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THE METHODOLOGICAL APPROACH IN THE MANAGEMENT OF CONSERVATION DATA FOR STUCCO ARTIFACTS

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ABSTRACT: Some 90 Roman stucco fragments, coming from the Archaeological Park of Herculaneum, underwent in the conservation-restoration process within the Istituto Superiore per la Conservazione ed il Restauro (ISCR) laboratories in Matera. Before the conservation activity, the wide number of this manufacts brought us to design a data management system, suitable for stucco findings. Nowadays, the international approaches towards data management of this kind of artifacts is extremely heterogeneous and the absence of an unequivocal data sheet makes the cataloguing very complex and laborious. Our studies on the fragments allowed us to draw up a specific cataloguing instrument for this kind of material, carried out with a software structuring data collection in order to respond to different necessities, such as completeness and updatability, required by an efficient data management system.

KEYWORDS: Stucco artifacts, data management system, data sheet, documentation, lexicon

As part of the 2017-2018 laboratory activities of Istituto Superiore per la Conservazione ed il Restauro (ISCR) in Matera, Roman stucco artifacts were recorded before the conservation activities.

The 90 stucco fragments come from the Archaeological Park of Ercolano. They were part of the decoration of the Tetrapylon which formed the entrance of a public building, dedicated to the imperial cult, and defined as Augusteum or Porticus. The complex was erected on the Decumanus Maximus around the mid first century. A.D.; it was already identified by archaeological excavations of the eighteenth century, as shown by drawings of the period. The four-sided arch was recovered from the volcanic mud during the excavations of 1960s. Some stucco reliefs are still present in situ, in the lateral arches and in the barrel vault. The patterns belong to the IV style, with simple panels surrounded by complex and rich

frames. The random fragments which arrived in the laboratory were taken from a showcase kept in the Domus XVI of insula VI. This exposition was part of a broader project developed by archaeologist Amedeo Maiuri, who aimed to create a large open-air museum (Camardo e Notomista, 2017).

The fragments coming from this showcase were labeled for transport in the ISCR laboratories with a number from 1 to 3; each number corresponds to the shelves of the showcase itself. It was therefore necessary to make a photographic documentation of each piece and establish a nominative criterion more appropriate to the uniqueness of the fragments. They were then placed on the tables, studied by visual observation and physically grouped according to the type and size of the decorative motifs.

Fig. 1 Box containing stucco fragments as they come from the Archaeological Park of Herculaneum (Photo Credit: ISCR-Matera students)

The fragments have been organized into seven groups, and thanks to the photographic documentation of the in situ stucco decoration, it has been hypothesized that only part of these are really relevant to the barrel vault and the smaller arches. In fact, there are few fragments included in a different group: they have a painted layer (Egyptian blue, Brown Iron Oxide, Green), which finds no comparisons within the Tetrapylon, so they may belong to another monument.

The large number of un-cataloged fragments, has required the development of a data management system, suitable for stucco findings. The lack of this kind of instrument brought us to propose an unequivocal tool that could be largely used in the field of conservation.

Conventional and international instruments available to the conservators became increasingly necessary within the restoration practices of the 21st century. The large amount of digital information available today, together with its dissemination, has resulted in a great push in the search for methodologies and standards for the use of metadata within electronic resources.

Since, the international context about data management of this kind of material is extremely heterogeneous and a shared model of a standardized recording sheet for stuccos and a standard lexicon for morphology of degradation was not elaborated, the classification system presented here was based on those developed in the occasion of other ISCR projects on data management, such as that used in the Dora Pamphilj Gallery in Rome (Marcone et al, 2001) and in the Ajanta Caves (Bon Valsassina et al, 2013). The absence of an unequivocal data management system made anyway the cataloging very complex.

Data collection is based on UNI-NORMAL guide lines. This system works through key-words research, following a rational organization that allows an easy retrieval of information. Recording data have been elaborated with File Maker Pro, a tested software used for Cultural Heritage. This program has been chosen because of its flexibility and compatibility to all operative systems. Moreover, it allows to structure data collection in order to respond to different necessities, such as completeness and updatability, required by an efficient conservation data sheet, and the outputs are very easily storable files.

Fig.2 Data sheet elaboration (Photo Credit: ISCR-Matera students)

The basis of the cataloging system is the use of metadata, which is information that describes other data. The metadata facilitate the following operations:

- Research, to identify the existence of a primary document;
- Localization, to trace a particular version of the primary document;
- Selection, to choose primary documents without having to access their content;
- The management of information resources, i.e. being able to manage collections of primary documents thanks to cataloging tools.

The creation of a metadata archive is a complex operation and requires particular attention to the aspects concerning the control of terms to be used and compatibility with existing standards.

