

PHOTOGRAMMETRIC WORKS ON BOULAKRATES FOUNTAIN IN KNIDOS ANCIENT CITY

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ABSTRACT

In this study, the parts which belonged to Boulakrates fountain are restituted with all views by using photogrammetric methods. Images are taken with Nikon Coolpix 950 digital camera. Ground points are measured by Topcon GTS 701 Total Station Instrument. Photogrammetric restitution is performed by Photomodeler software. The parts which belong to before excavation and found after excavation, are drawn by Photomodeler software. Therefore, Boulakrates fountain is reconstructed in computer environment with the use of existing parts.

1. INTRODUCTION

Close-range photogrammetry has been widely used in architectural, archeology, criminology, traffic accident, dam deformation etc. The advantages of this technology are rapidness, precision and the possibility of data storage in digital form. The aim of this study is to draw Boulakrates fountain by using close-range photogrammetry. These drawings are then used for archeological documentation. This paper is organized as follows. First, Boulakrates fountain is introduced, and its importance in archeology is discussed. Second, the applied methods and obtained results are discussed.

2. BOULAKRATES FOUNTAIN

The history of Knidos Ancient City, which is located in Datca (Mugla) Province, is known since B.C.700. Knidos is located in the most point of peninsula called "Datca Peninsula". This peninsula covers the border between Aegean Sea at North and Mediterranean Sea at South. Today, this area which is belonged to Mugla Province had taken part in border of Karia area on ancient period. During excavation works in 2002, A circular fountain being on a square platform in the south end of the harbour street was found. It is built at the terrace wall, which is the east border of the street. It locates on a platform, 3 metres long, 3 metres wide and 0.7 metres high. The fountain consist of nine parts called platform, lime rock transition, profile transition, main body, upper structure transition made of marble, architrave, sima, conic roof, and acroter.(Fig.1)

3. APPLICATION

The eight parts that which belong to before excavation and found after excavation are restituted separately with Photomodeler software. Drawings are then transferred to AutoCAD Software(Fig.2). The photographs are taken with Nikon Coolpix 950 digital camera which is non-metric camera. This camera was calibrated by Photomodeler software before. Ground control points are measured with Topcon GTS 701 Total Station. Distance measurement precision of the Topcon GTS 701 Total Station

$$m_s = \pm(2 \text{ mm} + 2\text{ppm} * D)$$

and

angle measurement precision is 2".

