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Giuseppe Amoruso Editor

Putting Tradition into Practice: Heritage, Place and Design

Proceedings of 5th INTBAU International Annual Event





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Saturnia Museum: The Architectural Survey for the Urban Museum and Enhancement of the Historic Centre

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Abstract. The ancient Tuscan town of Saturnia is both witness and custodian of a long sedimentation of history: a rich archaeological heritage is present in a very noticeable way even in its historical center and in the architectural remains and archaeological finds which have "decorated" the whole town in a spontaneous way; the Saturnia Museum project is dedicated to the musealisation of this important heritage of the town's historical center.

Keywords: Saturnia · Archaeological survey measurements · Musealisation · Urban museum

1 Introduction

Saturnia is a small Tuscan town in the Maremma region, well known in the European thermal tourism scene with an ancient tradition that has its roots in a precious thermo-natural heritage, which makes the small town the most attractive area in the Municipality of Manciano, located in the province of Grosseto (with only 7,800 residents in the Municipality of Manciano, in 2015 the tourist inflow was approximately 220,000, source: Municipality of Manciano, Department of Tourism and Culture).

The wealth of sulfur springs, which in ancient times gave rise to a veritable cult of water, was already documented during the Roman colonial age, when the top of the massive travertine plateau, naturally well defended by steep walls, on which Saturnia stands (the city is located at an altitude of 294 mt) assumed the *forma urbis* regulated by an orthogonal system, city walls and a forum. The small village throughout the centuries gradually took on the structure as the perched center of a substantially intact territory that provides the town with a considerable heritage in terms of landscape and architecture, which the *Saturnia Museum* project has placed at the center of its intervention strategy.

1.1 Foundation: The Historical and Environmental Context

The position of Saturnia, at the confluence of two rivers that constituted natural access routes into Etruria - the Albegna river - and southern Etruria - the Fiora river - (Fig. 1)

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is the most important factor that explains why humans settled in the region since ancient times: the first traces that the territory of Saturnia had been inhabited consist, in fact, of pre- and proto-historical findings, which testify the existence of scattered settlements [1] and, above all, in the Bronze Age, of a first uninterrupted settlement on the plateau, which is documented by places of worship, huts and burials.

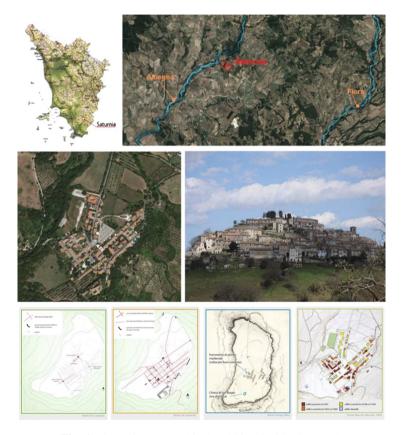


Fig. 1. Saturnia: geographical and historical background.

The ancient origins of Saturnia are subsequently found also in the structures of public buildings, homes and constructions used to retain water (to mention only the two most important: on top of the town, where the citadel was built in the 15th century, are the remains of a large concrete construction which incorporates in part the citadel itself; the construction materials and the finishing enamel have generated the hypothesis that it was a great castellum aquae, connected by lead pipes to the so-called Bagno Secco, a reservoir of water dug in travertine stone), constituting evidence in the 6th century B.C. of a town structured on a paved road, the current via Aurinia; the archaic and, then, Etruscan necropolis of Saturnia, which document its vitality since the Villanovan age, are located outside the town along a natural path: among them we mention the most

important, Pian di Palma – located approximately 3 km to the north of the town - used up to the Romanization period.

As a consequence of the first defeats inflicted on the Etruscans by the Romans (V-IV centuries), the trade routes retreated from the coast to the interior, a circumstance that favoured the development of trade in the Albegna and Fiora valleys, and the demographic and commercial expansion of Saturnia, which lasted for a short period due to the final fall of the most important commercial center in the region, Vulci.

