Chapter 5

Contribution to the Technical Interpretation of the Roman Sacred Architecture by the New Survey Methods: Case Study – The Nameless Temple of Tipasa, Algeria

Baya Bennoui Ladraa
Centre National de Recherche en Archéologie (CNRA), Algeria

Fawzi Doumaz
Istituto Nazionale di Geofisica e Vulcanologia (INGV), Italy

Youcef Chennaoui
École Polytechnique d'Architecture et d’Urbanisme d’Alger (EPAU), Algeria

ABSTRACT

The surveying of archaeological relics is a complex process in that it requires the combination of several previously defined representation techniques. The example of the Tipasa’s nameless temple allows the evaluation of the rational and pertinent use of new means of surveying and representation requiring an architectural knowledge of the subject that helps orient the choice and combination of acquisition methods. In this case, two techniques were combined: topography for the general survey and georeferencing, and photogrammetry for the surveying of architectural details. The final result allows, firstly, for the design of a georeferenced, stone-by-stone survey of the relics at a scale sizable enough to grasp the general large-scale conception by recognizing and identifying the main elements which constitute the temple. Then the use of photogrammetry allowed the elaboration of a significant 2D and 3D database of the architectural elements necessary to identify of the type and order of the construction, and will contribute to the researches carried in North African places of worship.

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INTRODUCTION

This work stems from a resolution to analyse and interpret the architectural design of the relics of ancient-times place of worship located in a World Heritage classified Site. It concerns the relics of an Italic-type nameless temple that is not well documented, and yet contains enough interesting archaeological elements and evidence which to make the proposition of a pertinent image of the temple’s ruins as it was initially possible. In order to reach this goal, it was necessary at first to meticulously survey both the monument and the architectural elements laying on the site which could have informed the researchers on the type and order of the construction. The work was carried with the use of new surveying and representation techniques that allow the establishment of a detailed, distance, dimensional documentation of the archaeological relics.

The example of the Tipasa’s nameless temple allows the evaluation of the rational and pertinent use of new means of geometric documentation and representation requiring an architectural knowledge of the subject that helps orient the choice and combination of acquisition methods. In this case, two techniques were combined: topography for the general survey and georeferencing, and photogrammetry for the geometric documentation of architectural details. The final result allows, firstly, for the design of a georeferenced, stone-by-stone survey of the relics at a scale sizable enough to grasp the general large-scale conception by recognizing and identifying the main elements which constitute the temple. Then the use of photogrammetry allowed the elaboration of a significant 2D and 3D database of the architectural elements necessary to identify of the type and order of the construction, and will contribute to the researches carried in North African places of worship.

Each model generated by the photogrammetry technique had to not only be precise but also comprehensible thanks to the semantic reading of its different elements with referred to in classic architectural treatises. This allowed the generation of perfect elements constituting the temple and its sacred compound which are not an end on themselves. Indeed, each model could be measured and analysed afterwards by adding new information if necessary (Fassi & al. 2011).

Thus the context which has just been presented implies that the work that will be put forward will have to fall within the perspective of contributing to the documentation and the promotion of heritage property by means of new technologies, all the while ensuring the integration of architectural knowledge in the definition of the geometric nature of the surveyed elements.

The authors’ choice fell on the archaeological relics of an ancient temple. The construction of that temple met a well-known architectural type in North Africa which corresponds on the typological level to the ‘classical’ temples of the Ancient Rome. The architectural style presents a certain regularity of the form and composition which will allow to grasp the original design but also the semantic dissection of the architectonic elements with the aim of puzzling out the morphology of the geometric models.

Given that the main objective of this research is to grasp the original conception of the place of worship – including the sanctuary and its sacred courtyard, – it was necessary to carry a meticulous survey which saw two main phases. In a first step of the work, a scaled, step-by-step, georeferenced geometric documentation was drawn up based on an incomplete archaeological survey that was corrected, adjusted, and completed. In a second phase of the investigations, the use of photogrammetry survey architectural elements enabled the constitution of a detailed corpus with 3D models as originally grasped and constructed. This was obtained by resorting to classical architecture treatises (Fuchs, 2006).

It will start by acquiring and processing data coming directly from the geometric documentation, then, through the extrapolation of the geometric data, proceed to a semantic breakdown which will be