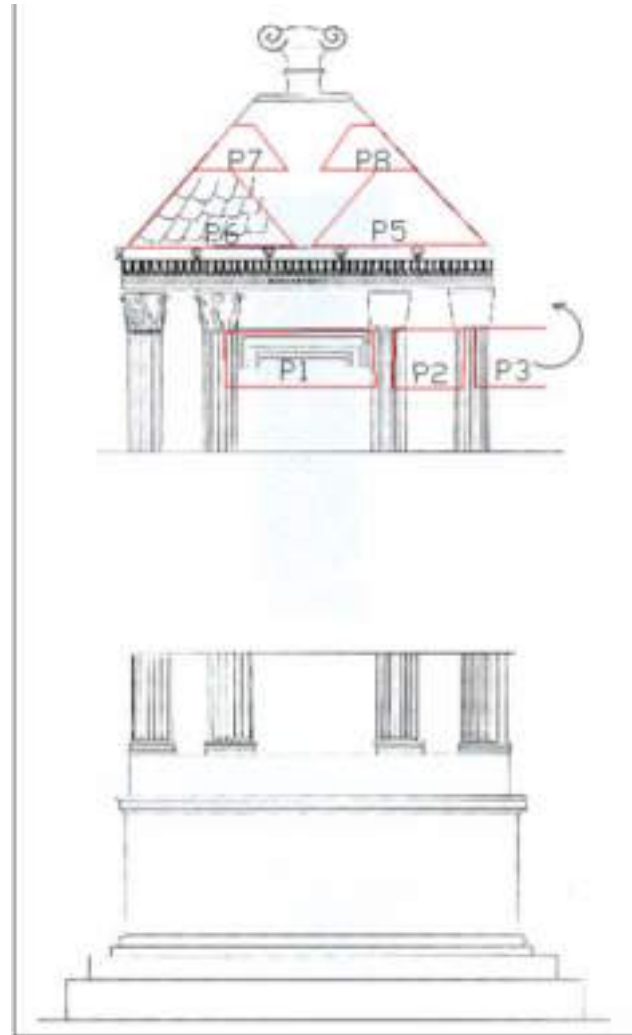


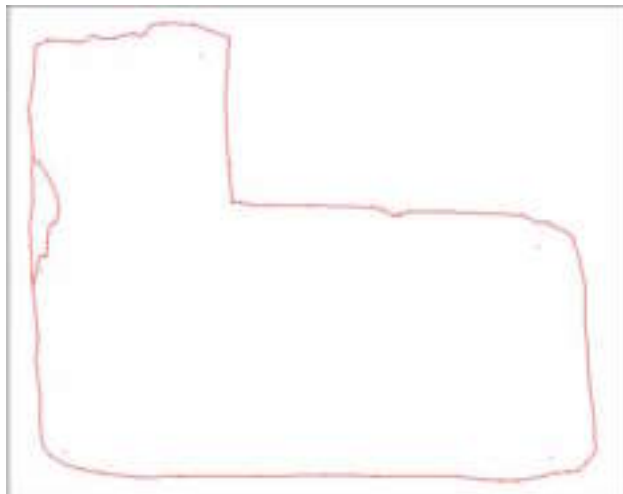
Figure.1 Boulakrates Fountain



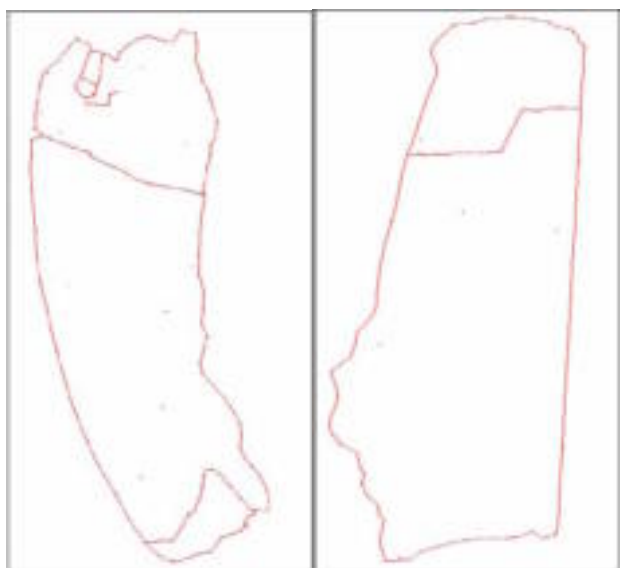
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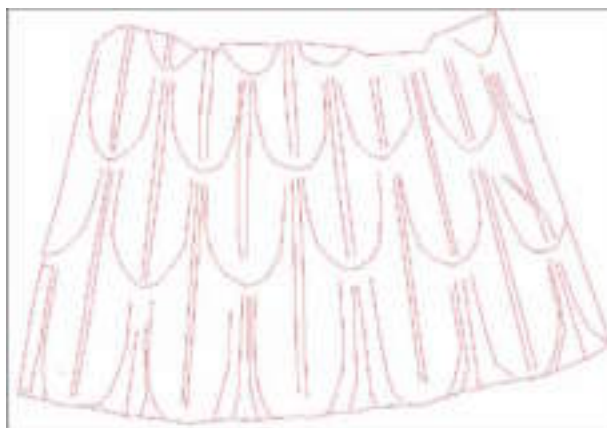
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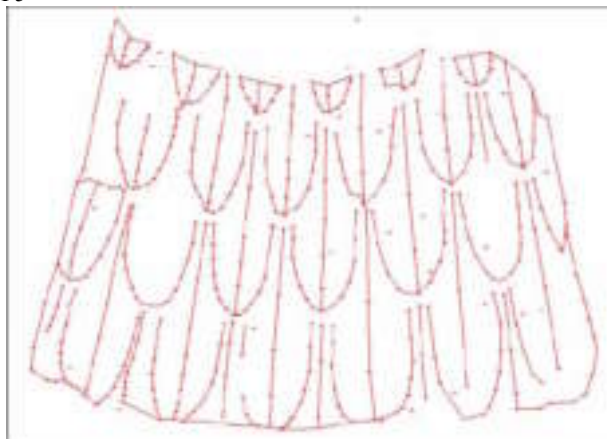
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P8

Figure.2 Drawings of the parts found the Boulakrates Fountain

4. RESULTS

The documentation of archeological monuments found in excavations is an important issue. In this study, the drawings of the eight parts found Boulakrates Fountain are obtained by using photogrammetric methods. Since the drawings are in Autocad file format, these can be used for various purposes.

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