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The National Monument to Francesco Baracca in Lugo di Romagna (Ravenna, Italy): Materials, techniques and conservation aspects

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ABSTRACT

The results of scientific analyses performed on the travertine parts of the National Monument to Francesco Baracca in Lugo di Romagna (Ravenna, Italy) are reported and discussed. The aim of the research is an in-depth knowledge of the constituent material in view of technological and conservation aspects, to support the first significant restoration work (held in 2014) concerning the Monument created by the artist Domenico Rambelli in 1936, a masterpiece of monumental Italian twentieth century architecture. RLM, SEM/EDS, XRD and micro-FTIR analyses were carried out on micro-samples to characterize the different original surface finishing and the degradation phenomena. VIS-RS, RLM and SEM/EDS investigations were also performed to evaluate the application of a nanoparticle titanium dioxide—based coating on the stone surfaces.

1. Introduction

The Italian National Monument dedicated to Francesco Baracca in Lugo di Romagna (Ravenna, Italy) is considered to be one of the most relevant icons of Italian Rationalism (Fig. 1). Francesco Baracca was a captain of the Italian Air Force; he was born in Lugo di Romagna in 1888 and died on 19th June 1918 in an air crash during the First World War (Contini, 1933; Maineri, 1918). Shortly after his death, a special Committee decided to dedicate a Monument to his memory and the Italian sculptor Domenico Rambelli (Faenza 1886–Rome 1972) was appointed to design and create the Monument, inaugurated on 21th June 1936 (Borghi, 1961; Cicognani, 1988). The whole monument structure has an extension of 1.040 m^2 and it is an assembly of: a stepped base, a bronze statue (representing the aviator) standing on a cylindrical pediment and a colossal airplane wing. Each side of the wing (27.6 m in height) shows symbols related to Baracca's military unit: the rampant horse and the hippogriff (Cicognani, 1988; Quesada, 1986).

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Fig. 1. The National Monument dedicated to Francesco Baracca in Lugo di Romagna (Ravenna, Italy).

The Monument is considered to be a masterpiece of Italian monumental architecture from the 20th Century, which has recently become the subject of particular interest as regards the study of its constituent materials and executive techniques (Jean, 2014; Rocchi, 2007). Until now, no case studies have been published regarding Rationalist monuments made of natural stones and investigated under material and technical aspects through a scientific multi-analytical approach. The main aim of this research was to support the first large-scale conservation project of the monument, performed in 2014. Multi technique characterization of the wing's travertine surfaces allowed the identification of different processing techniques and finishing characteristics of the Monument and the decay pathologies identification. Laboratory tests for the evaluation of a protective coating with an aqueous suspension of nano-titanium dioxide were also achieved, in order to evaluate the pros and cons related to its application on travertine surfaces.