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The upper Agri valley (in Basilicata): Geoarchaeology and Ancient Topography of an inland mountain landscape

Historically, the upper Agri valley is one of the most important connecting routes between the Ionian coast, the interior, and the Tyrrhenian coast. One of the aims of this project is to study the context extensively, in particular the landscape produced by a series of historical events. In addition we will aim to identify the reciprocal influences between geomorphology and ancient settlements, and to reconstruct the historical evolution of the landscape. Finally, we intend to create a 'Map of Archaeological Potential', which can be interpreted as an "Archaeological Risk Map". This reconstruction has demonstrated that in the Lucanian period the distribution of settlements was very dense. A similar network of settlements was present during the Roman Republican period in relation to the establishment of Grumentum followed by the Gracchan centuriation. Finally, after the process of "Romanization" was complete, the modes of land use changed again.

Introduction

Ancient topography is the discipline that studies the reconstruction of the organization of a territory through the analysis of the interaction between man and the environment throughout history. This definition, which was adopted at the University of Bologna, was formulated by Nereo Alfieri¹, one of the founders of the discipline of Ancient Topography. It involves analyzing the historical evolution of a territory by superimposing data on several levels. Thus, the landscape is defined as the totality of homogenous components of a territory whose specific characteristics derive from the environment, human history and their reciprocal relations². Therefore, the historical topographical and archaeological analysis must necessarily include a geomorphological and environmental study.

This means that Ancient Topography, a typical Italian discipline, is different from Landscape Archaeology. It does not stop at the reconstruction of the landscape by means of surface finds (which, though fundamental, is only partial under some points of view³), but presupposes an inter-disciplinary study, in which different tools (such as written sources, archival records, maps and aerial photography, geological, geomorphological, and paleoenvironmental data, toponymy and archaeological records) are treated as being of equal value in reconstructing the historical evolution of the landscape.

Southern Basilicata has been important for research in Ancient Topography since the work of Dinu

1 Alfieri 2000, 13.

2 This definition is given from the Italian Cultural Heritage code (article 131 law 42/2004).

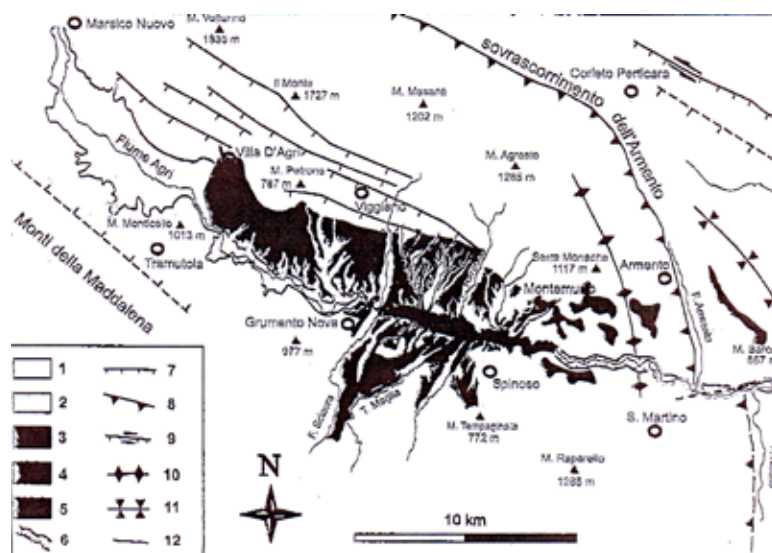
3 Dall'Aglio 2000, 233-241.

Adamesteanu in the 1960's; furthermore the Sinni Valley has been studied by Lorenzo Quilici since the beginning of the year 2000, in a project of the Department of Archaeology (University of Bologna).

Currently, the DiSCi (Department of History, Cultures, and Civilization of Alma Mater Studiorum – University of Bologna) is conducting a research project (in cooperation with the Sapienza University of Rome) in the upper Agri valley. Historically, the upper Agri valley has been one of the most important connecting routes between the Ionian coast, the hinterland, and the Tyrrhenian coast. Moreover it is the area with the highest agricultural potential of inland Basilicata. One of the aims of the project is to study this context extensively, meaning the geography produced by a series of historical events⁴. Some additional factors will be central to our research, such as the identification of reciprocal influences between the geomorphology and the ancient settlements, the reconstruction of the landscape's historical evolution and, finally, the creation of a 'Potential Archaeology Map', to be understood as an "Archaeological Risk Map". In this paper some difficulties in the research are dealt with and some preliminary results presented⁵.