With the Romanization of South Etruria, probably during the first half of the third century BC, the *praefectura* was instituted in Saturnia, a phase preceding the *deductio* as a Roman colony. According to the attestation of Titus Livius, in fact, in 183 BC the triumvirate of Quinto Fabio Labeo, Caio Afranio Stellio and Tiberio Sempronio Gracchus established the *civium Romanorum* colony of Saturnia [2]: the allocation of land to settlers thus marks the economic recovery of Roman Saturnia, which also sees the surroundings heavily modified by the new centurial regularization.

The settlement assumed the aspect of a city: walls were erected for its defense, with the urban plan based on an orthogonal grid and, above all, the large space of the current Piazza Vittorio Veneto was regularized and transformed into the forum, on whose margin stands the monumental cistern, perhaps a place dedicated to the cult of healthy and infernal waters: the dense network of works intended for water supply and storage, widely present in the surrounding area and the town itself, date back to this period.

Following defeat in the Sulla's civil wars in 82 A.D., the city was partially destroyed and initiated a long period of contraction and subsequent demographic and economic adjustment that culminated in the decline of the city during the Imperial age.

The history of Saturnia relevant for the present study, which is dedicated to the enhancement of the great archaeological heritage of Roman times that characterizes the town, ends here (Fig. 1).

1.2 Antecedents

As proof of the regular nature of the urban distribution of the old town plan, set on a *cardo* and a *decumanus* in connection with the four city gates, there are the numerous remains of Roman buildings which emerge from the subsoil of many houses as well as of the archpriest's church in Saturnia.

Large sections of the city walls are also conserved, on which, through the scenic Porta Romana, Via Clodia opens to frame the countryside; an angular pillar built with well squared blocks of travertine, which emerges from the ground for about three meters and to which adheres a half column (probably from an *horreum*), mosaics, portions of pavings made in *cocciopesto*, the cistern of Bagno Secco and dozens of movable archaeological finds such as *arae*, memorial stones, inscriptions, columns and drums, capitals, frame fragments, *stelae*, *tympani*, bas-reliefs and friezes with inscriptions, *lacunari* and lintels: a substantial collection of finds that as a result of the discoveries have been placed over decades in the town's open spaces and provide the visual backdrop and the constant presence which characterises this urban landscape in a truly unique way.

1.3 Hypothesis

But Saturnia is not only a place of memories: it is also typical example of the safe-guarding of landscape values; the elevated position on the Maremma countryside provides the small village with a vantage point of view on the surrounding landscape, visible from the edge of the town and from the rare openings of the city walls in the area (Fig. 2).

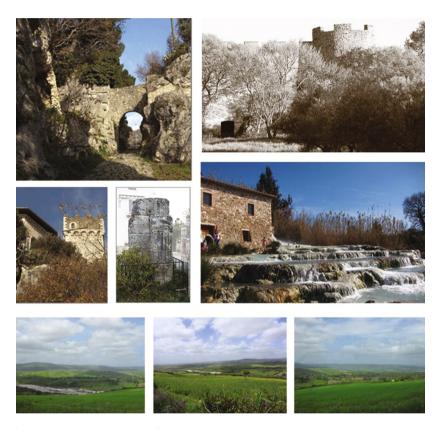


Fig. 2. The design assumptions of the place: the perceptual continuity between archeology and landscape.

The old town of Saturnia therefore vocationally presents the features of a town-museum where the continuous return of spatial landmarks between views of small and medium-scale objects and visuals of the landscape gradually unravel in the center a path that naturally integrates the archaeological heritage and the landscape in a series of spaces with a the strong character (Fig. 2).

The enhancement and deeper integration of the archaeological and landscape heritage are the main reason for the *Saturnia Museum* project, which is currently (April 2017) in its final phase.

