The restoration works: techniques and interventions

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The atrium and the elevation on Strada Nuova

When the sailing ships painted in the entrance hall lunette were revealed, and when the rich decorative display in the atrium had just been restored, it was obvious to all that palazzo Nicolosio Lomellino would have reserved other significant "discoveries" during the works.

Such renewed acquaintances would have come from the reading of the rediscovered original colours of the elevation's reliefs and of the nymphaeum, thus as with the new paintings on the first state floor and on the monumental staircase and, finally with the restitution of the facade's decorative system looking towards the garden and palazzo Grimaldi (Tursi).

The works started in March 2000, with the recuperation of the atrium's many coloured decorations in stucco: this elliptically designed room, with the minor axis perpendicular to the facade, enjoys a view of the entrance hall and of the subsequent courtyard with the nymphaeum, creating a sort of link between Strada Nuova and the Montalbano hill situated at the back, where the terraced hanging garden was formed and is still present (fig. 1).The strong scenographic impact of the oval atrium presents a decorative context containing historical scenes on medals, niches side by side with couples of herms and obelisks on elaborate cornices: the reliefs which overhang the most are made up of large, round figures positioned on cornices (figs. 2-3).

The plastic decorations, attributed to the plan by Giovanni Battista Castello, known as 'il Bergamasco', covered with massive layers of lime based colourings and tempera, moreover also oxidised, dulling the model, cancelling particulars and details and hiding from view the original colour: the most recent layer, commissioned by Andrea Podestà in the second half of the XIX century, is not very understandable, blackened and partially detached (fig. 4). Below the added layers, removed with scalpels, a difference was noted in the treatment and finishing of the surface, studied and elaborated in such a way to obtain specific light and shadow effects, using soft colour shading and diverse light absorption on the surface, depending if the latter is rough or polished; the greys treated with half tones change according to the way the characters are observed, the pink of the humans is transparent and vibrant, the light blues enhanced by the matching of diversely ground pigments.

On the medals' backgrounds where the figured scenes are set, a suitable shaded dove grey coloration was found, applied with a brush that, through suggesting the source of light and trompe l'oeil effects, brings to the reliefs an obvious image of the model in its different thickness levels. The removal of the colourings has brought to light, on the light blue backgrounds, "powerful brushstrokes" made with an almost dry brush, used for the effect of the transparent veil: here the pictorial retouching with a water colour glaze is used essentially for the closure of the abrasions and the falling off of colours not caused by the original technique (fig. 5); "[…]" le plastiche, non altrimenti che quelle della facciata, veloci (il so) e contentabili, ma salde a resistere se vivono intiere dopo tanti anni e tante intemperie […]".(the plastics, no different from those of the facade, quick and satisfiable, but strong enough to resist if they survive intact after so many years and so mu-

1. Atrium of palazzo Nicolosio Lomellino in Genoa, before restoration

2-3.Detail of the atrium of palazzo Nicolosio Lomellino in Genoa, before restoration.

ch inclement weather). As Federico Alizeri said, the stucco reliefs in the atrium and on the elevation of palazzo Lomellino, excluding the repeated colourings and the inevitable reconstruction due to structural changes, especially on the facade, have maintained a remarkable material compactness and cohesion (fig. 6).

IThe recently finished restoration of the façade's decorations on Strada Nuova, allows us now to see the original colours, essentially used in the contrast between the almost natural colours of the stucco and the slate blue of the backgrounds: scientific tests have shown that it is a 'marmorino' with "oil lamp black", a pigment of organic, mineral and natural origin, obtained by the burning of oils, fats and mineral oil in a shortage of air, a technique used in painting from ancient times.

The stucco decoration, which acts as a board for the windows looking over vico Lurago, are distributed in three figured order, from the herm-pilaster strip on the ground floor, to the trophies hanging from ribbons on the first floor, to the festoons of fruit on the second, with masks in the tympanums alternating with medallions of classic divinities. The restoration works, through the individualising of the materials and techniques used in the stucco decorations, have also confirmed what the changes were which took place afterwards, already partially investigated and marked out on the interior of the first state floor. Examining the layers of construction, it can be observed, relative to the original phase and starting with the interior of the construction, the realisation of a wall face made up of an ordinate structure of bricks with confining mortar; on the brick screen a thin layer of plaster rich in inert calcium and sand, of river origin was later spread, broken regularly in a way to obtain an evenly corrugated surface; on this fine finished layering, in this phase of the works, the general indications of the layout of the decorations (sinopia) were traced with a brush using red shaded with black on the still damp plaster.

