

Il complesso microclima degli ambienti ipogei: difficoltà e precauzioni per la musealizzazione

Microclimatic conditions in underground structures (hypogei): difficulties and precautions when such areas are opened to the general public

The deterioration agents produced by the environmental conditions within structures below ground level can be found by examining the thermo-hygrometric dynamics of the atmosphere within and around the structure. In this way, monitoring programmes carried out in recent years at the "Domus Aurea" in Rome and the "Tomba dell'Orco" in Tarquinia have shown evidence of some recurring phenomena in the behaviour of enclosed systems, while pinpointing some critical aspects linked to the particular environmental microclimate that exists in such places.

Alterazioni cromatiche della pietra indotte dall'applicazione di biocidi su colonizzazioni biologiche epiteliche

Colour alterations on stone surfaces caused by applying biocides to biological colonisations

It has often been noticed that, amongst the negative effects of applying biocides to stone surfaces affected by biological colonisations, colour alteration is one of the most frequent and undesired effects, especially in cases where the disinfection treatment is used against alterations caused by photosynthesised micro-flora. The aim of the research was to study colour alterations due to the application of new chemical compounds for treating biological colonisations on stone surfaces. In particular two aspects were examined: the colour alterations produced by biocides on uncolonised substrates (therefore due only to the biocide), and changes in coloration due to the use of biocides on colonised substrates (therefore due to the release of pigmented molecules by the biodeteriogens contained in the biological materials). The results of the survey showed that the main coloration problems are linked to the use of substances containing quaternary ammonium salts, and that the effects are particularly visible when these biocides are used on colonisations consisting of cyano-bacteria.

L'oltremare naturale nella Basilica di San Francesco ad Assisi

Natural ultramarine in the Basilica of St Francis, Assisi

On September 26th 1997 the earthquake hit the Basilica of St. Francis in Assisi causing the collapse of some vaults in the upper church. The collapse interested also the rib between the vault depicting St. Mathew (at the cross between the nave and the transept) and the last vault with stars on a blue sky in the nave. The restoration works involved the re-composition of the painted fragments of the rib and a conservative revision of the Stories of St. Francis. These works allowed also technical investigations, included an examination of the composition of the paint layers, carried out through X-ray fluorescence, X-ray microanalysis associated with a scanning electronic microscope, Raman spectroscopy and optic microscopy. Referring to the blue pigments, these investigations pointed out the use of the natural ultramarine (lapis lazuli) in addition to azurite. The presence of azurite was well-known in the previous scientific documentation concerning the wall paintings in Assisi Basilica, while the detection of lapis lazuli was not yet documented for the same paintings. Lapis lazuli (as ultramarine ash) is now recognized in the upper Basilica, in some pale blue fragments from the decorated surfaces of the rib and, among the Stories of St. Francis, from the Vision of the celestial thrones. Moreover, a very good quality of lapis lazuli has been detected, mixed with azurite, in the Cantoria placed in lower church of the Assisi Basilica.

ABSTRACT

I murali del Centro di Arte Pubblica e Popolare 1964-1975: tecniche e problemi di conservazione

Wall paintings at the "Centro di Arte Pubblica e Popolare" 1964-1975: conservation techniques and problems

The paper examines works carried out by the "Centro di Arte Pubblica e Popolare" from 1964 to 1975. The centre was a meeting point for young artists and intellectuals whose creative expression took the form of large-scale external wall paintings, using new and unusual materials, dealing with political subjects along the lines of the Mexican murales. As artists, they experimented with "modern" painting techniques using established industrial products. For conservation purposes, several of the paintings were detached from their original wall sites and remounted on innovative supports made with standard materials used in the construction industry. The paper deals with five works from various sites around Italy, examining their composition and the materials used, with a particular focus on the works from the Fiano Romano area. Originally conceived as long-lasting artworks, today these wall paintings are showing signs of deterioration with a number of conservation problems still to be resolved. In spite of this, they remain interesting study items in the broad sector of contemporary art materials.

Osservazioni sulle tecniche di doratura nella pittura murale della Basilica Inferiore di Assisi: una rilettura delle fonti

Gilding used on the wall paintings in the Lower Basilica of St Francis, Assisi: materials and techniques, comparing and evaluating sources

The paper focuses on the gilding techniques used on the wall paintings in Assisi, referring to information regarding their execution obtained during the maintenance and restoration work carried out by the ICR in the 1990s. As part of a cross-checking process, technical measurements and direct observation were compared with the scientific investigations and the related documentation. Our attention focused mainly on the execution procedures, especially the materials used, and how they were prepared and applied. On the basis of this information, we then examined some of the conservation aspects relating to the use of techniques and materials which were less long-lasting – materials such as silver, what was known as "oro di metà", and tin laminas where the gilding tends to become detached from the support.

Le lamine metalliche nei cicli pittorici della Basilica Inferiore di San Francesco di Assisi

Metal laminas used on wall paintings in the Lower Basilica of St Francis, Assisi

During the maintenance and restoration work carried out in the 1990s on the wall paintings in the Lower Basilica of St Francis, Assisi, we were able to examine closely the decorative features made with metal laminas. Samples were taken from the cross-vaulting, the central nave and the Maddalena chapel, to be analysed mainly by means of X-ray diffraction and X-ray microanalysis with scanning electronic microscope. These tests broadened our knowledge of the laminas and the preparatory layers, showing the use of gold laminas, gold on tin, tin alone, and a lamina containing silver. Substances produced by the alteration of the tin laminas included romarchite and cassiterite. The results obtained were compared with similar studies on record, and with the formulas contained in the Libro dell'arte by Cennino Cennini.

L'Annunciazione e la Beata Michelina di Federico Barocci nella Pinacoteca Vaticana: osservazioni in seguito agli ultimi restauri
The Annunciazione and the Beata Michelina by Federico Barocci in the
Vatican galleries: observations following recent restoration work

This paper starts from the cleaning and maintenance work carried out on the *Beata Michelina* by Federico Barocci, at the painting restoration laboratories of the Vatican Museums in 1999. As so often happens, such a restoration project provided a unique occasion to examine the work closely and to investigate the many aspects of its cultural context. The painting's conservation history is put together through the existing documentation (written, printed, graphic and photographic) combined with technical and scientific examination of the materials used and the current state of conservation, in order to provide more objective information about the work. By studying the various types of deterioration and comparing them with those that came to light during the restoration (1994) of Barocci's *Annunciazione*, we were able to build up the details of the painting's history. The work's state of conservation today includes altered and restored parts – some quite small, others on a much larger scale – which disturb its formal unity and have a marked effect on what we see. Therefore, a proper understanding of its state of conservation (Urbani) depends to a large extent on how much belongs to the original painting and how much is the result of alterations and restoration carried out over the years. With this knowledge, our understanding of the work becomes more objective.
