Chapter 25
Integrated Methodologies for the Study and Documentation of the Architectural and Archaeological Heritage: The Treasury of Petra in Jordan

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ABSTRACT
The objective of the study was to integrate the analytical data coming from the laser scanner survey of a complex monument like the Treasury of Petra (Jordan) with a more traditional and direct analysis performed through watercolor drawings from life by superimposing them on the results of the laser scanner survey. This integration resulted in a more useful and complete scientific representation enabling us to identify and communicate the essence of the monument itself since the information about its form, geometry and proportions were thus combined with immaterial aspects such as the color and the effect produced by the light on the materials.

INTRODUCTION
The present study was carried out as part of a research conducted at the archaeological site of Petra in Jordan by a multidisciplinary team made up of Italian and Jordanian archaeologists and architects competent in the various disciplines making up the scientific fields of drawing, survey, history of architecture and archeology. The scholars worked together, integrating skills and competences with the aim of following a path of knowledge to fully understand the characteristics and peculiarities of the archaeological artifacts [1].

The comparison and exchange of different experiences has been a great wealth both from the cultural and the scientific point of view: in fact, the researchers in the working group have been able to directly compare each other “on the field”, thus becoming able to control and monitor the working process in relation both to...
the operational methods to be applied and to the instrumentation and techniques that were chosen from time to time.

The research team performed the detection of some areas of the rocky city; initially the work was concentrated on the ancient Roman theater, and later on the two Royal Palace Tombs, some residential buildings and the Pharaoh's Treasure Building (Khasnè). The realized three-dimensional models and drawings were very rigorous and so reliable in terms of metric to allow many further investigations especially from the archaeological point of view, also essential to help raise awareness and develop the process of maintenance and management of the site. The survey project has involved an intervention of the integrated type: direct measurements, topographic measurements and laser scans of the archaeological architecture object of research, always supporting the methodology aimed at the knowledge of the heritage, that provides as the basis for any research the analysis, the interpretation, the survey and the study of existing historical documents. In parallel with the survey operations, it was carried out a drawing from life campaign to perform a reading of the archaeological site aimed at the representation and documentation of some of its immaterial and intangible aspects, as the chromatic variations of the sandstone rock corresponding to different conditions of light; it is these intense color transformations that characterize this Jordanian place making it unique.

*So you will never know what Petra is like, unless you come out here...landscapes in childhood's dream were so vast and silent...* (Thomas Edward Lawrence, “Lawrence of Arabia”, 1888-1935).

The city was declared a World Heritage Site in 1985 and, since 2007, has also been considered one of the seven wonders of the modern world. It must be stressed even in this study the importance of the documentation of a particularly well known and recognized common heritage, that of the places included in the list of UNESCO World Heritage Site [2] places chosen for their intrinsic qualities, universally recognized and compliant with encoded parameters, subject to the protection, enhancement and communication of their great historical and artistic characteristics, in accordance with a legislation that is still being processed. The cognitive graphic documentation of UNESCO sites is an integral part of that set of information useful for the protection and enhancement of the sites themselves: although necessarily oriented in predetermined layouts, you can feel, in the analysis of regulatory and organizational sources, the need to expand sources of knowledge. In the Project to define a model for the implementation of UNESCO sites' Management Plan talk is made about a Site management Plan and, within this, about a Knowledge Plan: protection and enhancement are achieved through different levels of knowledge and communication of the site. The city, which is currently the main source of income and tourism in Jordan, has been referred to as “the colorful” by its Semitic name, and is also known as the “Pink City” because of the particular nuances of the sandstone rock of which it is made. In this area the spontaneous forces of nature have combined with the powerful work of man, able to achieve amazing rocky architectures, in such a way to give this site an almost unreal and fairy-tale look, ever-changing in its shapes and colors (Figure 2).

These amazing aspects constitute on one hand a great resource for the surrounding environment but, on the other, represent a problem of considerable dimensions since the city, due to the “fragility” of the rock of which it is constituted, goes towards a slow and relentless process of destruction that all the researchers and scholars
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