



The Bisenzio Project: preliminary results of the first year research

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The Bisenzio Project

The small Bisenzio Hill rises on the SW shore of the volcanic lake Bolsena, four kilometers north of the modern town Capodimonte (Viterbo – Lazio) (fig. 1). With 404.8 m in height, it dominates the lake, nowadays at about 305 m asl. Both on the top of the so called 'Monte Bisenzio' as well as its gentle slopes, a dynamic Etruscan city thrived between the 9th and the beginning of the 5th centuries BC (fig. 2). Despite the many discoveries, it is little known to the public aside from a small circle of specialists, and a relevant amount of evidence still remains unpublished. Since 2015, an international and multidisciplinary research project, created and coordinated by Dr. Andrea Babbi, has been throwing new light on this intriguing and rich Etruscan settlement. In the framework of this project, supported by Deutsche Forschungsgemeinschaft during a three-year period (2015-2017) and made possible by Soprintendenza Archeologia del Lazio e dell'Etruria Meridionale that generously granted Dr. Andrea Babbi the permits of study and publication, an international team made up of prestigious research institutions embarked on a broad spectrum of research. The study of the archaeological artefacts and the analysis of the pieces of evidence collected in the course of the field walking activities have been largely improved by the geophysical investigation (carried on by the Ludwig Boltzmann Institute*) of the still submerged contexts (geo-radar survey), and the thorough geological investigations (carried on by ISPRA). They aim to offer a thorough study of Bisenzio seen as a complex system consisting of a settlement, suburbs, and cemeteries, harmoniously and dynamically connected with the surrounding territory.

In this poster the results of field surveys conducted by ISPRA's geologists are shown. The team of ISPRA researchers belongs to the PHESS Group (*), involved in studies concerning geoaerology, geomorphology and applied geology. The Project's goal in fact is to develop a contribution to the study of the present conditions of the territory, through the analysis of environmental changes that occurred during the Holocene, in particular from a geomorphological point of view, using Earth Sciences analyses' methods.



Fig. 1 - Upper right: Italian Peninsula and location of Bisenzio. Fig. 2 - View of the south side of the Bisenzio Hill, watched by Olmo Bello plain.

Fig. 3 - Digital terrain model of the area of Bisenzio Hill with the likely extension of the vegetation cover and the lake level during the Final Bronze Age.



Fig. 4 - Bisenzio: Olmo Bello burial plot, Grave 2, gold pendants and amber beads of a necklace.

Fig. 6 - Map of the region with spheres of interest regarding major centers Orvieto, Vulci and Tarquinia and their expansion trends in the Bolsena Lake drainage.

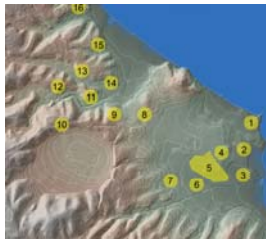


Fig. 5 - Bisenzio: Olmo Bello burial plot, Grave 22, bronze vase.

Fig. 8 - Digital terrain model of the area of Bisenzio Hill with the location of burial plots cited in the text.

Development and decline of the Etruscan Bisenzio

Landscape marks played a pivotal role as far as the inception of a permanent settlement on Bisenzio Hill is concerned. In point of fact, during the 2nd millennium BC the lake level was about 7 m lower, therefore, the lake shoreline was up to circa 200-230 m further off the present-day shore. As a consequence, Bisenzio, was situated in the middle of a plain bordered by the lake in the east and by the hills in the west. Besides, the presence of a lake or wetland in the nearby caldera named «Lagaccione» and lush vegetation cover on the hills made Bisenzio Hill and its slopes a must for those traveling along the W coastline (fig. 3). Most importantly, the Bisenzio area was a real hub through which the Tyrrhenian networks (Vulci district, Fiora-Opeta rivers; Tarquinia district, Marta river) connected both to the Tiber Valley, by crossing the lake, and the S-N paths linking Mount Amiata to the Cimini Mountains. The availability of fresh water, food supplies granted by fishing and farming and a location with a medium-high defensive potential made Bisenzio a major settlement.

