys first in areas where the archaeology is relatively unknown, as it is a rapid technique that can quickly cover large areas, and stands a good chance of detecting Roman-period archaeology. Further detailed geophysical work utilising earth resistance and ground penetrating radar can then be effectively targeted, as these techniques are both more costly in terms of time and expertise. Earth resistance surveys over key anomalies are planned for the next phase of research.

Fieldwalking applied a highly intensive methodology: grid units of 25 m x 25 m were walked at 25% coverage (three walkers), with each walker picking up all finds encountered in their respective lanes. After initial walking, each unit was inspected again at 100% coverage

¹ A two-sensor Bartington Grad601 and two single-sensor FM256 gradiometers (sometimes in dual density mode) were applied, covering small plots, using 30 m by 30 m grids, systematically traversed in 0.5 m intervals. Larger areas were then investigated by the Eastern Atlas Geophysical Prospection using a DGPS-located ten-sensor cart system.

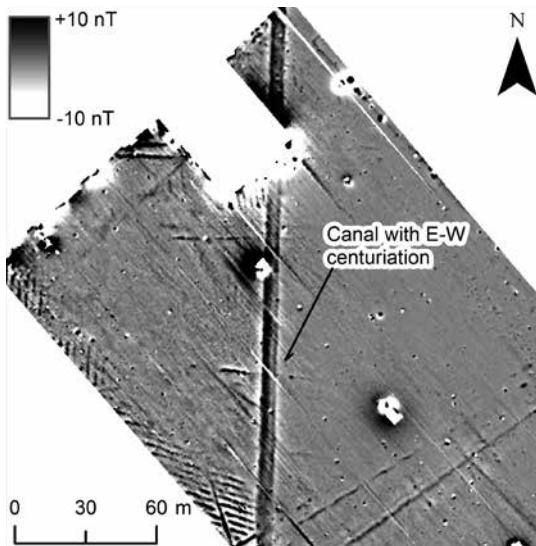


Fig. 2. Gradiometer data from Ad Medias, produced by Eastern Atlas GmbH, showing the canal and related anomalies, interpreted as part of the centuration system

in order to collect a supplementary diagnostic sample. Although resulting in the collection (and subsequent processing) of large amounts of material, recent experimental work shows that such an intensive sampling approach is necessary to answer detailed questions regarding infra-site functional zoning and chronological development (Tol 2012: chapters 3 and 5). In addition, large pottery samples provide a solid foundation from which to approach the position of the studied sites within trade networks. The grid size was chosen in order to accurately relate surface distribution to any anomalies showing up in the geophysical surveys.

RESULTS

This particular combination of geophysical surveys combined with intensive, systematic field-walking of the same areas yields complementary datasets. At Forum Appi, the geophysical data has shown evidence of craft production (metalworking and ceramics), as well as evidence for large buildings possibly associated with the transshipment and redistribution of goods. The finds associated with the anomalies allow a broad chronological characterisation of the geophysical anomalies. The earliest evidence for occupation consists of black gloss ware fragments, including stamped examples of the *Gruppo dei Piccoli Stampigli*, dating to the late 4th or early 3rd century BC (Morel 1981; Stanco 2009). The most recent pottery collected (forms in ARS D: Hayes 1972; Bonifay 2004) dates to the late 5th or early 6th century AD. The collected ceramic evidence includes large numbers and wide variability of imported goods, such as amphorae, a picture that is quite different from that recorded for typical 'consumption sites'. This suggests that the site occupied an important role in regional trade and may have functioned as a centre of (re)distribution of goods. There is evidence that within this lifespan, the site changed in extent and function; this detail could only have been recovered using the intensive survey methodologies adopted within the project.

At Ad Medias, the settlement seems to have been less extensive, both geographically and chronologically. The geophysical data reveals some possible tombs and industrial activity (which the slag suggests was related to metalworking). However, they also revealed unexpected large infrastructural elements, such as a north–south canal some 6 m wide (see Fig. 2 and evidence of centuration systems.). In this area, fieldwalking led to the identification of two discrete scatters of finds, both close to the *Decennovium* canal, southwest of the *Casale di Mesa*. The southernmost of these scatters lies next to a bulge in the canal and corresponds to the area where the geophysical survey recorded a noisy signal. The presence of slag (beside pottery and building materials) indicates that metal production took place in this area. The collected pottery dates the site between Late Republican times and the 4th century AD, whilst the presence of glazed ceramics indicates a post-Roman phase of occupation. The second scatter, situated slightly to the northwest, corresponds to the location of a rectangular structure visible in a 1:5,000 topographic map from the 1920s. It is larger than the first one and contains tile, pottery and building debris. These materials date mostly to the Republican period (4th to 1st centuries BC), although glazed pottery suggests that this area was also reoccupied in post-Roman times.

CONCLUSION

The combination of geophysical survey and intensive fieldwalking has yielded new insights into the form, function and local economic role of two minor centres in Roman-age central Italy. These insights were made possible by the close cooperation between the geophysical and archaeological surveyors, with results being fed back to inform and update field strategies in real time.

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