2 Objectives

The *Saturnia Museum* project originated in 2011 with a platform of objectives focused on making visible and understandable as a unitary ensemble the multiplicity of structures and archaeological finds of the town's center, placed in a perceptual continuity with the surrounding landscape. On the one hand, in fact, the visitor comes across, mostly by chance, the various architectural points of archaeological interest and, on the other, the visit to the town is constantly punctuated by the movable finds randomly placed in flower beds, squares and *piazzette* that arouse the curiosity of the visitor without, however, providing any contextual information (Fig. 3).

In Saturnia an informal outdoor archaeological museum truly exists - assembled from a spontaneous collection of exhibits (the substantial archaeological heritage in this study was based on a fundamental census study by De Laurenzi A., *Saturnia-Regio VIII*, vol. XII, in Forma Italiae, in press) which has been classified but lacks a proper organization in terms of exhibition purposes - characterized by a dense presence of small areas or architectural points of interest and a series of amazing views of the Maremma countryside that required a museum design based on a few exhibition structures of minimal visual impact and on an adequately structured series of communication and information systems (Fig. 4).

If, in fact, the massive influx of tourists to the city is due to the presence of the spa, on the other hand, the Municipality of Manciano, of which Saturnia constitutes the busiest attraction, realized that a careful valorization of the archaeological and land-scape heritage of the area could be the added value that would balance, in cultural terms, the existing tourism offer.

In coordination with the Municipality of Manciano, the project proposal has adopted a series of intrinsic quality prerequisites and objectives related to the local approach: the choice, for example, of carrying out minimal visual impact interventions that insert naturally into the consolidated urban landscape, as well as that of carrying out work preparations in proximity to the place of destination etc.

3 Research Methods and Processes or Developments

The methodology was divided into three different modes/stages and each marked out its own disciplinary specificity of principles, instrumentation and methodology and was properly governed by an overall strategy:

- measurements and survey, documentation of the archaeological heritage and the urban context;
- 2. museological design concept;
- 3. abacus design.

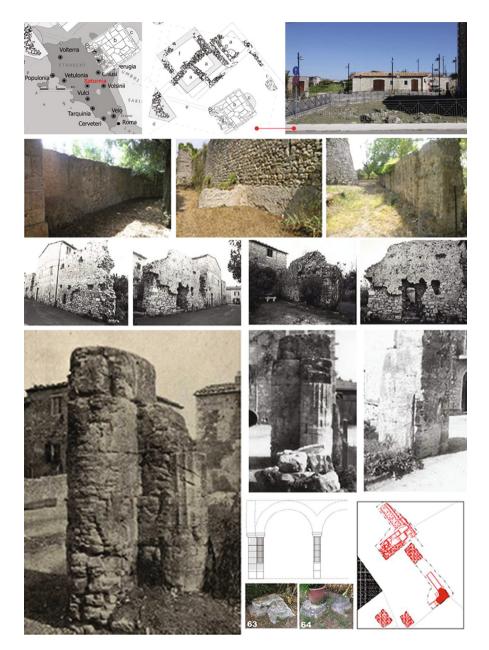


Fig. 3. The archaeological urban heritage of Saturnia.

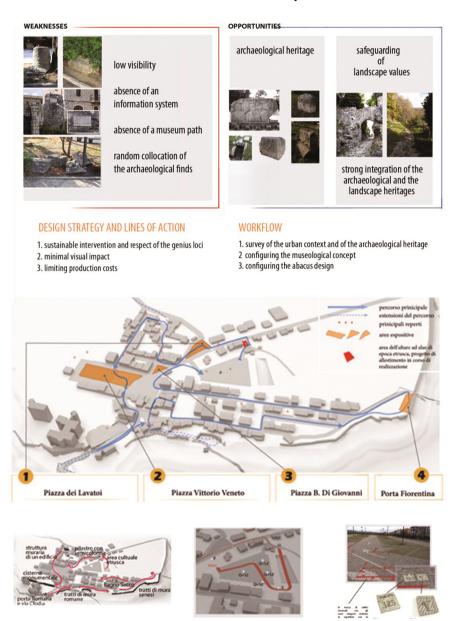


Fig. 4. Design strategy and lines of action.