Geomorphological and paleoenvironmental data

The upper Agri valley, in the south-western sector of Basilicata, appears as a depression generated after the Apennine orogeny and moulded by tectonic processes and fluvial geomorphology. The average altitude of the valley, which is orientated NW-SE, is about 600 m above sea level. The valley is bordered on both sides by the Apennine Mountains, which differ in shape: the NE side appears impressive and steeply sloping while the SW side of the mountains is more gentle and hilly. The boundary between the middle and upper valley is marked by a massive anticline (called the "Anticlinale del sovrascorrimento dell'Armento"), oriented transversely NS towards the course of the River Agri, whose tectonic movements have been influenced by the fluvial action upstream⁶.



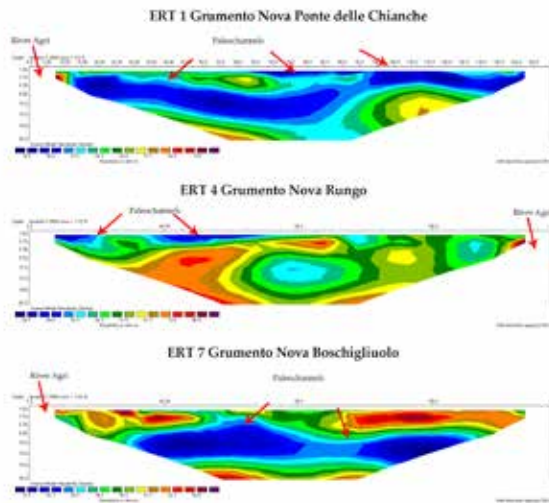
The upper Agri valley: on the right the Anticline of Armento (from Bianca, Caputo 2003)

In the Pleistocene, the valley was a lake basin which was the result of a barrier that blocked the valley forming a natural threshold. When the rate of erosion of the threshold exceeded the rising rate of the anticline, the valley experienced an alternation of river and lake phases and ultimately the progressive emptying of the paleo-lake. Below the threshold the river drops steeply. Starting from the threshold (which is like a bottleneck that causes drainage problems, and in fact is known with the name of Per-tusillo, i.e. "small hole"), and running towards the mountains, the main collector and its tributaries

4 Cambi 2011, 31.

5 The research team is made up of Francesco Tarlano (archaeologist), Julian Bogdani (archaeologist), Nicola Mileo (archaeologist), Antonio Priore (geologist), and Assunta Florenzano (paleo botanist).

6 Bianca, Caputo, 2003, 162.



ERT restitutions in the upper Agri valley (Grumento Nova), with the identification of some Agri paleochannels (image by A. Priore).

enter the valley. The pressure of the tributaries on the left side of the River Agri, which collect the surface water from the most commanding side of the Apennine chain, force the River Agri to flow along the south side of the mountain range.

One phase of our research consisted of data collection by means of geophysical surveys carried out along the waterways of the River Agri. We performed a series of surveys using geoelectric prospecting ERT (Electrical Resistive Tomography), using electrical charges to measure underground anomalies. To investigate archaeologically significant areas we carried out prospections that were located in different areas of the valley, always perpendicular to the watercourse. This allowed us to recognize some paleochannels and then to reconstruct the dynamics of recent fluvial action. Due to their rapid formation, the shift of the riverbeds is of fundamental importance for the identification of the most favourable sites for human activity which would be least prone to particularly violent natural disasters.

On this basis we created the Geomorphological Map of the upper Agri valley, and added the main geomorphological features of the territory to the To-

have caused regressive erosion resulting in the formation of the ideal profile of the river⁷.

This erosion produces alluvial terraces of a particularly impressive shape. In fact, the river cuts into the surface up to a depth of 10 to 20 meters. The upstream erosion stops near another perpendicular geological structure causing another steep drop in the River Agri. This area is located between Monticello, Tramutola and the Costa del Signore of Marsicovetere, and is characterized by the presence of exposed limestone dating from the Jurassic and Lower Cretaceous eras. Going upstream, the area is flat and liable to flooding, with the river running at ground level. It is characterized by the presence of alluvial fans, some still active and generated by the action of tributaries as they



Samples taken in the Giudea cut with archaeological layers (Grumento Nova)

7 Tarlano 2013, 233-234.

pographical map, also including the results of the geological surveys. Through the study of the aerial photos taken in periods in which the urbanization level was quite low, and the geological disposition of the territory quite uncontaminated by infrastructure and hydraulic works of the land reclamation authority, we identified several morphological forms. The aerial photos from 1951, analyzed through stereoscopic tools, revealed a moderate anthropization rate, a very low vegetation coverage and the alluvial activity of the main rivers of the valley.