For this reason, the data management system is organized in six sections, inspired by the cataloguing system developed for Ajanta wall paintings:

- IDENTIFICATION: it contains data about the exact geographic location of an artifact (Country, Province, Region, Locality, Specific Area, Collocation), but also information dealing with its geometry (Height, Thickness, Width, Perimeter, Surface) and its general description (Century, Year, Artist, School, Technique, Restoration);

- DOCUMENTATION: in this section it is possible to register bibliographic and archival information (Bibliography, Archival documentation), Graphic documentation and Photographic documentation;

- LOCATION/EXPOSURE: it gives references to Collocation, Protective and Security system and Exposures or Environmental risks that could cause deterioration;

- TECHNICAL DATA AND CONSERVATION CONDITION: this section provides data about the different layers of the artifacts (Support structure, Preparatory layers, Paint layers, Finishing layers) and analyzes for each of them its Constituent materials/ Technique and types of deterioration that could occur (for Support structure Deformation, Disconnection, Fissures, Lacunae, Whitening, Biological Alteration, Moist area, Efflorescence, Combustion traces, Recognizable previous restoration, Other);

- RECOMMENDATIONS FOR INTERVENTIONS: this section is divided in Urgent temporary measures, Short-terms interventions, Mid-term interventions, Long-term interventions and Maintenance and monitoring. For the first and the last term it's possible to fill out the empty fields. The other terms contain several available options (Facing, Restoration of paint film cohesion, Restoration of paint film adhesion, Restoration of preparatory layers' cohesion, Restoration of preparatory layers' adhesion, Biocide treatment, Removal of not functional elements, Superficial Layers cleaning, Unfit plasters removal, Salts extraction, Infilling, Pictorial Reintegration, Superficial protection, Analysis, Other).

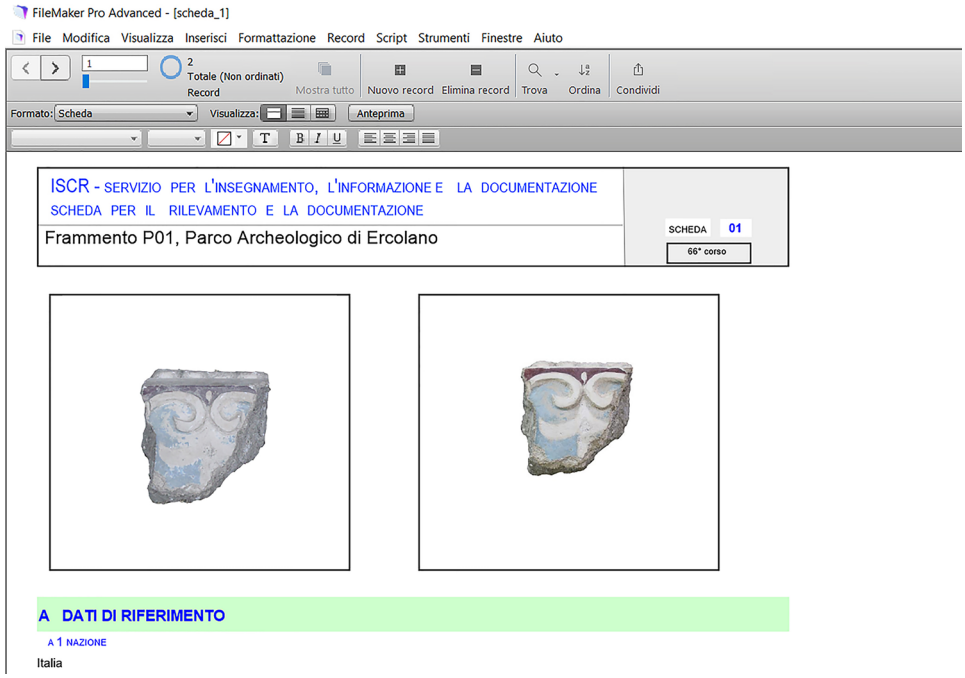

Fig. 3 An example of data sheet file (Photo Credit: ISCR-Matera students)

Each section is divided into fields with different levels of detail, defined by obligatory under-fields. To fill out data recording, the user selects permitted lexicons, included in a drop-down menu. This mode is used to avoid typing mistakes and to unify the technique lexicon.

To achieve this goal, we generally modified the data linked to wall paintings with those referring to stuccos (like Stucco, Polychrome stucco, Golden Stucco instead of Fresco, Fresco with secco finishes, Lime, Tempera, Oil, Other in the option Technique in the IDENTIFICATION section). However most of the work consisted in the introduction of new terms referring specifically to stucco artifacts. For instance, we added the voices Wood and Metal to Constituent Materials of Support Structure, in the section TECHNICAL DATA AND CONSERVATION CONDITION. We also included the voice Anchor elements (Type: Metal, Wood, Rods, Other). In fact, for three-dimensional stuccos or stuccos with strong projections, rigid structures were usually used, accurately waterproofed with oils, waxes, resins and mastics. Moreover, we added the voice Shape layer, which does not exist in the frescoes layers. Like the other layers, it is developed as explained above (data about its Constituent materials/ Technique and types of deterioration that could occur). To give an example, we specified the employed materials for this specific layer: Mortar, Tuff, Bricks, Vegetable fibres, Animal fibres, Reeds, Wire, etc.). Besides in Preparatory layers we included the voice Preparatory drawing with all its specifications.