3.1 Survey and Documentation of the Urban Context and of the Elements of the Archaeological Heritage

The specialized sources [3, 7, 13, 14, 17], provided the guidance for the identification and classification of the elements to be taken into account, which we identified as

"architectural finds", "object exhibits" and "track finds"; each of them was carried out by a morphometric reconnaissance (whenever the full survey followed by representations of the individual elements was not indispensable for the purposes of the project) and the respective metric documentation of their placing in the context, a decisive element for the next decision phase.

3.2 Configuring the Museological Concept

The outdoor museum is the physical materializing of a process that embodies the information design and display system through signaling and/or informational, as well as exhibition elements; the system is therefore articulated into:

- the information design has been deployed through totems, lecterns and panels, corner plates, pavement markers (Fig. 5a):
 - positioning of the totems that address the visual alignments from one point of interest to the other;
 - lecterns that integrate panels to indicate the presence of nearby significant places of interest, describing their characteristics with info-graphic contents in two languages;
 - corner plates and labels that indicate on walls the "architectural finds" which refer to many architectural episodes existing in the urban fabric, among which 17 points were identified to illustrate the path;
 - markers and/or plates on the ground that indicate 27 points classified and identified as "trace remains" where it is documented that there existed (or still exist but are not visible because they have been buried after discovery) archaeological materials now incorporated into buildings, or which are exposed but de-contextualized:
- the exposure system is constituted instead by structural elements that form the basis for the ordered and designed positioning of finds (Fig. 5b):
 - bases positioned on the ground with descriptive plaques and lighting for the placing of "object finds", among which, in the first phase of intervention, 24 movable finds existing in open spaces have been classified and identified.

3.3 Configuring the Abacus Design

After the concept design phase and in coordination with the consultant archaeologists, Corten was chosen as the material for the production of the wayfinding system and for the design of information elements of the abacus, due to the characteristics of "historicised language" that characterize it and to the chromatic affordance with the materials to which it must be juxtaposed (mainly marble and travertine).

The exhibition bases on which the "object finds" were placed (simply lifted from the ground and put in evidence thanks to the new position and to the series of arrangement of the bases) are made of colored cement paste with insertion of



EXHIBITION SYSTEM



Fig. 5. Synopsis of the designed information and exhibition systems.

crankcases made with Corten, which provide information (bilingual inscriptions in laser cutting) and hide the lighting elements that during the night allow the reading of the plates and emphasize the exhibition.

As regards the sizes and shapes of elements, the survey provided dimensional guidance for the purposes of a careful insertion that favours the visibility of elements without disturbing the consolidated existing urban environment, while the formal

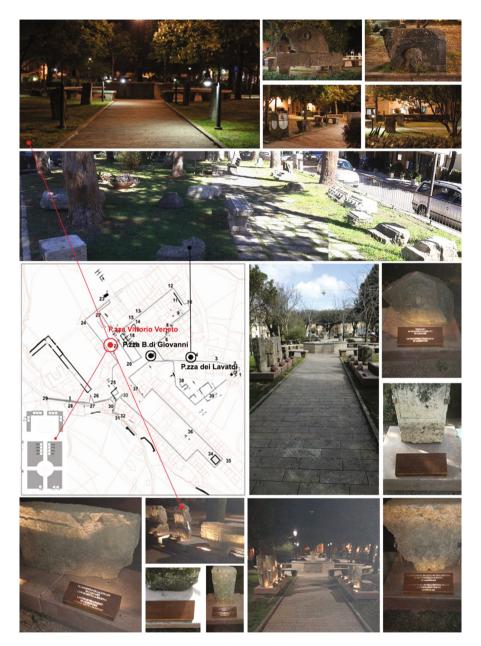


Fig. 6. General map of the planned interventions and realization of the first phase; Piazza Veneto before and after the intervention.

concept adhered to a process of signic thinning, favouring essential geometric and simple shapes.

