Chapter 1
Archaeological Heritage: Representation Between Material and Immaterial

Carlo Inglese  
*Sapienza University of Rome, Italy*

Mario Docci  
*Sapienza University of Rome, Italy*

Alfonso Ippolito  
*Sapienza University of Rome, Italy*

ABSTRACT

Architects have been involved in the task of representing archaeology and archaeological sites for many years now. Their objective has invariably been to make the reading of the artifact more detailed and accurate to scholars of archaeology. The advent of informatics brought a significant step forward in the domain of representation in this field. To recall that representation of archaeology should restore artifacts of which only fragments of walls remain, often in ruin and with degraded surfaces which often do not follow the geometry of the original artifact any longer. Therefore, in order to obtain objective representation with a highly detailed documentation of the state of the surfaces, three dimensional methodologies of digitalization were applied, ones that made it possible to construct 3D models. Addressed in this chapter is the problem of how to communicate architectonic archaeology with virtual instruments. The subject researched includes both very well-preserved examples as well as ones of which merely vestiges remain.

INTRODUCTION

The study, interpretation and representation of elements belonging to archaeological heritage are invariably a demanding activity and embraces a wide range of multi-disciplinary subjects and competences. Continuously developed innovative instruments ensure the possibility to apply an integrated approach which is advantageous to all the people involved in the process of documentation. Close collaboration between architects and archaeologists, which seems characteristic of the research conducted in recent DOI: 10.4018/978-1-5225-6936-7.ch001

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years, made it possible to comprehend the key elements of archaeological heritage. This is deeply rooted in the considerations deriving from historical/critical analysis while it put at our disposal a vast quantity of information by tapping the potentialities inherent in digital technology.

The present contribution concerns the work already carried out, following research directions whose objectives are documentation, analysis and interpretation of archaeological contexts, illustrating their cultural foundations and operative procedures.

Representation of archaeological architecture has always played a double role: that of being an instrument for describing information extracted from the real world, and that of an instrument for the analysis, understanding and interpreting of what emerged from the study of reality. These aspects are characterized by a high level of discretization and constitute an important critical contribution on the part of the person called to do the representation. Obviously, the appearance of digital technology and of the techniques which make use of mass non-contact acquisition (scanner laser 3d; systems of mass photographic data acquisition, image-based modeling systems, etc.) make it possible to construct numerical models characterized by a very high level of detail. Models thus obtained are the result of automatized methodologies completely a-critical in relation to the represented information.

The quality of the a-critical models constitute an important element of the study because their capacity to represent that which traditional techniques and not capable of showing. Thanks to this technology one does not have to adopt a critical attitude towards an object but can extract digitally as much information as possible with the lowest uncertainty level.

BACKGROUND

Cognizance for Representing

The first step for any activity concerning archaeological subjects, putting aside the scale of the object, is to structure out a system of cognizance suited for collecting, interpreting and archiving a great variety of information. The components of this system can essentially be grouped into three categories:

- Historical-cultural.
- Quantitative derived from the measurements acquired with surveying operations.
- Qualitative, which derive from the interpretative capacity of the scholar and can be understood as “the act of cognizance based on a measured datum”.

With the objective of rendering the research results more objective and controllable, it is necessary that all the information that belong to the system of cognizance be founded on the basis of coherent and rigorous data that respect the criteria of scientificity. The approach towards cognition as expressed by the philosopher René Descartes distinguishes between normal cognition which can be gained solely by our sense organs and the profound cognition, which the scholar can reach only by applying research methods and techniques capable to demonstrate to the mind everything that is barred to the senses (see Bianchini, 2012; Rilievo e metodo scientifico, in Carlevaris, Filippa, (a cura di) Elogio della Teoria. Identità delle discipline del Disegno e del Rilievo, Roma, pp. 391-400). In this framework of reference surveying emerges as an instrument ensuring a profound cognizance of the artifacts and constitutes the methodology for extracting an adequate and correct number of information from the real. Such informa-
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