What Future for our Past? The Task of the Surveyor for Cultural Heritage Preservation

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Key words: Cultural Heritage, preservation

SUMMARY

This paper emphasizes the active role of the Italian surveyors in the protection of the territory and Cultural Heritage (CH), particularly in the case study of the archaeological park of Saepinum-Altilia, which belongs to the Molise museum network.
The team of surveyors of the Province of Campobasso College, in collaboration with the Archaeological Superintendence of Molise Region, surveyed and geo-referenced the archaeological area providing a substantial support for conservation planning.
The archaeological site of the Roman town of Saepinum (Sepino, locality Altilia, in Campobasso) is characterized by good preservation conditions of the Roman urban area and of the Augustan city walls (IV BC-II AD). Due to its exceptional condition, the site is one of the best preserved examples of archaeological landscape in Italy.
The aim of the work is to promote an initiative that could communicate, beyond regional boundaries, the artistic and historical heritage of the village and emphasize the role of the surveyor in the protection of the territory. The final goal of this work is to provide a systematic approach to the study of the monuments by integrating the results of different analyses, monitoring various data and giving feedback actions interconnected in an integrated information system.

SOMMARIO

Il presente lavoro vuole enfatizzare il ruolo attivo del geometra italiano nella tutela del territorio e dei beni culturali attraverso l'esperienza di rilievo architettonico eseguito all'interno del parco archeologico di Saepinum-Altilia, che rientra nella della rete museale del Molise. Il lavoro di rilievo dell'area è stato eseguito in collaborazione con la Soprintendenza ai Beni Archeologici della Regione Molise.
Il parco archeologico della città romana di Saepinum (Sepino, loc. Altilia-CB) si caratterizza per la buona conservazione del tessuto urbano romano e della cerchia delle mura di età augustea (4 a. C.-2 d. C.), realizzata da Tiberio e da Druso col bottino di guerra e costituisce uno degli esempi meglio conservati di paesaggio "archeologico".
L'obbiettivo finale del lavoro è quello di un approccio sistematico allo studio dei monumenti che vede il processo di integrazione delle scienze come risultato di azioni incrociate di integrazione e controllo fra i vari dati, di approfondimenti diagnostici pluridisciplinari e di feedback sulle informazioni, da interconnettere in un sistema informativo integrato.
L'intenzione è quella di promuovere un'iniziativa che possa far conoscere oltre i confini regionali il patrimonio storico-artistico-ambientale della località e ribadire l'importante ruolo che il geometra riveste nella tutela del territorio.

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1. INTRODUCTION

The social demand for environmentally compatible land use planning is very strong in Italy and requires the improvement of the available tools for administrators and planners for CH protection [1].
The study and preservation of ancient buildings are matters of many disciplines. Indeed, the issues related to the Architectural Heritage are of historical and technological nature.
The scientific directions that are outlined in the analysis of the built environment suggest combining the investigation and detection technologies with the historiographical approach. This will assist the identification, measurement, description and classification process of the building.
One of the professions that in recent years became increasingly important, in the field of Cultural Heritage and Landscape, is the Surveyor, due also to the multiplicity of skills that the profession offers.

2. THE ACTIVE ROLE OF THE SURVEYOR IN THE CULTURAL HERITAGE PRESERVATION

In Italy, the surveyor has an active role in the protection of cultural heritage, as employee of the Superintendence for Cultural Heritage, as manager of construction companies specialized in the restoration of monuments, in which is also head of security, and as external consultant in his freelance activity [2].
In special cases where there are archaeological finds and/or architectonic decorations, the surveyor site manager must create a relationship with the officers of the Superintendence (architects, archaeologists and art historians), for applying the recommendations given by them.
Moreover, in areas subject to landscape protection, the surveyor is qualified for planning intervention, within its technical expertise.
The landscape report (DPCM 12.12.2005), which must always accompany the project to obtain authorization from the Superintendent, must include a photo - rendering that is used to assess the inclusion of the proposed intervention in the landscape. In addition to those technical aspects that are strictly related to the design and graphical representation of the proposed interventions, designers must demonstrate a keen understanding of how to insert new objects in the landscape. This regards especially the use of traditional materials, which often vary from area to area, very useful in order to achieve an even better result from the landscape perspective [3].
From the topographical perspective, the work of the surveyor is important in the operations of survey and geo-referencing (topographic surveys using GPS and total station and definition of GIS - Geographic Information System), especially on sites with archaeological findings, where the position of new findings with respect to existing structures is required.