4 Results and Conclusions

The open-air museum includes a series of stations equipped differently according to their features (to inform or to expose) with key points in 4 squares (Piazza dei Lavatoi, Piazza Di Giovanni, Piazza Vittorio Veneto, Porta Fiorentina) among which the central Piazza Vittorio Veneto, which we have chosen to carry out the first stage of the placing of the exhibition pedestals, concurrent with the general configuration of the system through the use of totems and information panels.

The second stage of intervention envisages the installation of pavement and wall markers, in addition to further exhibition pedestals.

The vocation as urban museum of the old town of Saturnia and the significance of the archaeological heritage very clearly represented, at the start of the work, the conditions for an enhancement proposal based on few fundamental topics: to overcome the critical factors due to the lack of any information apparatus, to the haphazard positioning of the movable finds (making them incomprehensible in their material, historical and typological nature), the lack of characterization of an open-air museum path (which could easily emerge with few, gentle and easy interventions), to a deficiency of a truly integrated interpretation of the continuum between the findings, the urban architectural scene, and the system of open spaces at both the environmental and landscape scales. Saving was therefore assumed as a general guideline for the intervention in terms of minimal visual impact, of limiting production costs and of choosing rewarding local production in order to achieve an overall sustainable intervention: deliberately minimal and respectful both of the *genius loci* and of the identity of the community (Fig. 6).

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References

- 1. Camporeale G (2004) Gli Etruschi: storia e civiltà. Utet, Torino
- Rendini P (1999) L'urbanistica di Saturnia. Un aggiornamento. In Città e monumenti nell'Italia antica. L'erma di Bretscheider, Roma

- 3. Dennis G (1883) The cities and cemeteries of Etruria. John Murray, London
- 4. Antinucci F (2010) Comunicare nel museo. Laterza, Roma
- Bertocci S, Arrighetti A (2015) Survey and documentation for archaeology. A special issue of SCIRES-IT 5(2)
- 6. Brusaporci S (2015) Handbook of research on emerging digital tools for architectural surveying, modeling, and representation. IGI Global, Hershey
- Cambi F, Carandini A (eds) (2002) Paesaggi d'Etruria. Valle dell'Albegna, Valle d'Oro, Valle del Chiarore, Valle del Tafone. Edizioni di Storia e letteratura, Roma
- Icomos (2008) The charter for the interpretation and presentation of cultural heritage sites.
 In: 16th general assembly of ICOMOS, Quebec, CA. http://www.icomos.org/charters/interpretation_e.pdf. Accessed 10 Feb 2017
- 9. Ippoliti E, Meschini A (2011) Tecnologie per la comunicazione culturale. Disegnarecon 4(8)
- Mencarelli G, Gullini G, Guercio M et al (2000) Beni culturali e ambientali. In: Treccani Enciclopedia Italiana - VI Appendice. DIALOG: http://www.treccani.it/enciclopedia/beniculturali-e-ambientali Enciclopedia-Italiana)/. Accessed 10 Feb 2017
- 11. Paoli F (2011) Passeggiata archeologica a Saturnia: un percorso museale all'aperto per scoprire la città e la sua storia. Dissertation, University of Florence
- 12. Trent JW (1975) Experimental acute renal failure. California
- Maccari P, Noccioli M (1995) Atlante storico delle città italiane. Manciano, Montemerano, Saturnia. Marsiliana, Roma
- 14. Pasqui A (1882) VII, Saturnia. Notizie Scavi 1882:52-62
- 15. Pescarin S (2016) SCIRES-IT 6(1)
- 16. Puma P (2012) Local cultures, global heritage: surveying, collecting, communicating new information models for knowledge and dissemination of cultural heritage. In: Niglio O (ed) Paisaje Cultural Urbano e Identitad Territorial. Aracne, Roma
- 17. Torelli M (ed) (1992) Atlante dei siti archeologici della Toscana. Giunta Regionale Toscana, Firenze