Conservation and restoration of polychrome stone mosaics in the architectures of the historical park of Villa Tatti Tallacchini.

The music pavilion – Café house

Angela Baila¹; Lorenzo Mazza²; Anna Anzani³
¹ Politecnico di Milano, Department of Design, Milano, Italy; ² freelancer, Milano, Italy

1. Introduction

Recognizing the authentic vocations of a place and protecting its aesthetic values requires a complex design process and is also strictly subjected to environmental ecological conditions, being the preservation of its surroundings unavoidable. An interdisciplinary approach turns out to be the key condition of culture. According to R. Pane [1978], the defense of beauty, of memory, of quality intended as authenticity, stands as an intrinsically revolutionary action. It is worth considering that such revolution can only rise from a moral refounding and from the education to artistic and environmental beauty, to nature, to the sense of tradition and history [Carbonara, 1997]. The protection of memory and environment, which is necessary to people in their entirety, is therefore strictly connected with landscape protection, restoration of monuments and ecology. Any monument should be regarded as a unique case, being it an artwork, consequently its restoration has to be an artwork as well. To this respect any intervention has to be carried out with the accomplishment of the aesthetic issue, even more than the documental one. Indeed, since the aesthetic appreciation of public art and nature involves our inner life and its relations with fantasy, history stratification and memory, preserving beauty also implies defending physical and mental health [Settis S., 2010].

A deep and articulated knowledge of the building is a prerequisite for designing the most comprehensive, respectful and rigorous restoration project as possible, in terms of both the theoretical approach and the practical operations, thus reducing possible uncertainties in the planning stage. A historical artefact represents a complexity of “stories” in its different aspects, which can be investigated from different disciplinary points of view and which can be approached through different languages and methodologies. The integration of both historical critical, typological, technological knowledge and experimen-
tal testing through multiple contemporarily available methods of investigation and intervention, is the central object of conservation and preservation of the built environment. Its goal requires to set up appropriate tools through the compound of both “humanistic” and technical knowledge. During twentieth century transformation of the construction techniques and of its objectives, past material and technological knowledge went lost, especially at a practical level: this loss derived from complex reasons, especially related to the economic and social entrepreneurial organization, to professional training at all levels, to the production of materials and components, to the manufacturing and implementation techniques, and its consequences also affect the reliability of new techniques and materials. With this background, the need to upgrade the material culture and technology of the past and to assess the actual terms of their apparent incompatibility with the contemporary production became urgent: less narrow terms than previously thought even a few years ago, so much that it is no longer unusual that the findings of restoration culture reflect into the offer qualification of the new construction sites.

