

THE RESTORATION OF MONUMENTS AND HANDMADE OBJECTS: TECHINICAL AND ECONOMIC PROBLEMS IN THE ITALIAN EXPERIENCE

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The main aim of the restoration is the "potential restatement of the work of art" respecting the history and the aesthetics; indeed, the integration works made with modern materials shall not destroy the unity of the original work.

In the ancient time the restoration was interpreted as a remake and recreation on its own, so the restored monument appeared with a lot of elements that reflected the artistic style of the period of restoration.

Since the 1800's prevailing the idealistic conception of art, the restoration was considered as an aesthetic problem, and it has been made in respecting of the creator's personality, with a scientific rigour, sometime not correctly interpreted (for example the restoration of Cnosso's building made by Evans).

The problem of restoration can be divided in two different phases: the restoration of the monuments and the restoration of the handmades products discovered during the excavations.

The restoration of the monuments

In Italy the will of preserving monuments, with the ultimate aim to reconstruct the life of the ancients has been present since antiquity. However, the used techniques of restoration and maintenance of monuments are not very often suitable, especially for the architectural structures. The knowledge of the essence of the object to be restored and a special sensibility to select and dose the materials to avoid the damages in putting together the new and the old are the fundamental elements to reconstitute the ancient solidity of monuments; sometimes, mainly in the ancient form of architectural restoration, we can see materials with a different degree of ductility and elasticity put together, for example steel near the concrete lime or stone.

Now they are introducing in the research campaigns some expert teams, coming from specialized technical schools, able to introduce new know-how facing the new demands. Of course, this operation has increased the costs of the excavation campaigns; They now need to find some "sponsors" to pay the few available experts in the field who are able to work with new technologies. Speaking about new technologies we can refer to the examples of the restoration of the Attalo's Stoa, in the Athens' Agora, made by the Rockefeller Foundation. That is a very interesting case, even if someone contested it: it was transformed in a functional building, hosting the Agora Museum.

Another interesting restoration example is the Tito's arch, rebuilt in 1821 by Valadier, with the new part in travertine, clearly distinguished by the old marble parts..

So we can saying that the work of reconstructive restoration is becoming more and more difficult for its high costs and high level of responsibility for the historian and technician. For example we can consider the case of the Flavius Amphitheatre (Coliseum), restored by a very specialized restoration team guided by true professionals and sponsored by one of the most famous Italian Banks.

The experience realized in Rome during the last ten years assumes a great importance with reference to the problem of the archaeological restoration on an urban scale in relation to the big monumental sites.

Since 1978 the archaeological department of Rome has given the alarm for the situation of the marble monuments standing in the archaeological area in the centre of the city; indeed the department noted the too high level of the static degrade and the progressive erosion of the surface of these monuments, due to the traffic pollution and to the chemical elements contained in atmosphere. For such a serious situation an irreversible deterioration of the most important monuments of the history of arts could be foreseen; this forecast was supported by available proven scientific data. It was clear that this situation needed a complex recuperative action addressed to the whole urban organization of the modern city: deviation of the traffic trajectories, partial closure to traffic of the ancient center of the city, determination of areas delimiting the boundaries of the monumental sites, creation of urban archaeological parks.

The real cultural relevance of this question was understood by the Italian government, that in 1981 introduced a law concerning some urgent rules for the protection of archaeological patrimony in Rome. This law fixed a total expenditure of 180 billions of Italian liras and addressed 70 billions to the urgent restorations; such an expenditure was not sufficient to resolve the whole problem of the artistic degrade in Rome, but it permitted to restore the most urgent situations. On this occasion several projects were elaborated and articulated according to the following basic ideas:

1. Reconstitution of the original unity of the Roman Forum, Capitolium and of the Coliseum, with the closure of the "via della Consolazione" to the traffic and its excavation; at the same time the temples of Vespasianus and Titus, of the Concordia and the portico of the " Dei Consenti" were restored. In the Coliseum valley the " Meta Suda" was excavated, Nerone's Colossus was excavated and restored, and the restoration of the Costantin's arch and of some big parts of Coliseum was finished. These operations have assured the isolation of monuments from the traffic, from the vibrations of lorries and underground and from smog pollution.

2. Reconstitution of the original unity of Imperial Forums. At the beginning this project planned the excavations of the whole Forum Traianum and the Forum of Caesar and Nerva, with the consequential closure of Forums street to the traffic, that is one of the most important and central streets on the city. But the project started with the partial excavation of the Nerva's Forum only, and then was stopped because of reflected by political and cultural reason concerning the disruption of the Forums street.

3. Restoration of the main marble monuments of the central archaeological area and preliminar technical studies and the whole restoration of: Traianus's and Antonius's column, Titus's arch, Settimius Severus arch, Argentari's arch, column of Foca, Castori's temple. It is the largest program of restoration of marble monuments never realized before in Italy.