In the vicinity of the hill named 'Monte Bisenzio', frequented since the Bronze Age and inhabited during the Final Bronze Age (11th-10th century BCE), a dynamic community prospered between the late 10th and the very early 5th BC. To this extent, Bisenzio seems to be an exception in the region between the W bank of Bolsena Lake and the Tyrrhenian coastal district. In fact, despite its small summit and the gentle slopes largely characterizing its perimeter, the site and its region underwent a development similar to that of the sites pinpointed near the coastline such as Vulci, Tarquinia, Caere, located on huge plateau naturally defended. The existence of a wide settlement flourishing continuously since EIA is confirmed by the many graves and tombs scattered respectively across the fields neighboring the hillsides and along the slightly more distant tufaceous cliffs. The sheer number of artifacts that accompanied the deceased to the afterlife, and their material, aesthetic and technological value are a reflection of the high social prestige of the buried individuals. The shapes, decorations and manufacturing techniques, very similar to those that characterize Mediterranean production (fig. 4), as well as the quite distant Central European production (fig. 5), are further confirmation of the complex network of contacts shared by the prominent families of the area, especially between the 8th and 7th centuries BC. Similarly to other centers scattered across the neighboring areas (e.g. Civita di Grotte di Castro, Civita di Arlena, and slightly further south Acquarossa), Bisenzio experienced a radical crisis at the 6th-5th c. BC transition. The grounds for this phenomenon still remain unclear and require assessment. For the time being, an interesting hypothesis can be put forward: the peculiar location of the above mentioned centers transformed them into fundamental points in the intense network connecting peoples and identities between the Tyrrhenian coastline and the Tiber valley; this same intensity could have determined their end around the early 5th c. BC, when the political communities Vulci, Tarquinia, Cerveteri, and Orvieto ceased to tolerate the coexistence of resourceful aristocratic enclaves in their neighboring territories (fig. 6) (Babbi, 2016).

Geological setting



The study area (blue box in fig.7) is located SW of Bolsena Lake, a volcano-tectonic in origin depression, linked to the activity of the Vulturno Volcanic District. The Vulturno Volcanic District activity took place in a lapse between 600,000 and 100,000 years ago, including more than a hundred eruptive centers and the four caldera depressions of Bolsena Lake, Montefiascone, Latera and Veve. The area extends along the eastern side of the eastern margin of Latera caldera, formed during the final stage of Vulturno volcanism, and includes the volcanic structures of Lagaccione, Colle della Palazzetta and Monte Bisenzio.

Fig. 7 - Simplified structural map of Vulturno Volcanic District. Legend: 1) caldera rim; 2) main; 3) smaller cone; 4) surficial activity.

In the southern and south-eastern sector of M. Bisenzio prevail "pozzo" graves and "tossaa" graves into the lava formation lying at shallow depth below ground level (location: 1. S. Bernardino; 2. Porto Madonna; 3. Polledara; 4. Bucacco; 5. Olmo Bello; 6. Pianata; 7. Cinesiretro). In this area, in collaboration with Rosa Riviccio - researcher at the CRA - RPS Council for Agricultural Research and Analysis of Agricultural Economics (Rome) - was carried out a hand-drilling campaign (prof. 2 m), which highlighted the existence of under-developed soil covers, with sandy loam texture, strongly influenced by agricultural practices (figs. 10 and 11).



Fig. 10 (above): "camera" graves of Poggio Palombo. Fig. 10 and 11 (right): images related to the execution of hand augers.

The cemeteries

The articulated landscape, including volcanic edges and sides from less sloping to very steep, underlying summit flat surfaces and eroded by a packed hydrographic network, contributed - in addition to the cultural factor - to influence the type of burial areas. In the west sector of M. Bisenzio prevail "a camera" burials along the tuff walls of the localities indicated as: 8. Palazzetta slopes; 9. Poggio di Mira; 10. Fontana del Castagno; 11. Poggio Palombo; 12. Poggio Elder; 13. Valle Sacoccia; 14. Valle the Spinetto; 15. Casale the Garden; 16. Grotte di Mereo (fig. 9).

Landscape evolution: preliminary results

II interval: Upper Pleistocene

During the last glacial period (Last Glacial Maximum), the Lake of Bolsena undergoes oscillations that bring water level at an elevation higher than the one at present. Margottini & Puglisi (1994) recognize three different levels of lake, standing at +26, +16 and +6 m (respectively) compared to the current lake level of 304 m a.s.l., proved by eroded escarpments and suspended lake deposits that, however, do not show clear evidences in the study area.

30 Ky BP

100 Ky BP

12 Ky BP

III interval: Lower and Medium Holocene

The increase in temperature and in humidity levels characterize the beginning of the Holocene period, fostering the reduction of the lake level of Bolsena (fig. 12), along whose banks - much larger than the ones at present - the first Neolithic settlements begin to arrange. The palynological study of the lacustrine sediments from Lagaccione (Magri, 1999) indicates that the landscape was covered by a mixed oak forest and a wide diffusion of beeches. This trend is constant until soon after about 7000 yr B.P. all the arboreal species decrease, with the exception of oaks.