2. Description of Villa Tatti Tallacchini
The eighteenth-century Villa Tatti Tallacchini lays at the extreme southern limit of the town of Comerio, on a wide ledge that overlooks Varese Lake and allows
to view both the minor lakes of Cannobio and Ternate and part of the Alps. The
landscape of the city of Varese, the presence of the mountains behind it and
of the lake at its feet, as well as the diffusion of parks and gardens to form a
sort of “vegetal crown”, are crucial aspects to understand the characteristics
of the garden of Comerio. In fact, this garden with its architectural, formal,
compositional and vegetation choices is just ingrained in the peculiar context
of Varese. The villa, in its relationship with the landscape and with the village
behind, meets the requirements theorized in Scamozzi’s treaty. It dominates
the landscape below, of which it takes exclusive possession: set on its rear
side against the urban aggregate, it stands almost like a barrier between the
village and the open space on the lake, thus creating a definitive edge for the
public space to the panoramic view. All the architectural organism develops
along the alignment given by the visual relationship with the villa.
Thanks to an articulated study that examined different aspects, from the dif-
fusion in the eighteenth century of suburban villas in various Italian regions
and in Varese context, to specific treaties on the construction of villas with
gardens, in particular that by Vincenzo Scamozzi, from the compositive cha-
acteristic as well as the constitutive elements of the Italian baroque garden
to the influences of the formal French garden and particularly of its propensity
to “capture the infinite”, it was possible to identify and reconstruct the main
aspects of the characteristics and values of the garden of Comerio. The con-
structive analysis, together with the historical record, allowed to understand
the configuration of the garden and its architecture, while the materials cha-
acterization and the identification of botanical species added complementary
information to the knowledge of the construction complex.
The green area develops in a very articulated pattern, according to the land
levels, without forcing nature in spite of the composition laws of the typical
Italian garden. Games of stairs and terraces follow each other in a succession
of perspective plans. Terraces, stairways, ramps are the result of the interac-
tion between architectural design and nature. Natural randomness itself is
reduced to architectural forms, organized in an overall configuration that esta-
blishes a pleasant relationship with the villa. In the central part of the structure
supporting the stairs, a nymphaeum has been obtained with the sculpture of
Venus at the bathroom and winged cherubs placed on fake rocks at the edge
of the tub. In the area where the fountain is placed, surrounding walls join, de-
corated with polychrome stones reproducing geometric forms in which niches
with putti are located.
Over the perspective a second garden emerges, which had heavily suffered
the weathering effects and where both the material and the aspect were affec-
ted by decay and the presence of infesting plants. Here we find a built body
presenting an octagonal plan, consisting of a porch on two levels, called the “
Music Pavilion” where, according to the local tradition, the Tallacchini and their
guests loved to listen to concerts. Some recent evaluations carried out before
and during the restoration lead us to see in its form a rare example of Lombard
coffee house, according to the Austrian taste, style and culture in vogue in
the eighteenth, when pavilions were designed to be the exotic setting of new
rituals, where sipping coffee and “cioccolatte”
3 Deterioration phenomena
The entire wall surface of the Music Pavilion is covered with mosaics of multi-coloured stones, yellow, red, light grey and anthracite, partitioned in geometric shapes and giving a chiaroscuro effect to the artefact. The materials used in the very richly decorated polychrome mosaics are respectively: dolomitic limestone, a metamorphic rock with carbonate binder, to obtain the anthracite colour; red porphyry in the case of red-orange colour; dolomitic marble in the case of yellow stone. The geometric mosaic decorations are characterized by an innate weakness that facilitates the degenerative phenomena; its cement plaster was in fact completely swollen and deteriorated. Added to this, they are exposed outdoors although in some parts they are partially protected by a porch. The action of rainwater transported by the wind, in contact with the surfaces, determines a series of abrasive and de-cohesive phenomena with subsequent loss of material. Rainwater itself, conveyed inside the masonry through multiple slits and gaps, resulted into swelling phenomena between the plaster and the wall structure. On the other hand, it facilitated chemical and physical action of the salts that, attacking the decorated plasters, impoverished them of binder and determined a progressive powdering. These disruptive phenomena were generalized and in some cases so severe as to determine the irrecoverable loss of part of the decorated mosaic surfaces. The high environmental humidity had also fostered a biological attack that substantiates in diffused mildews, which mostly affected the surface layer of the plaster. Degradation due to the human action was also present. In addition to the mentioned phenomena, the effects of multiple sectorial maintenance operations were detected which, although conducted with conservative intent, however revealed counterproductive for the use of incompatible materials (films) that favoured exponentially degenerative phenomena. Finally, a widespread layer of dirt surface deposits was obscuring the colours
of the decorations, the tonal values of which had become unreadable.

4. Intervention on the Music Pavilion

Design indications are of course depending on the goals that the intervention intends to achieve. Dealing with the conservative restoration and treatment of the front surfaces, these indications have obviously descended from the current direction of the theory of restoration, in a strictly conservative sense. However, some choices didn’t depend only on the conservation need of what history has bequeathed to us, but also on the client’s demands, in the sense of the most proper use and enhancement of the monument.

The current project is part of a larger program of work aimed to return dignity and clarity to historic spaces, in which also the important construction relics, recently brought to light and subjected to restoration works, will have to find a place. The space is characterized by such a richness that the architectural quality of the intervention will be measured by its preservation nature.