The use of surveying instruments in the field of Cultural Heritage is also essential for monitoring the health status of buildings, for the structural checks, and for verifying the presence of elements within the walls which do not belong to the original phase of the building.
The systematic recording of the point's position on the building's facade can support the structural evaluation of potential differential movements of the walls that anticipate disruptions. It allows drawing the mapping of the deterioration of architectural surfaces and supporting the representation of buildings, aiming at dating the individual wall elements.
This assessment is important for the history of a building, both for the evaluation of possible pre-existing features, and for the determination of any disruptions that may be caused by structural errors committed in a given period.
Another important branch of architectural survey is the survey of the building material, useful for supporting decision in the field of architectural restoration and in the structural one.

3. THE CASE STUDY

3.1 Historical background

Molise region is made up of small but wonderful reality, with numerous archaeological sites of Samnite, Roman and medieval period scattered in the landscape, which were not affected by the environment, particularly conservative, that relies on a cultural tourism enhanced by a pristine landscape [4].
Of particular importance is the Roman city of Saepinum [5], which stands at the crossroads of two major roads: the *tratturo* Pescasseroli-Candela and the road connecting with the Matese coast. The area has an extension of 12 hectares with a squared shape and is surrounded by walls in *reticulatum*, ordered by Emperor Augustus, who gave his sons Tiberius and Drusus the assignment to build it, more for the honour of the city than for compelling defensive needs. Along the walls there are four doors corresponding to the main roads, *Cardo* and *Decumanus* (Porta Boiano, Porta Tammaro, Porta Benevento, Porta Terravecchia) with 35 towers (only 27 are now visible).
The towers are far from each other about 100 feet (30-35 m) and have a regular distribution: in fact, there are seven in shorter segments and fourteen where the curtain between the resort and port doubles in size.
The *Cardo* is the city's main street, which connects Porta Terravecchia with Porta Tammaro, retracing the ancient route that leads from the mountains to the valley bottom.
The *Decumanus* is the road that connects Boiano with Porta Benevento along the ancient *tratturo* path. Within the city it is possible to find, among the various buildings, the **Basilica**, a multifunctional public building located at the intersection of the *Cardo* and *Decumanus*, dating from the late first century BC and rectangular in shape with three entrances.
There are also the **thermal building**, consisting of a series of tanks, one after the other, for bath in water of different temperatures (frigidarium, tiepidarium and calidarium); the **residential area**, along the *Decumanus*, where there are many ancient shops. On the back side there are houses with atriums watersheds and cubicula and the **theatre** located near the walls, which is surrounded by eighteenth-century houses and has an estimated capacity of about three thousand seats.

Figure 1 Saepinum Theatre (http://www.sepino.net/itinerario-archeologico/7-la-zona-archeologica-di-altilia-saepinum-sepino-romana)

Currently, in the archaeological site of the city of Altilia, in the eighteenth-century farm buildings, there are museums that expose archaeological object found during the excavation of Altilia and S. Peter.

3.2 The surveyors work - Survey methodology

The close relationship with the territory featuring museums, landscape and cultural heritage of the Molise region pushes on the one hand to promote valorisation actions through the use of technology, to enhance the communication capabilities of the system, and on the other hand to encourage reorganization intervention, focusing on management innovation.
In the particular case study of the archaeological site of Altilia in the City of Sepino, the surveyors belonging to the College of the Province of Campobasso worked close to the archaeologists of the Archaeological Superintendence of Molise, performing a survey with subsequent geo-referencing. This work offered a useful support to the archaeologist that work for the Superintendence, which created maps of the archaeological structures without knowing the exact position of the structures on the cadastral maps.
The area covered by the survey is of 12 hectares including the walls of the Augustan age, the theatre and the residential neighbourhood along the *Decumanus*.
The Superintendence, prior the survey, created maps placing the archaeological structures without knowing the exact position on the cadastral maps.
The work required a preparatory step for planning the major activities. During this phase the group of surveyors avail the help of the archaeologist in order to detect all the architectural components essential for a detailed documentation and an accurate study of the archaeological site and its integration with the surrounding environment.
The next step was to proceeded with the systematic survey of the structures with GPS and total station and placing of seven GPS bases firmly planted in the ground with cement