On the corners on the ground floor the use of ashlars of 'Promontorio' stone was noticed to reinforce the structure. On the whole, dealing with modest overhanging relief, the only apparatus to support the mass, corresponding to the more prominent zones of the mould, were large iron nails fixed in to the wall below: around these metal supports and in the base in red ochre, a rough draft of the dimensions of the decorations were progressively created, obtained by superimposing layers of mortar of various thickness.

The surface finishing with the moulding of the minute details was carried out in stucco at the end, with a lime based mortar and marble powder.
As has been said, over time transformations have been carried out, as a consequence of the changes in the use of the interior; on the first state floor the raising of the windows has been noticed: witnessed by the demolition of the cornice and the amputation of the lower part of the lunette painted in the inside rooms, this corresponds on the elevation to the lengthening of the upper cornice of the windows, where the joining line can be clearly seen, confirming the use of a different material.
On the upper floor the plugging of the window over the door can be observed corresponding with the lion masks which ornate the windows' tympanums and the raising of the smaller windows of the attic mezzanine, with the consequential splitting of the cornice.
These final changes brought about a re-elaboration of the ornaments on the upper part of the facade: the construction of a third string course, the masking of the plugging of the window over the door with a plastic decoration of knotted bandages and with festoons of fruit between the mezzanine's windows.
All these modifications to the original decorative layout are shown through a more cursive quality of the execution as well as for the use of material with a coarser mixture.
In particular in the festoons of fruit on the mezzanine the difference in the material is more obvious, in which the use of a granulous hydraulic mortar with grounded terracotta and pozzolana can be seen, covered with a fine film of a cream lime based colour to imitate the stucco, applied on the mortar when still damp.
The interventions carried out in the XIX century by Andrea Podestà, who purchased the palazzo in 1865, must have been substantially limited to the repainting of the facade as noted by Alizeri (1875, p. 190): "schiarita la fronte, un tal poco oscurata da vetustà""(lightened the facade, so slightly obscured by oldness).
Therefore the dull covering on the stuccoes must belong to these interventions along with the re-painting with a tempera base on the perspectives of the monochrome cornices. Baron Podestà also had affixed, in the centre of the portal's tympanum, inserted in the XVIII century, the marble certificate with his own initials intertwined and festoons of flowers and vegetables to support it.
During the first on-the-spot investigation, in the phase of the mapping out of the state of preservation, several de-

4. Atrium of palazzo Nicolosio Lomellino in Genoa, before restoration.

5. Atrium of palazzo Nicolosio Lomellino in Genoa, after restoration.

6. Elevation of palazzo Nicolosio Lomellino in Strada Nuova in Genoa, before restoration

7. Detail of the stucco decoration on the elevation of palazzo Nicolosio Lomellino in Strada Nuova in Genoa, during the restoration.

tachments were found, especially close to the stringcourses, due probably to vibrations caused by bomb splinters that struck the facade, and by the infiltration of rainwater. Further deterioration was caused by the almost uniform spreading of a yellow orange tempera which, once penetrated in to the first surface level had provoked blotching: such a problem became more tenacious when the surface was already compromised by the loss of its smooth glazing (fig. 7).

Reliefs and mirror images were found to be almost uniformly covered by a layer of dust and carbonised deposits that dulled the models and distorted their viewing; also widespread phenomena of erosion were noted on the relief areas, especially on the festoons on the second floor and markedly on the whole strip positioned on the right corner, as well as numerous splittings of the models induced by the oxidisation of the internal elements in iron, especially noticeable on the more overhanging parts of the festoons of fruit, on the lion masks and on the panoply positioned on the extreme right of the first floor. The detachment, raising and falling of the plaster of the mirror images, of the string courses and of the cornices was fully noticed: the cleaning operations of the entire surface, through an accurate washing with deionised and nebulised water, were carried out after its consolidation, done by injecting a semi-fluid mortar in the parts described above.

Following the re-integration with lime based mortar of the gaps found following the removal of the incorrect stuccoes, with the aim of the restitution of the alternating colours neutral-slate grey, the trompe l'oeil were treated with a glaze of colours with suitable pigments (fig. 8). All the perspective's stone tablets were cleaned using the "jos" system, that is to say with jets of nebulised water at low pressure (up to 0,2/0,4 atm.) mixed with extremely fine calcium carbonate powder, and the marble surfaces of the portal and of the balustrades were protected with a polymeric single component transpirant.

