

*Dossier:* La documentazione grafica assistita da elaboratori: uno strumento per il restauro

### *Dossier: Computer-assisted graphic documentation: a restoration tool*

In the conservation field, computer technology is used for storing information and for thematic mapping of data relating to techniques of execution, the state of conservation, and the work carried out on an object under restoration. The use of computer technology for these purposes has been discussed at length and there exists a wealth of experimental material on the subject. Particular attention has been paid to ways of recording and processing thematic maps, and much experience has been gained in this field within ICR. One such project concerns an on-site information system for gathering historical and conservation data. The system was designed to act as a support for the evaluation of the scale of the restoration work, during the planning stage, and to be a data bank for reference purposes, as well as having multimedia features. In order to devise a truly efficient tool, the menu systems of a standard graphic program were modified so as to make the software useful for the restorers, enabling them to record and process data relating to thematic mapping. This was achieved by creating the separate categories and classes which the graphic documentation for the restoration project was divided into. For the meaningful recording of data, which is the restorer's responsibility, the special skills of the documentation expert and the computer expert are also used in equal measure. The present tendency seems to be that of data moving towards application programs of the GIS type. Therefore, at least as far as the analysis of recorded data is concerned, it is important to maintain a type of system management which can also be used by people who are not specialists in computer graphics. This means developing interfaces that are user-friendly and which do not reduce the processing capacity of the selected software.

*America Tropical:* un murale di David Alfaro Siqueiros a Los Angeles. La registrazione digitale del condition report

### *America Tropical: a mural by David Alfaro Siqueiros in Los Angeles. Digital recording of the condition report*

The scandal that Siqueiros unleashed when he painted a mural entitled *America Tropical* with a highly revolutionary theme in downtown Los Angeles, only died down when the mural was plastered over. In recent years the mural has been uncovered, and the aim now is to make it visible once again through documentation and conservation. A team made up of GCI experts supported by an ICR specialist has developed *in situ* documentation techniques, based on digital photography, which have enabled the restorers to compile the condition report directly on site. This procedure is the result of experience gained at ICCROM and ICR and has evolved in an entirely original manner making use of GIS software and programming techniques. It demonstrates the need for data recording procedures that are regulated, standardised, repeatable and cost-efficient.

Tecnica esecutiva di un gruppo di tombe dipinte da Capua antica

### *Techniques used in the decoration of a group of painted tombs in ancient Capua*

The article begins with an overview of five decorated tombs (four coffer-shaped, one room-shaped) located in the necropolis of ancient Capua, dating from the second half of the fourth century BC. Analysis was carried out on the construction methods for the tombs as well as on the techniques used to prepare the wall surfaces and the painted decoration itself. Even though only a small sample was examined, the conclusions are very clear: the construction methods show particular features that are confined to the Capua area; the decoration was carried out *in situ*, quite rapidly and part of the ritual, with the predominant use of fresco techniques. Proof of this can be seen in the accidental marks left by the craftsmen or, as is more likely, by the corpse itself being lowered into the finished tomb when the plaster surfaces were still soft. In the somewhat limited range of styles and colours used, there are some obvious differences in technique relating to the time-scale of the burials. In the more recent tombs, the attempt to imitate the grand manner leads to a different technical approach by the artist-craftsmen.

## ABSTRACT

Il *San Domenico* della Galleria Borghese: tecnica di esecuzione di un Tiziano maturo

*Titian's San Domenico in the Galleria Borghese: techniques used in a late work*

The maintenance and checking of several works during the renovation of the Galleria Borghese provided an occasion for examining the techniques used by Titian in a work from the later period of his life, comparing them with those used in a youthful work, *Sacred and Profane Love*. Close comparison revealed the extraordinary evolution and simplification of the language used by the artist.

Lo sbarramento chimico all'umidità ascendente mediante prodotti silossanici: risultati sperimentali

*Chemical blocking of rising damp by means of siloxane products: experimental results*

Amongst the many systems frequently used against rising damp in old masonry structures, a significant number are based on what is known as the 'chemical barrier' method, achieved by injecting water-repelling agents into the wall structure. Amongst the injection agents reviewed in the multi-discipline research project described in this article, there are four organo-siloxane products whose characteristics, at least in theory, make them ideal for the purpose. The aim of the research was to evaluate the efficiency of chemical blocking systems and to check the performance of the four products in question, in terms of their ability to dry out damp masonry, at the same time taking into account the conservation problems inherent in this type of operation. The experimental phase, designed and conducted by examining different integrated aspects (architectural, chemical-physical, and biological) was carried out in two phases: first in the laboratory, then *in situ*. The preliminary results were outlined in a previous publication, whilst this article gives the outcome of the evaluation of the agents from the point of view of their resistance to biological degradation and the degree to which they induce bio-deterioration phenomena, as well as their chemical-physical properties mainly in terms of their performance *in situ*.