determining the planimetric coordinates and elevations with high accuracy.
The survey involved the participation of 10 surveyors for a total of 10 days of field work and a total of 20 days to process the data.
A total of 1000 points were acquired with a GPS survey, using 4 different brands and models and with the use of three total stations.
During the data acquisition process, seven *Capisaldi*, (points with known coordinates) have been positioned on the whole area in order to facilitate the future work of archaeologists in the field, by providing them with a solid network of points on which is it possible to set the grids for the following surveys.
After data acquisition and post-processing, the structures were geo-referenced and placed on the cadastral maps that cover the area.
One of the aim of this survey work, beside the cadastral maps updating, was to support the drafting of the Archaeological Map of the Territory by archaeologists [5], providing them with map aimed at understanding, from an archaeological point of view , the dynamics that have influenced the transformation of landscapes.
The accurate study of the area, supported by the surveying of the structures, can make an important contribution in understanding the original structure of the buildings, made difficult by the overlapping of successive layers. In Altilia, the peasant constructions in the eighteenth century were built on the ruins of Roman houses. Here the reuse of parts of the ancient city is done in various ways: from the simple exploitation of the existing foundations to the recovery of the remained walls, especially those of the city walls, by changing the masonry, to the reuse of structures still intact. This is the case of those supporting the Roman *cavea*, on which are juxtaposed the houses of farmers who have repopulate the area about two centuries ago.