The nymphaeum. Construction techniques

Already by observing the facade, through the view offered from the atrium, it is possible to distinguish at the end of the court, the two unique plastic tritons of the nymphaeum by Domenico Parodi: this architectural pluri-material structure creates a scenic perspective link in a very limited space that involves the palazzo and the Italian garden above (figs. 9-10).

The nymphaeum was conceived as a wide setting featu-

ring an articulated architecture: to the great fish pool from the curved progression on which two pilasters in brickwork are positioned, over which the tritons are placed: these support the terracing crowned by a marble balustrade; in the interior space of the triforium fixed by the pilasters a rustic antrum opens out covered with calcareous concretion, rocks, stalactites and shells. On the level above, on the containing wall of the terraced garden a niche has been dug out, covered with pluri-material coatings, ornated with a cherub holding a large amphora covered in bandages, from which runs the water coming from the gardens, then collected in the basin below.

In the upper barrel vault the natural decorations form an overhanging jut that almost appears on top of the garden's balustrade parapet, on whose plinths six marble figures of fauns are positioned. Thus the triforium's architecture and the walls incrusted with natural materials came to stage a single space for the group of stuccoes by Phaeton, unfortunately lost, as remembered by Alizeri (1875, p. 189): "Non tardò a isquagliarsi al continuo spruzzo e al gocciolar delle volte" (He did not delay in clearing away from the continual splashing and dripping of the vaults).

Inside the antrum confined by the fish pool, the walls and the vaults are prevalently covered by blocks of dark green schistose rock, which sometimes has almost violet shades; this stone of local origin, which was dug out from the heights of Voltri, accentuates the depth of the antrum through its colour and irregularity of its protrusions.

To substitute the group that was lost, we now find the cherub who holds the bandaged amphora on his side: this figure was formed around a metal framework, made with iron rods of 5mm diameter, re-covered with hemp, on which the first dimensional outline was created with bricks fixed to each other with mortar and externally bound with copper wire (fig. 11).

The supporting structure of the amphora is formed by half jar of oil in painted terracotta, cut up in a rather summary way, so much so that it seems to have fractured and have been re-structured at the beginning through the traditional system of perforating the fragments and then fixing them using metal clips: On the first and brief dimensional outline a thick layer of lime based hydraulic mortar with pozzolana and ground terracotta was applied.

The use of these inert materials derived from the grinding of volcanic and brick stone, had the double function of obtaining a mortar that for its slow setting allowed the modeller to work with great thickness and on large areas and

8. Detail of the stucco decoration on the elevation of palazzo Nicolosio Lomellino in Strada Nuova in Genoa, during the restoration.

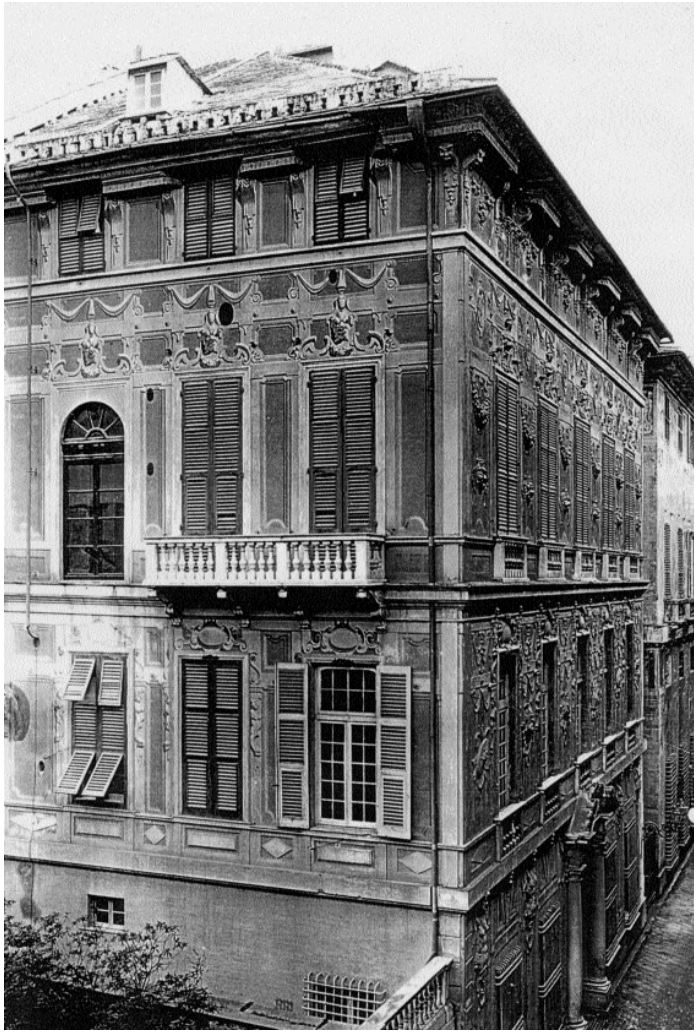
9-10.Detail of the nymphaeum of palazzo Nicolosio Lomellino in Genoa, before restoration

