

THE HISTORY OF PORTUGUESE INTERIOR PLASTER COATINGS: A MINERALOGICAL SURVEY USING XRD*

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The evolution of the materials used in Portuguese interior wall coatings since the Roman occupation, namely the binders, is investigated using XRD in order to build a preliminary systematic database to contribute to the design and study of compatible products for conservation and repair. The results show that lime was the main binder until the end of the 18th century, with gypsum overcoming its use in the 19th century. A relationship is established between the results and several influencing aspects, namely other cultures, the neighbouring countries and their traditional construction techniques, the availability of raw materials, the purposes/techniques of application and the geographical location.

KEYWORDS: PORTUGUESE HERITAGE, GYPSUM PLASTER, LIME PLASTER, INTERIOR COATINGS, MINERALOGICAL COMPOSITION, XRD ANALYSIS

INTRODUCTION

The importance of all forms of cultural heritage has been highlighted since the 20th century in several international documents and charters for its preservation, notably the Venice Charter of 1964. Since architectural patrimony is an important part of the cultural heritage, it is strongly recommended that interventions should comply with a global perspective of buildings and the built environment to which they belong, preserving their structure and external image, as well as their interior spaces and original materials. When this cannot be achieved, the design and use of new products for restoration should be based on similar materials, and their compatibility with the original ones should be ensured before application, according to the 2000 Krakow Charter.

This research was developed within this context and consists of the study of ancient Portuguese interior wall and ceiling coatings based on gypsum and gypsum–lime plasters in order to develop compatible, efficient and durable solutions for their preservation.

The first step was to acquire complete knowledge of the materials and compositions of the mentioned coatings. An extensive bibliographical review allowed us to conclude that there is very little information on this important heritage, especially from the materials point of view. This is an important issue, as the Portuguese word for ‘plaster’—*estruque*—means ‘a kind of mortar *with gypsum* used for the plastering of walls, relief ornaments and sculpture works’, but is assigned in the general bibliography to all kinds of plastered elements, independent of their composition.

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