4,5 Ky BP

IV interval: Upper Holocene

The level of Bolsena Lake during the Bronze Age is 7 meters lower than the current level: in that wide emerged area surrounding the Bisenzio hill (fig. 12), settlements and others structures like stones' circles (called "aiole") are common. The subsequent uplifting of the lake level gives rise to the apparent change of position of the two islands mentioned by Plinio il Vecchio and Procopio (VI cent. A.C.). The territory is still covered by forests, although spaced out with meadows areas and human settlements, as indicated by the presence of traces and pollen of Castanea and cereal plants (Magri, 1999). In the Etruscan age (2.7 to 2.5 ky B.P.) the area was still partially covered by forests, but with the beginning of the Roman period (early fourth century A.C.) deforestation increases further (Ward-Perkins, 1962).

A.D.

V interval: età romana – present day

The Lagaccione Lake is still shown in the maps of the seventeenth century (fig. 13). It will be artificially dried out in the 700 (fig.14). The level of Bolsena Lake does not reveal substantial changes in historical times (Fioravanti, 1994). Within the alluvial sequence of Fosso Spinetto it was detected a massive deposit, brown, with silty-sandy grain size, sealed by a layer with fragments of bricks of Roman-Medieval age (fig. 15). The colour and the high content of soil and organic matter of the deposit are due to the accumulation of soil eroded from the slopes, probably caused by a change in the weather conditions, in agreement with what reported by Potter (1985) and Judson (1963) that recognize very thick deposits in the southern Etruria valley floors, hanged out during the first two centuries of the Roman Empire, and later buried under thick layers of alluvium. Along the Fosso della Nocchia stream were recognized recent alluvial deposits, with laminar structure, densely layered, in which is possible to recognize more events due to fluvial traction phenomena (fig. 16) and others, with massive and chaotic structure, related to depositional mechanisms created by hyperconcentrated flows. These deposits are rich in common ceramic fragments and bricks of different ages. In the upper part of the deposits, the presence of items dating back to the early '900, suggests that we can deal with a flood sequence linked to climatic fluctuations of the LIA (Little Ice Age).



Fig. 13 (above): copper engraving of 1657 showing what remains of Lagaccione Lake at that time. Fig. 14 (below): in depictions at the end of the '700s the lake does not appear anymore.

Fig. 15: (left) alluvial sequence of Fosso Spinetto containing a massive deposit, brown, with silty-sandy grain size, sealed by a layer with fragments of bricks of Roman-Medieval age. Fig. 16 (below): Fosso della Nocchia recent alluvial deposits probably related with climatic fluctuations of the LIA.

CITED BIBLIOGRAPHY

Babbi A. (2016) - Bisenzio between proto-history and the archaic period: the Research Project. *Annali della Fondazione per il Museo «Claudio Faina»*, XXIII, 2016, in press.
Fioravanti A. (1994) - *Palii e palafitte di ieri e di oggi*. Atti Seminario "Forma Lacus Antiqui", Bolsena, 1994, p. 1-46.
Judson S. (1963) - *Erosion and Deposition of Italian Stream Valley during Historical Time*. *Science*, 140 pp. 898-899.
Magri D. (1999) - *Late Quaternary vegetation history at Lagaccione near Lago di Bolsena (central Italy)*. *Rev. of Pal. and Palynology*, 106, 171-208.
Margottini C. & Puglisi G. (1994) - *Le variazioni di livello del lago di Bolsena nella cronologia postglaciale*. Atti Seminario "Forma Lacus Antiqui", Bolsena, 1994, p. 47-69.
Potter T. W. (1985) - *Storia del paesaggio dell'Etruria meridionale*. NIS, 197 pp.
Ward-Perkins J.S. (1962) - *Etruscan Towns, Roman Roads and Medieval Villages: the Historical Geography of Southern Etruria*. *The Geographical Journal*, vol. 128, 4, pp. 389-404.

(*) For a more exhaustive picture of the Bisenzio Project, please visit:

ISPRA - Bisenzio Project: http://www.isprambiente.gov.it/en/projects/soil-and-territory/bisenzio-project?set_language=en
RÖMISCH-GERMANISCHES ZENTRALMUSEUM: <http://web.rgmz.de/en/research/research-areas/a/article/bisenzio-multi-disciplinary-research-on-a-major-etruscan-centre-from-the-late-bronze-age-to-the-arc.html>
LUDWIG BOLTZMANN INSTITUTE: <http://archpro.tbg.ac.at/search-etruscan-settlement-bisenzio-lago-di-bolsena-italy>

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