



ArcheoSciences

Revue d'archéométrie

33 (suppl.) | 2009

Mémoire du sol, espace des hommes

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Electronic version

URL: <http://journals.openedition.org/archeosciences/1262>

DOI: 10.4000/archeosciences.1262

ISBN: 978-2-7535-1599-4

ISSN: 2104-3728

Publisher

Presses universitaires de Rennes

Printed version

Date of publication: 30 October 2009

Number of pages: 47-49

ISBN: 978-2-7535-0943-6

ISSN: 1960-1360

Electronic reference

Daniela Cottica, D. Busato, S. Donnici and A. Traviglia, « The changing landscape of Constanciacus: a lost settlement in the Lagoon of Venice », *ArcheoSciences* [Online], 33 (suppl.) | 2009, Online since 30 October 2011, connection on 01 May 2019. URL : <http://journals.openedition.org/archeosciences/1262> ; DOI : 10.4000/archeosciences.1262

The changing landscape of *Constanciacus*: a lost settlement in the Lagoon of Venice

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Key words: Venice Lagoon, Costanziaco, Archaeology, Geomorphology, Gis.

« Costanziaco Project » is an interdisciplinary, multi-period archaeological project focused on the study of an ancient settlement in the Northern Lagoon of Venice, known in Medieval and later documentary sources as *Costanciacus* (Cottica *et al.*, 2008). The project has been promoted by the Department of Antiquity and the Near East of the University of Venice and by the Superintendence for the Archaeological Heritage in the Veneto region.

In Antiquity *Costanciacus* comprised two islands, S. Ariano (St. Hadrian) and La Cura, at that time much larger than their actual counterparts (Fig. 1). Nowadays these islands are surrounded by marshes and shallows that emerge from the water during low tides, covered by vegetation of brackish water (« barene »). The islands of S. Ariano and La Cura are located in the Northern portion of the Lagoon of Venice, not far from mainland and just a few kilometers from the ancient Roman town and fluvial port of *Alinum* (Bosio and Rosada, 1980; Rosada, 1990; Cresci and Marrone, Tirelli, 2003), and from the late Antique – early Medieval settlement of Torcello, known as the earliest urban settlement in the Lagoon of Venice. This portion of the Lagoon played an essential role in the process of formation of Venice itself and represents one of the early *foci* of human occupation and habitation in the Lagoon. The historical potential of this area is testified by archaeological finds brought into light by past archaeological investigations (Canal, 1995; Canal, 1998; Dorigo, 1995) and by archive documents dating to the Medieval and post Medieval period.

It is well known that the Lagoon of Venice has always been subject to changes in sea level, with dramatic consequences on the geomorphology and hydrography of the area (Bondesan and Meneghel, 2004; Guerzoni and Tagliapietra, 2006). The overwhelming natural environment makes this area of the Northern Adriatic Sea an interesting study case of integration between men and natural landscape.

At present the area object of investigation is part of a natural reserve and this implies that extensive archaeological excavation is not possible. Therefore an integrated research agenda has been set up in order to investigate patterns of human settlement at *Constanciacus*. Research methods combine the study of archive data with aerial photos, satellite images, archaeological survey, underwater prospecting, archaeological excavation (Fig. 2) and artifact analysis (Cottica *et al.*, forthcoming).

The use of GIS technologies supports an integrated analysis of cultural and natural landscape in the Lagoon. At present the GIS incorporates a wide range of data (e. g., modern topographic maps, historic cartography, aerial photography and high resolution satellite imagery), together with remotely sensed data. The latter, in the early stages of the research project provided useful indications for the identification of potential archaeological areas. Subsequently, field walking survey, underwater and underground prospecting, together with stratigraphic excavation (still in progress) have allowed to test, verify and implement the remotely sensed data.

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Figure 1: Overview of *Constanciacus* from the satellite with the surviving islands of La Cura e S. Ariano. GIS elaboration of satellite image and Regional Technical Map.