In this sense, the proposed intervention was based on the principles of conservative restoration aimed to create the best maintenance conditions for every existing element and to re-integrate the most significant missing parts, trying to recover all the dispersed and scattered material. Only for the areas where the elements were completely deteriorated, an integration was performed.

Before carrying out any operation, a research and cataloguing of all individual items and architectural elements (capitals, columns, etc..) lying scattered in the park was necessary, in order to allow their recovery and relocation. The insertion of new elements was generally avoided, trying to reuse the original ones; where this was impossible (due to failures, loss, etc.) partial replacements were introduced through the adoption of materials and processing techniques similar to the original ones.

The choice of the degree of cleaning to be used was evaluated through an accurate procedure which included sampling and cataloguing, detailed analysis of the materials to be cleaned, analysis of the reaction products for the assessment of their material consistency. A general cleaning with a controlled low pressure washer was executed to eliminate dirty patinas and incoherent surface deposits. The elements of bio-deterioration (mildews, musk) were eliminated with the use of a biocide product and subsequent neutralization; clea-
ning of the mosaics though poultices made of chemicals solvents was carried out, after samples testing for defining the exact time of application and its effects. The duration of the intervention varied according to the chemical nature and thickness of the deposits to be removed and was interrupted when, as a result of the electrical conductivity measures of waste water, acceptable constant values were obtained. Reconstruction of moldings and architectural elements like capitals, friezes, borders, frames, etc. were executed with templates and copper rivets, using mortars compatible with the original ones. Where necessary, pre-consolidation, deep and superficial consolidation through injections of hydraulic lime mortar was applied, in addition to margins and gaps sealing with mortar compatible with the existing one. New elements were added using splinters of the original stones and/or similar material as for colour and size. After careful consideration of its real conservation conditions, basic plaster was integrated where lacking, through the use of a similar one as for thickness and number of layers, composition and breathability, so as to ensure the same response to the different actions.

5. Conclusions
A conscious restoration of ancient architectures, often composed of apparently similar masonry structures, has to take into account quite different techniques characterizing the cultural heritage, that vary according to the building
typology, to its location related to the orographic profile of the site and also to local constructing traditions. The problem of repair and retrofitting should be approached in an interdisciplinary way, considering different complementary aspects such as: historical evolution of the building, geometry and crack pattern, material characteristics, technology of construction, possible decay and failure mechanisms, etc. To this respect, the participation of architects, historians, structural engineers to the design process is particularly important. The frequent failure of retrofitting and prevention measures adopted for historical buildings in Italy, suggested to adopt an integrated approach, which included an initial historical investigation and geometrical survey of the building, a subsequent study of the construction technique of walls and mosaics and a material characterization (on site and in laboratory), the detection of the probable decay and failure mechanisms and finally the choice of compatible repair material and techniques. Guidelines of the design process emerged through the knowledge of the local traditions and material workmanship skills. During the work, in addition to the usual construction paper, yard charts have been prepared where each work step and test performed was documented, photographed, catalogued. This is particularly important not only as a historical record of the intervention but also as a design tool for the building maintenance over time.

Acknowledgments
The Municipality of Comerio is gratefully acknowledged for the cooperation during the intervention, together with the building surveyor Giuseppe Papa responsible for the procedure and all the involved contractors and consultants. The project was financially supported by the Italian Ministry for Cultural Heritage, Fondazione Cariplo, and Lombardy region.

References
Dami L., 1921, Il nostro giardino, Le Monnier, Firenze.
Bertolone M., 1952, Varese, le sue Castellanze, i suoi Rioni, Faccioli, Milano.
Bongiovanni G., Rivoire M., 1931, Varese e la sua provincia, Varese.
Gengaro M.L., 1942, Una villa settecentesca nel Varesotto, «Bollettino Gruppo Lom-
Abstract
The extraordinarily refined construction technique and materials originally used for the polychrome mosaics of the Café house in the historic park of Villa Tatti Tallacchini ruled out the option to adopt ordinary repair and consolidation techniques. In the paper, a description of the building and its garden is given, together with a historical and critical analysis of its evolution over time, highlighting its damage phenomena and the design criteria of the restoration intervention carried out on the stone mosaics.