

## Giordania: Project of restoration of frescos at Qusayr Amra (Inglese)

Progetto di restauro realizzato in collaborazione con "L'istituto superiore Antonio De Stefano" (I.S.A.D.) con il coordinamento del dott. Giuseppe Infranca.

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After the first visit at Qusayr Amra at the end of November 2002 during which had been underlined the serious state of degrade of mural paintings, and following the results of the first scientific analyses that the first diagnosis has confirmed done on the spot, today we can define in more concrete way the project of restoration that will allow us to operate in correct way for the recovery and the safeguard of this important pictorial cycle.

### Pictorial technique

As it regards the pictorial technique, through the direct analysis and in base to the results of the chemical analyses, we can affirm that the paintings of Qusayr Amra result perform on a building support preventively constituted by blocks of stone plastered and then covered by a layer of mortar and inactive (sand).

The used colors are constituted by earths and oxides, but an abundant use of particularly precious pigments has been found as the lapis lazuli, that allowed to get refined images, bright and of great suggestion.

In line of motto the preparatory sketch and the first layouts of color result applied while it is wet, but the presence is not excluded of fixed organic as milk, applied for instance, both to fix the colors and as protective ending. Chemical analyses have also individualized the presence of animal glue, that could have been used as medium for the layout of the lapis lazuli. The particular conditions microclimate of the building, besides, during the execution have favored a slow, but repeated process of carbonation that, mineralizing the organic legates, that increased the resistance of the colors.

Inside the places used as bath room it has been possible to individuate traces of plaster painting of fragments under the actual painting. In the operational phase it will be of primary importance to analyze the situation reconstituting through the detailed reading of the surfaces the history of this stupendous building.

### State of maintenance

From a first general reading at a distance from the opera, the paintings are found in a quite good state of maintenance, if the low part is excluded (once painted up to earth as false marbles) damaged by the rise humidity, but still worse damaged by writings, incisions and other vandal actions provoked by the man, that have caused the total loss of it.

Other interesting pictorial gaps the upper part, is due, with a lot of probability, to infiltrations of water from the covers and to structural arrangements that has provoked the fall of the pictorial film. They are visible, besides, a lot of chromatic alterations due to deposits of black smoke that as antiesthetics are manifested stains. With a lot of probability the humidity of infiltration and of condenses (because in the adjacent rooms there were bathes) which favored in the time the solubility of the black smoke that has gone to fix on the pictorial plaster.

A degrade particularly evident has been provoked by the last intervention of restoration during which the paintings, not correctly clean, have been fixed with a product of synthesis (product used for the reframe of the mobile paintings) that has provoked a waterproofing and a hardening of the superficial part of the pictorial plaster. Accordingly, the humidity contained in the masonry, not succeeding in evaporating on the surface, it has caused the micro-crack of the pictorial film and therefore a de-cohesion of the legates had already been jeopardizing for the time. The fixative, besides, is altered to grow dim and darkening the original color.

Always with reference to the previous intervention of restoration, we have noticed that some gaps have been reinstated to "neutral" gluing some colored fabric with a greenish shade directly on the stone. This unusual methodological choice results overall incorrect and particularly ugly.

### Proposal of a conservative intervention

Before undertaking the intervention of restoration, with the aim of the scaffolding and therefore to bring closer vision it will owe a further analysis of the pictorial surface so that to deepen our knowledge on the pictorial technique and on the state of maintenance. In this phase the portions of plaster will be individualized de-cohesion intervening with micro consolidations located in the zones to risk and using adhesive or cohesive (to establish in progress of work) that they don't prevent the following phases of the restoration

The following operation is constituted by cleaning performed through the collision with water ionized of the whole surface, previous interposition of a sheet of Japanese paper. This intervention will allow of to convert the pictorial support the parts of color pulverized and dusty and to get a preliminary cleaning for the removal of the incoherent material deposited on the pictorial film (dusts).

After doing this the problem is set to remove the synthetic fixative (drinks). It deals with a very delicate and difficult operation, in particular way whereas the de-cohesion of the plaster is strongly accented. In this case it is possible to perform a mineral pre-consolidation with hydroxide of barium: the barium, not reacting with the synthetic substances, it goes to cohesion in stable way the color to the plaster and the same plaster, facilitating the final cleaning and the consequent removal of the fixative applied in the last restoration.

This operation consists in the application on the pictorial surface of package of ammonium's carbonate supported by pulp of cellulose. The ammonium's carbonate, saturating of humidity the plaster, it still allows the bulge the organic substances introduce above the pictorial film and below the fixative. Subsequently, using an appropriate solvent, it will be possible to remove the synthetic fixative together with the dirty too

much without an incisive mechanical action and without imbuing the plaster by now saturated of water. If the particular colors (lazuli) are sensitive to the carbonate of ammonium, the cleaning will be performed with bicarbonate of ammonium or resins to ionic exchange. The times, the ways, the percentages of solvent, will be put in operational phase, after having performed small tests compared of cleaning.

After the complete cleaning, the paintings will be relived with water de-ionized preparing the support to the consolidation that will be performed with Hydroxide of Barium applied for diffusion to a package of pulp of cellulose supported by Japanese paper. The hydroxide of barium, carbonated inside the pictorial support, will go to recreate a cohesion material both of the color of the plaster that of the same plaster. This operation can be repeated in all that cases in which the de-cohesion results particularly a lot accented.

The following operations can be reassumed as follows:

- consolidation of the pictorial plaster to the building support through micro fixative to points or with injections of plaster of mortar;
- Stucco of the deprived surfaces of the pictorial plaster;
- pictorial retouch for climax all the abrasions and the small lacks so that to make more good-byes and unitary the reading of the opera. The choice of the method for the pictorial reinstatement will be established after the cleaning and the stucco, in way of having the real situation together.

## Maintenance

It is important after the intervention of restoration to individualize through a project of maintenance, the optimal conditions for the safeguard of these stupendous paintings. A first intervention is that to avoid that the dust of the desert pushed by the wind penetrates inside the building going to deposit on the pictorial film. For this it is possible to create some barriers with rooms of compensation before the entry of the building; these would also create automatically a climatic equilibrium in the environment in natural way avoiding apparatuses that in this case would not have a correct prosecution to all of this avoiding a continuous control of the covers, must be added in this way of the improper infiltrations of humidity. More over the elimination of the stucco in cement to the out-side of the building, replaced with mortar and sand, will avoid infiltrations of humidity and at the same time will allow a better aesthetical presentation of the whole building.