



On the traces of the Sir Arthur Evans restoration activities at the Palace of Knossos

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The archaeological site of Knossos is the largest Bronze Age site on Crete and is considered Europe's oldest city. It was continuously inhabited from the Neolithic period (7000-3000 B.C.) until Roman times. The Palace of Knossos represents the ceremonial, economic, social, political centre of the first civilization of the Mediterranean basin; namely the Minoan civilization. Around 2000 B.C. a large building, the Old Palace, was erected. It was destroyed around 1700 B.C., but immediately rebuilt (New Palace), following an architectural plan in which around a Central Court (oriented N-S) and a court to the W, four major wings with hundreds of rooms are settled [1].

The Palace was excavated partially by M. Kalokairinos and fully by Sir A. Evans, between 1900 and 1905. The need for preservation and restoration of the monument was obvious from the first years of the excavation. Since 1905, most of its parts were sheltered and restored. With the restoration, Sir A. Evans reconstructed entire floors of the monument by using reinforced concrete. He restored the frescos, copies of which were placed in the restored sites and he constructed columns and pillars with concrete.

Currently, the Palace is under a complete conservation program and there is a necessity to improve the available knowledge on the Evans restorations and the materials used [2].

In this frame, a GPR measurement campaign was performed in July 2018 and several pillars, columns and concrete roof-slabs of the East Wing ("Hall of Double Axes" and "Queen's Megaron") and of the "South House" were investigated, in order to identify the materials and the construction methods used by Evans, concerning the iron girders and the reinforced concrete.

The GPR surveys were performed by means of an IDS manufactured K2-RIS system equipped with a 2GHz antenna and the collected data were processed by means of a processing chain, exploiting a microwave tomographic approach [3, 4]. By doing so, focused reconstructions, referred to as tomographic images, of the investigated structures were obtained. These images, which will be shown at the conference, allowed us to identify the types of the iron girders and the rebars in the reinforced concrete, used by Evans during the first and the second restoration period, respectively, before and after the First World War. Moreover, the tomographic images are useful to the end-user in order to better characterize the inner features of the investigated structures.

References

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