On this occasion the restoration process led to the discovery of several elements, like for example the presence of protective glosses on the original surface of the figurate marble monuments (Traianus's and Antonius's column and the arch of Costantinus) and of some traces of ancient colours on the same monuments.

The results of project were described both on scientific Journals and magazines.

The restoration of handmades

The second aspect of the restoration problem is the restoration of handmades articles. In fact if the historical research and the restoration of monuments are two of the main processes in reconstructing a people's history, the ancient handmade article is the most certain instrument to know the ancient way of life of that people. Indeed, a special importance is given to all activities addressed to the general "conservation" of handmades articles and to their restoration.

Today the activity related to the restoration work of handmades articles is particularly difficult, although those responsible for the management of the archaeological research consider it a very important stage in the excavation works.

These difficulties stem, also in this case, from a series of technical and economic problems. First of all the restoration of the handmades articles must be guided by experts, who must be able both to start the work and to present a detailed analysis of the actual state of handmade articles. The restoration expert is also to be able to carry on an historical inquiry about the original conceptualisation of the ancient project.

Now I would present to your kind attention an example of restoration, that I know from direct experience; indeed it was made by the technical team of the Professorship of Ancient Topography of Catania University that considers the reconstructive restoration as a integrating part of any research on the ground.

They regard the partial reconstruction and consolidation of walls of houses in an indigenous Hellenistic site standing on the inside part of the territory of Agrigento (near Raffe of Mussomeli) that is object of a excavation work under my direction.

The terraced town of Raffe presented a number of houses built with an uncommon technique in Sicily: the internal part of these houses was excavated in the rock, while the external one was built with a stone walls. The main target of the restoration of this place was to preserve the static of the stone walls of the houses, that at the time of discovery were in a ruin-state. This restoration could solve, by an extreme cautious consolidation work of the walls, the problem of the steepness of the hillside on which the house was standing.

It might be very interesting to speak also about the restoration of coins.

Institute of Archaeology of Catania University has his own restoring section, directed towards the restoration of materials found in excavations organized by teachers and researcher. Relative expenses are covered with Institute's endowments or research funds of the teachers.

Owing to the large number of excavation campaigns conducted every year, the restoration of metal and in particular the cleaning and the restoration of coins have notable significance.

Restoration of coins is made in two stage:

1. Coin cleaning;
2. Coin protection.

First, coins are carefully inspected to see their status of conservation and to determine cleaning operations. In some cases it is sufficient to remove mechanically earth and calcareous encrustations. Otherwise different methods are employed regarding the base metal of the coins, bronze silver or gold.

For the bronze coins it is often possible to remove with bistoury copper oxides and/or copper chlorides without damage to the patina. In case of starker encrustations it is necessary to put coins in NH_3 30% solution with alcohol or in EDTA 5% bath. For the heaviest oxydations a bath of sodium hydroxide mixed with glycerol can be used, but this solution may cause the removal of the green patina from the coin.

More difficult is the treatment for silver coins, owing to the fact that, regarding the soft metal, is impossible to use mechanicals cleaners. For light oxidation a bath in NH_3 solution is recommended. Otherwise standard electrolysis at low voltage is needed or, in preference, a bath of sodium hydroxide with zinc powder or oxide; a possible alternative is an EDTA 10% bath.

Gold coins normally don't suffer any encrustation and it is sufficient a bath with sodium bicarbonate to remove acid elements and to give original shining to coins.

After cleaning coin protection is necessary. This protection is normally made with a paraloid 5% solution in alcohol. For bronze coins, to avoid cyclical corrosion, is important to treat them before with hydrogen peroxid in alcohol and then with a NH_3 30 % solution to prevent the forming of copper oxichloride.

I would present two restorations works made in Catania. The first is the case of Benedettini Monastery. The excavation works made in the Benedettini Monastery, standing on the acropolis of Catania, by the Department of Arts and Archaeology and the Archaeological Institute of Catania University have discovered the relics from several eras, from the prehistorical period until the 1693, when a violent earthquake destroyed the whole town of Catania.

The exigence to preserve the architectural integrity of the monastery, one of the most precious examples of Sicilian baroque, did not permit us to exhibit the ruins of the Greek and Roman period. But we meant to let people see the most important parts of these archaeological ruins, first of all the Roman-Republican houses conserving their earthenware pavements and part of painting decorations of the walls. So, to permit the visit of these ruins and to safeguard the architectural structure of the monastery, we have adopted the following solutions:

1. The Greek walls standing few meters under the ground level were covered with earth; indeed if we had constructed some elevations in front of the facade of the monastery to allow access to the site, we would have damaged the architectural structures of the monastery.

2. A fine Roman paving-stone path, running parallel with the facade of the monastery, and the front of a big Late-Roman building, that is parallel with the path, were exhibited.

3. We made an underground way to permit people to visit the Roman-Republican rooms with the earthenware paves and painting walls, standing from 1.80 (one and eighty) to 2.50 (two and fifty) meters under the ground level. The Department of Arts and Archaeology has planned to roof these rooms with some prefabricated reinforced cement slabs to restore the court level of the monastery.

