

ABSTRACT

Scientific Casts for the Preservation and Study of the Paleontological Findings. The APAT Collection: Possible Actions

Paleontological collections are constantly at risk. This is generally due of an incorrect or inappropriate preservation of the items, but more importantly the danger might often be represented by a lack of dedicated space for display, of monitoring, restoration and care. The prompt implementation of scientific casts might be a solution, even though the risk of damaging the specimen is high. Scientific casts can help avoid irremediable damages to the specimen and at the same time allow easier usage of the paleontological data. A properly executed cast can in fact be used - even in scientific studies - as an acceptable substitute for the original specimen.

Casts of the specimens would also prove crucial in the lending of items to other museums and exhibitions, a very common practice which scientific institutions are usually very open to. Copies will free the authorities responsible for the care of the items from any problem related with this practice, such as insurance, use of personnel, responsibilities of the curators, unexpected events, theft and so on.

The purpose of the present work is to take a fundamental step towards the casting of all specimens contained in the display windows and APAT repository, starting with the analysis of an important portion of that materials - the Curioni's collection. The object of such analysis is the investigation of the most suitable methodologies, as well as the potential problems arising from the casting of the above-mentioned specimens. The first step has been an assessment of the role of casting in scientific studies and museums. Scientific casts are in fact indispensable tools. They are instrumental to the preservation of the scientific data, but also they provide researchers with paleontological materials without the risks involved in handling the precious and fragile original specimens. Not least they allow the scientific specimens to be safely displayed in a museum environment.

Subsequently we analysed the essential components of a cast, in particular those components that in technical terminology are called negative, mould and positive. Particular attention needs to be given to the planning of these three components, every time we are about to create a cast; in doing so we ensure a good final result as well as the best possible protection of the original specimen.

Once analysed the components of a cast, we moved on to examining the materials most commonly used, identifying technical aspects, main usage and – in case of toxic materials - any health and safety handling guidelines.

In order to have real scientific value, the cast must be an extremely truthful replica of the original piece - perfect in every detail. The way to achieve this level of perfection without irremediable damage to the specimen is to thoroughly assess the original piece, its physical characteristics and its preservation. Also particular attention needs to be paid to the choice of materials as well as to the most accurate planning of the whole casting operation. Therefore a comprehensive knowledge of all possible replication techniques is indispensable.

At this point our work focussed on analysing the different techniques, based on the examination of work previously carried out and well documented. We considered the process of creation of small-surface casts, large-surface casts, small-size three-dimensional fossils, large-size three-dimensional fossils, and also of a particular type of disposable cast that can only be used once.

So far we had gathered basic knowledge on the role of casting - from a scientific, didactic and educational points of view – as well as knowledge on the materials' qualities and their potential and on the methods and issues associated with them. Then we switched our focus on the real matter of the specimens included in the Curioni collection.

Before moving on to work on the original findings we examined some old casts of Curioni specimens made about 30 years ago. Although only briefly, such analysis allowed us to look into a further matter; the life-span of a cast and its components. Particularly on how this life-span is partly dependent on the methods of replication, partly on the chosen materials and partly on the level of care and storage conditions.

To Museums, Scientific Institutions, Universities, as well as to APAT itself, we hope that this work will represent an incentive to seriously look after the great heritage they are responsible for in front of Science, and of which importance they seem largely unaware.