Chapter 12

A Possible Method for 3D Photo Scanning Speed Survey: The Case Study of the Bridge of Saint Angelo above Auso

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ABSTRACT

More and more studies have been conducted in the field of architectural survey: the development and the optimization of new technologies, are greatly expanding the range of application, reaching more properly engineering areas. Strong standardization of infographics technologies the way of restitution of the artifacts is changing: no more - and not only - bi-tridimensional productions, but conceptual analysis and representations that go beyond the simple “visual” aspect of the work on which we investigate. However, we encounter new and important problems about the standards to be followed and the reliability and compatibility of the implemented procedures and methodologies. The aim of this chapter is the definition of a documentation able to guarantee the scientific survey operations, a decay of the errors and an adequate graphical output, combining the direct survey to the photo scanning technique applying this methodology to the survey of Sant’Angelo Fasanella bridge in province of Salerno.

INTRODUCTION

In recent years, a lot of studies have been conducted in the field of architectural survey thanks to the improvement and optimization of new technologies, which have greatly extended the range of applications even towards more properly engineering areas. The standardized use of infographics technologies has revolutionized the way of the restitution of the artifacts, however, we encounter a new and important issues about the standards to be followed and the reliability and compatibility of the implemented procedures and methodologies.

When an architectural event is detected it should be analysed and documented in its overall configuration (also with reference to the territorial and urban context), in its dimensional metrics characteristics, in its historical complexity, in its structural and architectural characteristics as well...
as in its formal and functional ones, tracing in a critical way the construction process followed for its implementation, in order to understand the reasons for the choices that have been taken. One speaks in this sense, therefore, of a virtual replica and of a three-dimensional reconstruction of the architectural episode detected, overcoming the physical and spatio-temporal limits, decontextualizing it from the environment that surrounds it: the object is studied from each segment that composes it to its historical-functional peculiarities. The current communication network, its streets and walkways, are nothing more than the result of the superposition of a set of paths whose importance has come gradually modifying depending on to the commercial needs and the military events that have occurred during the centuries.

We may consider the bridges as the first great engineering works, they represent a fundamental part of the same roads and communication routes. They offer several cultural ideas: from the study of the architectural techniques used to realize them, to the reconstruction of the historical events that saw them as participants and protagonists being the fields of cruel battles.

The bridges, often noble and always fascinating structures which dot towns, roads and trails with their presence, are often in a dreadful state, despite their historical-documentary and landscape-environmental importance: except for some Roman bridges, in fact it is not a widespread awareness that they are cultural assets and a clear architectural testimony that can offer interesting ideas for other considerations too. The historical dating of the connected villages, the architectural techniques and the way to work of the period to which they belong, are just some of the intrinsic news of the analysed structure. These structures represent, for example, one of the highest architectural and engineering testimonies of the man, a clear demonstration of the “know-how” in opposition to the needs of the “must do” conceptual and executive effort «(...)» they indicate the site where the man met the obstacle and he did not stop, he passed and overstepped it giving his best, according to his conceptions, his taste and the surrounding conditions «(...)» (cfr. I. Andric, The Bridge on the Drina, Mondadori, Milan 1960 p.VII).

The time of the acquisition - metrics and dimensional - goes hand in hand with the time of learning, understood not as formal or geometrical knowledge but as the historical and functional one: the reason of the made choices, the succession of taken choices during the construction phase, in summary, all the operations that belongs to the survey of architectural process.

So this phase will return us apart from the shapes of the building, a historical memory of the same, a document that represents a source of knowledge and of respect for the work itself. Applying a speedy survey methodology, as well as to fix the shapes and size of the object detected, you want to guarantee the preservation and thus the preservation of historical memory of these architectural events: specifically the Bridge above Auso in Ottati.

In this regard, a preliminary research has been conducted on the possible historical sources and on the issues connected to the dating of contemporary artifacts, creating a first exemplification of the Roman and medieval bridges in the Campania region. It is not always easy to trace news about the construction of these bridges, almost always subject of the interventions of uncertain date.

Therefore, the cognitive phase begin by finding useful data to define the framework of the presence of the bridges in the Campania region and to acquire information concerning the method of construction, following a chronological criterion in order to compare the information collected with those of contemporary technical and scientific knowledge. Then, after a brief description of the bridge under study, the methodology adopted for its relief, its related issues and the solutions proposed for its resolution, will be exposed. Many difficulties were observed, both in the case of direct and indirect survey, difficulties especially relating to the nature of the structure itself: buildings
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