Later, we conducted five excavation surveys in areas that had not yet been examined through ERT, studying the geo-archaeological layers and collecting numerous samples for pollen analysis and radiocarbon dating. The samples proved to be quite poor in vegetal material, with few pollen shapes. The pollen oxidation level may be caused by the succession of erosional and re-depositional activities, perhaps connected to several violent and unexpected river actions. Only in the suburban site of Giudea does the area seem to have been urbanized during the Roman Imperial period, while in the phase immediately previous to that (between the Lucanian and Roman Republican periods) it was an open landscape, probably with cereal cultivation in the plain, and with the woodland at some distance from the site.

Archaeological history data

Physical Geography has decisively influenced the choices of man on how this territory was used. Apart from the first sporadic discoveries of Pleistocene material and lithics, the first settlement sites date to the Early Neolithic period, when humans occupied several alluvial fans (Molinara, Alli...). There are few data from the Eneolithic Age, but in the Bronze Age some hill sites were occupied (Murgia Sant'Angelo, Civita di Paterno, Croce, Circiello). These were linked to small settlements at the bottom of the valley (Barricelle, Masseria Piccinini, Pagliarone, Maglianese, Mattinelle, Porcili)⁸. The Apennine Culture was widespread in this area, especially in the Middle Bronze Age.

For the first part of the Iron Age, and the Oenotrian period, the archaeological records are very poor, so we cannot evaluate the density and the typology of the population and the settlements with any accuracy. The only evidence we have for that period is several disturbed graves in Marsico Nuovo (in the contrada Agri and contrada San Donato)⁹.

Starting in the second half of the V century B.C., the arrival of Lucanians, an Osco-sabellic population who slowly established themselves in the "poleis" cities of Magna Graecia and in the inland Oenotrian villa-



The hill of Murgia Sant'Angelo (Moliterno), settled in the Bronze Age

⁸ Bianco, Preite, Natali 2010, 21-38.

⁹ Bottini 1997, 65-67.

ges, produced a process of “Lucanianization” of the territory, which took the form of new patterns of settlements. It is possible to detect a large network of small family-based farms, exploiting the land for agricultural subsistence, flanked by several luxury residences (such as one at the *Masseria Nigro*), and holy places (as in *San Marco*), where the noble elite are likely to have met¹⁰.



The Grumentum terrace, overlooking the River Agri. In the background, the medieval villages of Saponaria-Grumento Nova and Moliterno, and the Sirino massif (image by A. Priore)

The Lucanians also created some hilltop sites enclosed by impressive fortifications built in polygonal masonry (both fortified settlements and small forts for use in emergencies, like *Civita di Marsico Nuovo*, *Civita di Marsicovetere*, *Castelli di Tramutola* and *Madonna del Vetere di Moliterno*)¹¹.

At the end of the urbanization process carried out by the Lucanians in different areas (*Cozzo Presepe*, *Laos*, *Pomarico*, *Monte Coppolo*), at the beginning of the III century B.C., they founded *Grumentum* in the upper *Agri* valley, with a regular urban grid, raised above the valley bottom on an alluvial terrace protected by slopes in a position suitable for the control of an important intersection between valley floor routes and mountain passes¹². The birth of the town is an example of “self-Romanization”, a process in which the local population fully conformed to Roman urbanistic and cultural patterns¹³, while nevertheless maintaining some Greek characteristics that originated from the cities on the



The calidarium of Imperial thermal baths of Grumentum

10 Russo 2005, 19-24.

11 Bianco, Tarlano 2011.

12 Giardino 2010, 55; Tarlano 2010a, 79-101.

13 La Torre 2011, 234.

coast¹⁴.

The town, affected by some military events during Hannibal's campaigns and later during the Social War, was subject to a very slow process of Romanization that started in the III century B.C., expanded with the Gracchan centuriation¹⁵ and ended only after the establishment of a Roman colony in the I century B.C., when the small Republican village became a big Imperial town. The city expanded further during the I century A.D., when the greatest monuments were built, and became the focus of the region until Late Antiquity¹⁶. Starting from the V-VI century A.D., following a common process, the town lost its centrality, and was slowly abandoned, resulting in the birth of new hilltop sites intended to control the territory; these medieval villages define the distribution of urban settlements in the valley even today.

During our research project, we have studied the landscape through a series of archaeological surveys in the Districts of Grumento Nova, Viggiano and Spinoso. We have discovered some important sites including two hilltop settlements. In Civita di Marsicovetere, in addition to the ruins of a fortified medieval village, we collected pottery and artifacts from the Hellenistic-Lucanian Age.