Studio conservativo della vetrata absidale del Duomo di Orvieto

*Conservation study on the stained-glass window in the apse of Orvieto's cathedral*

Restoration of the stained-glass window in the apse of Orvieto's cathedral (14<sup>th</sup> century), which began in 1989 and was finished recently, was undertaken to resolve structural problems relating to the window itself and the false window protecting it. Amongst the aims of the project was to examine the state of preservation of the work and to check the effect that the false window, probably installed in the late 19<sup>th</sup> century, had had on the conservation of the window itself. To establish the nature of the materials and the deterioration mechanisms, pieces of stained glass – some original, others restored – were analysed. Some were well preserved while others showed signs of corrosion. Analysis was carried out by means of a scanning microscope and X-ray microanalysis (EPMA). Deposits on the glass surfaces were analysed by X-ray diffraction (XRD). The combination of microclimatic checks and the study of the materials used in the window led to the conclusion that the false window had indeed protected the work, sheltering it from the effects of bad weather and reducing heat and humidity variations. Chemical analysis showed that the window is made up of three types of original glass, one of which was probably produced locally.

Il restauro dell'icona della Madonna di Fermo: problematiche di un manufatto polimerico

### *Restoration of the Madonna di Fermo icon: problems affecting a multi-material work*

This article illustrates a typical restoration project on an object made up of several types of materials, put together with different techniques and at different times, carried out in order to prepare the object for display in a museum. The article also shows how the combination of different professional skills working together with scientific and technical laboratories contributed to the overall success of the project by harmonising the modes of operation and the presentation of the results. The article describes the icon's precarious state of conservation due to the environment in which it is kept and to the working techniques used in its construction, as well as damage caused by its use for religious purposes and that caused by early restoration. The icon, measuring 46 x 36 cm, has been in the town of Fermo since 1473, where it is kept in the cathedral in a wooden box on which there is a painting on canvas depicting the story of its origin. While the canvas was being detached, a wood engraving which no-one had suspected came to light. The removal of the silver covering revealed large areas of filling material. Once the wood engraving had been cleaned, it was possible to see that the previously concealed areas were also completely painted, with a golden background and red halos and frames. The results of the analyses are given. As far as possible, non-destructive tests were used in order not to damage the icon in any way. The results provide interesting information about the materials used in its construction, including the use of gilded silver for the wood engraving's golden background. The various treatments used are described and discussed: cleaning, consolidation, and re-integration of the lacunae of the single components – silver covering, icon, canvas and paper woodcut.

I globi di Matthaeus Greuter in Palazzo Chigi a Roma

### *The globes by Matthaeus Greuter in Palazzo Chigi in Rome*

The study of materials and construction techniques, together with reference to historical and literary sources, reveals the complex semantic significance of the globe as a composite hand-made object. The examination of the various phases of execution and assembly, from the graphic prototype of the panels to the variations in colouring, extending to include research into the historical co-ordinates of dating and signature, therefore condition the critical options available on what type of restoration action to take. The fact that the craftsmen had wide powers of discretion during assembly and finishing means that globes were far from being mere mass-produced objects, which is only apparently the case. Rather, they are specific and singular objects – in some ways, closer to the modern aesthetic category of open works.

Recensioni: Rassegna di opere sulla bronzistica antica

### *A review of some contributions on the technology of ancient bronzes statues*

In the past decade were published various important books and articles dealing with the ancient technology of large bronze statues and its manifold historical, aesthetic and archaeological implications. Many of these contributions have centered on the reconstruction of ancient manufacturing techniques and the way they materially affected the outer look and the subsequent conservation of the bronzes themselves. Among the most critical issues are the question of the precise dating of the introduction of the serial production of bronze replicas from the same clay model made possible by the indirect process of bronze casting, the reconstruction of the original surfaces, the details of the finishing techniques, the intentional alteration of bronzes by applying artificial patinas, the traditional techniques of conservation and maintenance of the statues with specific treatments. With the consciousness that our country has played - and will also play in future - a meaningful role in the research and the conservation of large ancient bronzes, by reviewing four important books dealing with these and other crucial themes, at the re-birth of our Bollettino, ICR means to contribute to further develop the scientific debate in Italy and abroad.