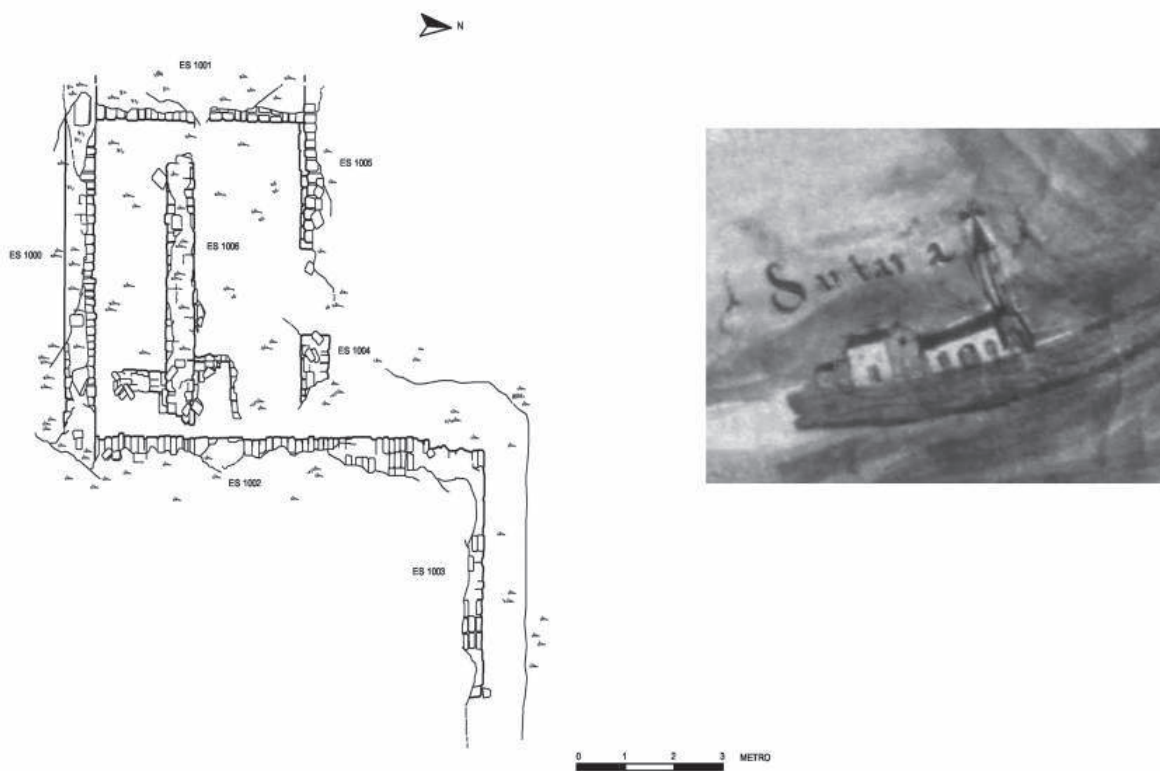


Figure 2: Map of archaeological features at S. Ariano/St. Hadrian (drawing by C. M. Acqua, E. Cappelletto, V. Goti Vola) with detail of the same monastery as depicted in a map dating to 1572.

The analysis of patterns of human settlement at *Constanciacus* is strictly connected with the definition of the ancient local hydrography and geomorphology: therefore in the project paleo-environmental studies are of fundamental

importance. In addition, in “Costanziaco Project” a further essential contribution is provided by archive research, which plays a crucial role in the understanding of Medieval and post Medieval phases of habitation (Cottica *et al.*, forthco-

ming). Indeed a great wealth of information is available in graphic format (*i.e.* historical maps) or as documentary sources of various nature dating from the late X century A.D. up to present day. Paleo-environmental data and archive information are constantly added to the GIS platform, designed for landscape data management in a multi-temporal dimension. Eventually integrated data will allow us to define the framework of human occupation at *Constanciacus* from the early phases of occupation, through the Medieval Age (Fig. 3) and up to modern and contemporary age.

The paper will illustrate the research project with its aims and integrated methodologies. Patterns of human and natural changing landscape will be discussed with particular emphasis on two specific period of crisis in human occupation: the late XII-early XIV centuries A. D, and the late XIV-mid XVI centuries, when some of the monasteries and ecclesiastical complexes of *Constanciacus* fell in abandonment and dismiss. In both cases changes in water levels and in local hydrography (Cavazzoni, 1995), together with the appearance of marshy lands or the submersion of large portions of cultivated lands, had dramatic effects on human settlement and local economy. As Eventually, from the XV century A. D. onwards the name of *Constanciacus* does not appear any more in documentary sources and historical maps.

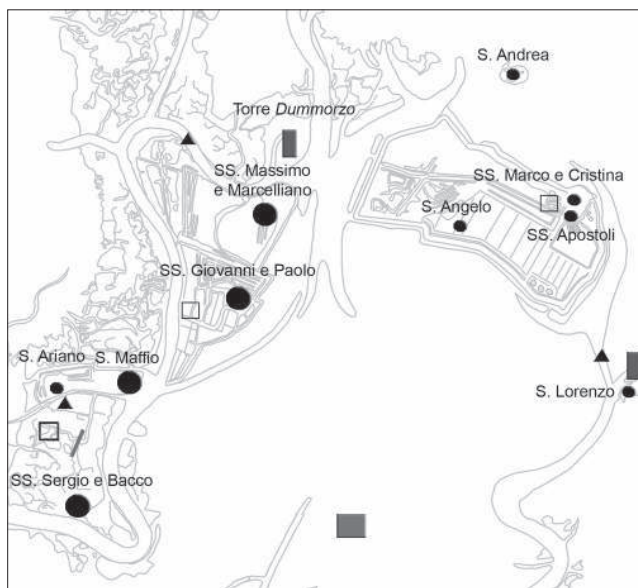


Figure 3: GIS elaboration (by D. Busato, R. Massi): topography of *Constanciacus* as appearing between the XII and XVI century A.D. Archive data geo-referenced on the Regional Technical Map.

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