The prefabricated cement slabs stand on some iron supports and they are fixed to the perimetric walls of the big Late-Roman building incorporating the Roman houses, with no offence to the ancient walls. This particular kind of anchorage, in case of necessity will be removed without any alterations of the ancient walls.

Under the court level of the monastery, restored with such a cement slabs, the tourists can visit the ancient rooms, that are enhanced with an artificial light system and that will host an exhibition of ancient relics discovered during the excavation work, and some noticeboards about the excavations campaign.

The second example of restoration made in Catania regard a more recent building that I want to present you, the Biscari Palace. The eighteenth century Biscari Palace was subjected to some restoration and consolidation works, after seismic damages of 1990.

Some walls of the palace facade were consolidated at the various levels of the floors. The original stones filling of the vaults was removed and was substituted with a system of bricks covered with hollow bricks (You can see it in the slides 2,3). They didn't make too many incursions in to the ancient wall for putting up the strengthening elements; indeed the new elements are joined to the original structure by inner wall-ties (slides 2,3). These wall-ties were constituted by perforating the existent wall and inserting some stainless steel bars fixed with an injection of cement.

At the level of the biggest room, built with a subtle wall, they preferred to use ropes made by multipropylene fibres; indeed this kind of ropes is formed by yarns of mademan fibres with a degree of deformability adaptable to cooperate with the wall structures. The building was declared valuable monument by the law 1089/39, and its restoration is a private initiative under the public auspice and subsidy (for the 50 %) of Sicily Region. Is responsible for the planning and direction of works Eng. Randazzo Catania.

To conclude my paper I would talk about the experience of restoration made by Italian team of University of Catania in Turkey: at Kyme (Aliaga) we restored a medieval building with three towers. At Aliaga we have created a restoration lab for handmade articles also frequented by turkish young apprentices, were we restored many marble and glass articles.

We think restoration and preservation of ancient monuments, that are testimony of history and civilization of a region, are very important and need high costs. Only if the organization of works is given to experts coming from specialized schools will be such a high costs suitable.

In Italy there are several specialized schools; in Turkey I know only one specialized school, at Ankara, were two young expert teachers, specialized in Italy with my help, work.

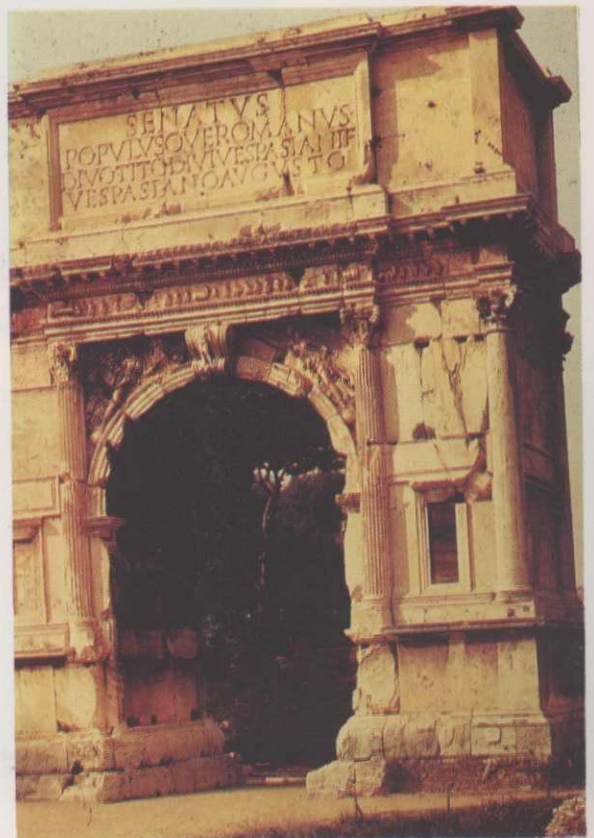
I hope that in Turkey, a country that I like very much, the restoration schools will be created as soon as possible to permit of working in the field of restoration in a good situation.

thank you.



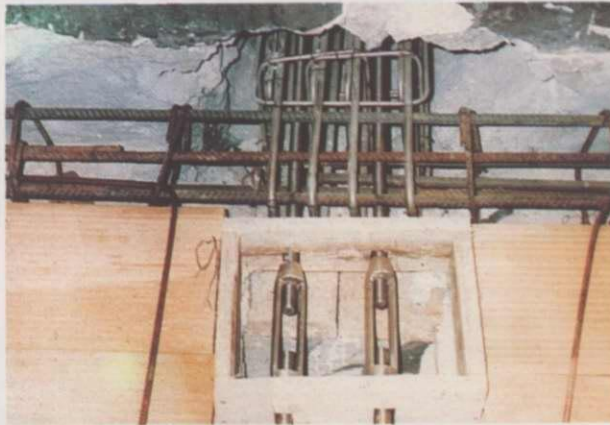
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