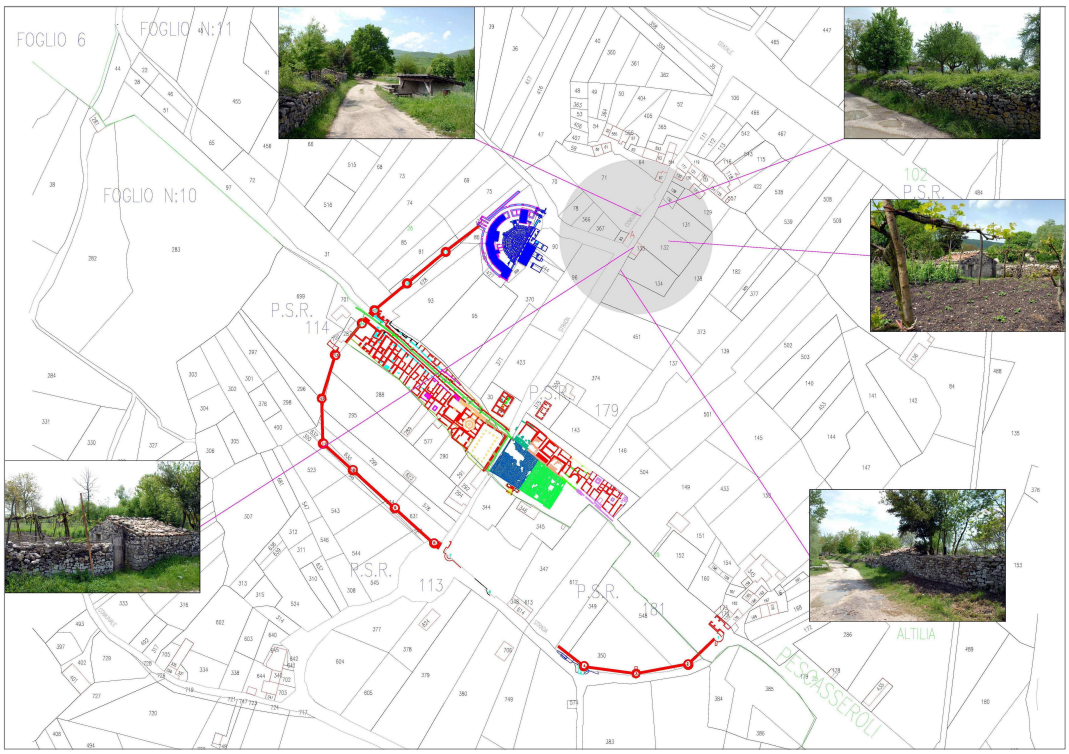

Figure 2 Cadastral map with superimposition of CAD

3.3 Archaeological site of Altilia Saepinum

The growing interest and the high number of visitors and cultural events in this Roman city, very well preserved in its constitutive elements, imposes to the government to consider Altilia as a central pivot of the Archaeological Superintendence programs and one of the great cultural attractions where the aim is to build good tourist-cultural itineraries. Of fundamental interest are the archaeological area and the houses of various periods which were philologically restored, preserving all the various chronological installation until the most recent Sepino, splendid archaeological park and outdoor museum [3].
The principles of modern museology contemplate the reconstruction of the past aspects of life, which will enable the visitors to easily approach the past, as if immersed in it, making more understandable both Museums and archaeological parks.
The Superintendence for the Archaeological Heritage of Molise is pursuing these goals and achievements through multimedia installations and through educational exhibitions, already implemented or planned within the archaeological park of Sepino. The first of those initiatives is a permanent exhibition on the Roman walls of Sepino. A second permanent exhibition concerns the evolution of Greek and Roman military technology, while a third activity concerns the reconstruction of the Roman kitchen and its continuity, where the visitor can imagine the daily life of the ancient people.
Museum sectors will be established concerning the water mill and the tannery of the *foro*, also unique testimony of Roman technology, to the history of transhumance and to the functioning of the Roman theatre, which will be set into the rural building in part overlapped to the scene of the theatre.
The Roman theatre has been for years a place for shows, exhibitions and concerts with activities that combine archaeology and art, sometimes with short presentation of new findings before a concert.

4. CONCLUSIONS

This article describes a useful example of the surveyor's work in the cultural heritage field. The multidisciplinary nature of this work, in which the surveyor is in close contact with professionals of other fields of research, is increasingly common in Italy. In this specific case study the "technical" work of the surveyor is integrated with the "humanistic" ones of the archaeologist, providing measurable and replicable digital information.
Through this work, the acquired data were made available to the Superintendence of Molise and to the archaeologists. This ensures a long-term preservation of data and the possibility of a future data reuse in order to monitor and preserve the site and its historical monuments.
The measurements made will in fact be a solid basis for future research including e.g. virtual reconstruction of the landscape, regarded as the landscape and the monuments.

REFERENCES

[1] CORNELINI P., Applicazione delle tecniche di Ingegneria naturalistica in ambito mediterraneo, in *Atti del Convegno Nazionale Area Archeologica di Altilia-Saepinum: rilievo restauro e parchi Archeologico-Ambientali*, 8-9 Giugno 2007.

[2] VILLANI G., L'impegno del geometra nel settore dei Beni Culturali e Paesaggistici, Ministero per i Beni e le Attività Culturali, Salerno.
http://www.itgdipalo.it/userfiles/file/ANNO%202012/IMPEGNO%20DEI%20GEOMETRI%20NEI%20BENI%20CULTURALI.pdf

[3] MANFREDI SELVAGGI F., Lo studio dei materiali archeologici per la conservazione del patrimoni edilizio tradizionale, in *Atti del Convegno Nazionale Area Archeologica di Altilia-Saepinum: rilievo restauro e parchi Archeologico-Ambientali*, 8-9 Giugno 2007.

[4] PAGANO M., Il parco archeologico di Saepinum-Altilia nel quadro della rete museale del Molise, in *Atti del Convegno Nazionale Area Archeologica di Altilia-Saepinum: rilievo restauro e parchi Archeologico-Ambientali*, 8-9 Giugno 2007.

[5] Official web site Sepino: http://www.sepino.net/itinerario-archeologico/7-la-zona-archeologica-di-altilia-saepinum-sepino-romana.

[6] ROCCIA M., Ricerche di topografia archeologica nell'alta valle del Tappino (provincia di Campobasso), in *Atti del Convegno Nazionale Area Archeologica di Altilia-Saepinum: rilievo restauro e parchi Archeologico-Ambientali*, 8-9 Giugno 2007.

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