Moreover, another archaeological site has been discovered on the top of the hill "Il Monte" in Grumento Nova. The high density of scattered pottery (black glazed ware, common ware, dolia fragments) and other artifacts (roof tiles), generally date to the Hellenistic-Lucanian period, and the remains of some dry-stone walls (sometimes with double curtain and emplekton) can possibly be connected to a hilltop site with double fortifications, one on the top, the other on the eastern slope. The position of the site is ideal for the control of both sides of the valley and for a wide view across the surrounding territory. We also



The hill of Civita di Marsicovetere, with the ruins of a Medieval settlement, covering a Lucanian site



Remains of a fortification wall in Il Monte - Santo Spirito (Grumento Nova)

14 Sommella 1988, 91.

15 Tarlano 2010b, 77-90; Tarlano 2010c, 323-328.

16 Bottini 1997, 155.

found a few artifacts (pottery of impasto clay) from the Middle Bronze Age (Apennine Culture).

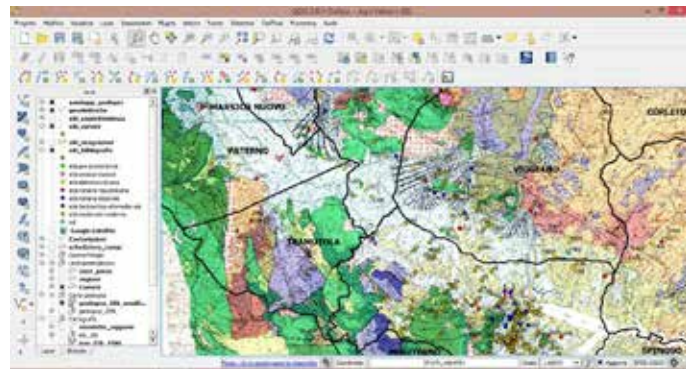
In the 2012 and 2013 survey campaigns we found several sites with remains of buildings and scattered pottery probably of the Hellenistic-Lucanian period, that perhaps can be interpreted as housing units: the presence of black glazed pottery, with known forms from the IV-III centuries B.C., might indicate the existence of small Lucanian farms (single family housing units) situated on the valley bottom, or on the top of the fluvial terraces (sites



The site of Boschigliuolo (Grumento Nova), with scattered Roman pottery

of Grumento Nova Campestrini and Grumento Nova Mattina), or on the slopes (sites of Viggiano Catacombelle and Marsicovetere San Giovanni¹⁷).

In addition, we discovered some sites with pottery generally of Roman date, including scattered black glazed pottery and Italian Terra Sigillata: so we suppose these sites had a settlement continuity, probably starting from the II century B.C., at least until the end of the I century A.D. Some of these sites have a very high density of artifact scatters covering wide areas. Obviously, one survey is not enough to categorize a site into a specific typology or chronology, because of the many methodological problems¹⁸, but we assume that some of these archaeological sites may indicate the existence of big rural settlements, with the double function of residence and production. Furthermore, the Roman Imperial villa typology is very common in inland Basilicata (for instance the Roman villae of San Giovanni near Ruoti¹⁹, Masseria Ciccotti²⁰ and San Gilio near Oppido Lucano, San Pietro near Tolve, Pietrastretta near Vietri di Potenza²¹), and in the Agri valley, too (imperial villa at Barricelle near Marsicovetere²²).



GIS database, with the Geomorphologic Map and the Archaeologic Map

17 Marsicovetere San Giovanni Lucanian site was found by me during an archaeological supervision in a building site, on behalf of the Archaeologic Superintendency of Basilicata (director dr. Salvatore Pagliuca).

18 See also Dall'Aglio 2000, 233-241.

19 Small 2008, 425-469; Small, Buck 1994.

20 Gualtieri 2008, 265-287.

21 See Russo, Di Giuseppe 2008.

22 Gargano 2010, 67-76.

Also worth noting, because of their wealth of architectural remains and of the scattered pottery, are the new sites (discovered by survey) of Grumento Nova Serra San Pietro (in the Grumentum suburbs), Grumento Nova Rungo – San Vito, San Giuliano–Fosso dei Tufi near Grumento Nova, San Giuliano– Monte delle Vigne near Grumento Nova, San Giuliano–Casa Cantoniera near Grumento Nova, Grumento Nova Boschigliuolo, Spino-so Tempagnata, and Marsicovetere Paglierina – Masseria Giampietro²³.

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23 Tarlano 2014, 418.

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