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STONE CONSOLIDATION: RESEARCH AND PRACTICE

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ABSTRACT

Stone consolidation has raised the interest of scientists and conservator-restorers since long ago, and, among the treatments applied to stone elements, it is the one that raises more engaging debates and larger controversy. This happens at the practical level, due to the frequent unsatisfactory and even disastrous results, but also at the research level, for the lack of common understandings, for the very personal approaches to the research protocols, and for the difficult exchange of results and viewpoints. Reported case studies on past treatments are scarce and little of well documented cases is available to complement our own knowledge. This fact strongly affects the possibility to validate the research results and therefore it also limits the capacity to transpose each one's knowledge to the real world. On the other hand, most persons involved in this field know (documented or undocumented) a certain number of cases where consolidation has shown poor performances, possibly with fatal implications for the treated object. Sometimes this may be a consequence of insufficient preparatory studies, but it may also be due to inadequate transposition of the research results to the real practical world. These shortcomings may seem incomprehensible in face of the so huge amount of papers that have been published in the last 4 decades, and yet, the actual situation still encompasses cases that do not have proved solutions, results that cannot be transposed to the real practice, novel products that do not correspond to the expected attributes, and positive performances with treatments that would be expected to fail.

1. INTRODUCTION

Stone consolidation is a conservation action currently carried out by conservator-restorers and is a research theme that interests the entire community of researchers in stone conservation. Some consolidation procedures are known for centuries and evidences of past treatments are widespread. And yet, consolidation is still a poorly known conservation action, in spite of the extensive research that has been carried out in the last 4 decades. Some critical insufficiencies were certainly present during the process to justify the scarce outcome that resulted from the extensive efforts carried out in research.

It is not the scope of this paper to analyze this process in depth, but some highlights can be listed as contributions for this process. Many research results appear in contexts quite distant from the real world and it is hard to evaluate how they could be transposed to it. On the other hand, many consolidation works were carried out with little scientific support and with even scarcer diffusion of

information, as a result of a lack of appropriate communication channels between science and practitioners communities. Some products have been taken as susceptible to be applied to any substrate, even when scarce arguments can be added to support such an approach. Similar approaches have been followed irrespective of the stone properties in question, indicating that most practical actions are justified more in the basis of personal skills and experience than by scientifically justified arguments.

Stone composition, dimension and type of the porous space, type and properties of the consolidation products, application protocols, curing conditions, etc. are some relevant items to be considered when a consolidation action is to be carried out. The assessment of adequacy of stone consolidants should start at the laboratory level, but in general the information gathered does not answer all the relevant questions, and inwork performance is also a necessary step to be fulfilled. The appropriate exchange of knowledge between researchers and practitioners, and a good deal of information on long term performance of consolidation case-studies are requisites to move forward this important conservation theme.

This presentation aims at briefly illustrating some of the abovementioned aspects. It shows some results from lab experiments as well as from real objects, and comments on some controversial aspects of stone consolidation.

2. STONE CONSOLIDATION AS A TANTALIZING AND CONTROVERSIAL TREATMENT

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