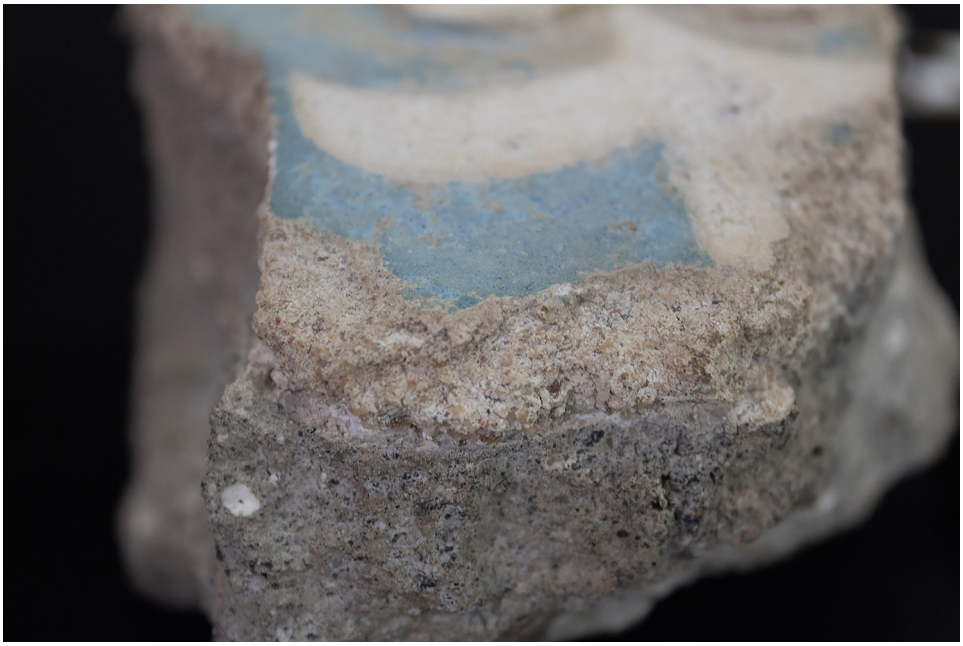

Fig. 4 Preparatory layers (Photo Credit: ISCR-Matera students)

Another field was included to our stucco data management system: Finishing layers. Its Constituent materials contains, amongst the others, the voice Sparry calcite. It is a coarse-grained calcite crystal that was usually used by ancient Romans to make their stuccos or plasters more similar to marbles, thanks to the particular light reflection effects given by its rhomboidal crystals. Finishing layers Drafting signs/Tooling technique include the important distinction related to the different types of relief decorations. They can be shaped and directly modelled on the plaster (Relief decorations) while it is still fresh and moldable or they can be obtained thanks to stamps and matrices applied on stucco (Mold decorations) or pre-shaped in a matrix and then applied on the preparatory layers (Applied decorations). The matrices used by Romans were made of wood and pottery. To facilitate the detachment of the stucco from the matrix, they used to sprinkle matrix interface with stone or marble dust. The signs of the application of these molds are recognizable by the presence of ridges, formed when the molds were lifted from the mortar. To hide defects or to better adhere the applied decorations, the stuccos were often reworked with spatulas or other tools. If compiler notes these signs he can choice the option Signs of tools used for drafting and tooling.

In the last layer, called Painting layers, the recorded data are similar to fresco ones and we made only few changes and addition: we used the term Colored mixture to refer to the practice of mixing the pigment with the mortar to create a colored stucco.

Lastly, for all the layers the voice Anthropic damage/signs was added.

Fig.5 Oblique light points out the consistency of the painting layer (Photo Credit: ISCR-Matera students)

This cataloguing system makes possible to gather the recording sheet in a database that allows a faster management of metadata and an easier access to information. It represents indeed a useful instrument that can be employed by conservators and the wider academic context.

Simultaneous management and archiving of sheets of different manufactures make it possible to conduct comparative research. Thanks to which, it is possible, for example, to deduce the intended use of a given material, in a given period, for a specific category of artifacts. This program is therefore also a valid historical-critical analysis tool, as it gives a broader and cataloged view of different details in a single interface.

During the creation of the data management system, it was necessary to re-evaluate the lexicon used in the documentation of man-made stone materials, from the techniques of execution to the state of conservation.

The aim of this work is to create a univocal model for the description of man-made stone artifacts, in order to create a common language. Moreover, it would be opportune in the future to create a web address where you can consult the sheets of already cataloged artifacts, and at the same time, be able to use the data management system for the documentation of all works.

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