at the same time gave to the mortar itself a great mechanical resistance, once dried.
The finishing off of the surface and the execution of the details were, on the other hand, carried out with real stucco formed from lime and coarsely ground marble powder with its thickness varying from around 5mm.
The cursive work, carried out with the superimposition of thick layers of material seems rather unusual in stucco works, more unusual in a context such as that of the nymphaeum where the constant presence of water accelerates the material's deterioration.
Still more surprising is the construction of the pair of tritons, in which a definite and decisive sense of plastic is found: on the pilasters, along the profile of the figures, rare and energetic charcoal drawings took shape, carbonated in the damp plaster, to indicate a graphic elaboration of the mass of the figures, finalised with their precise location. These were formed by successively superimposing layers of hydraulic mortar with a base of pozzolana, ground terracotta and sand measuring around 5 or 6 cm, as was noticed due to the damage that caused them to split. Diversely to the group of monuments situated in the garden, portraying an inebriated Bacchus and the cherub with the amphora, the tritons do not have a stuccoed surface finishing, but rather a dull covering of around 2mm, probably added by brush on the still fresh model, made up of a semi-fluid mortar of a hydraulic nature with inert pozzolana and brick material ground minutely.
More traditional and usual are the rustic coatings, where rocks, from Voltri, green coloured and variegated with violet, have been used for the calcareous concretions and stalactites insertions came from the caves of Finale; less widespread the use of glassy "frit", which vary in size and colour, for example, black obsidian fragments which vary from indigo to sapphire to green.
In the hydraulic mortar used for the background, the systems of anchorage of the more protruding or overhanging natural elements are the usual ones: big nails with a large heads inserted in the walls fix the ends of the copper wire bindings which surround the stalactites, heavy iron L-shaped hooks support the weight of the more obvious overhanging rocks, while the smaller elements are covered directly with the mortar.
As has already been said a careful use of natural materials can be observed to obtain an effective overall effect: the stalactites, chosen in progressive forms are especially used in the vaults, in that of the lower triforium and that of the

upper cave to accentuate the more or less illusory sense of depth of the area.
In order to give a perfect overall solidity to the rustic parts all the smearing of mortar on the rocks was hidden with a covering of colour and lime.
In his guide of 1875, Federico Alizeri describing the palazzo says, "recent purchase of Baron Andrea Podestà", who had it from the Raggi family, submitted the same to a "radical restoration"; probably the main part of the visible damage of the nymphaeum dates back to this time.
Of these interventions the biggest one is surely that made on the upper niche, where as documents a previous photograph, the rocky base on which the cherub with the amphora rests, had a leant diagonally, which by supporting the figure formed a receding loop towards the back of the niche.
Only the following transformations carried out after an invasive static consolidation, through the insertion of supports and of other metal hooks below the cherub's feet, brought about the change in the progress of the rocky overhang below the figure, carried out to mask the metal elements, with a cascade of false cement stalactites and by an improbable broken tree trunk. During the intervention the lower part of the legs was lost, recomposed in a rough and incorrect manner, in the same way the right arm from the shoulder to the wrist was totally re-done.
Plastic re-compositions have also been found on the tritons carried out with the same cement mortar, especially noticeable on the arms, along the sides and on the fins.
Other maintenance interventions carried out between the XIX and XX centuries can be seen in the architectural parts of the triforium, where a lot of the plaster of the pilasters and their strips seem to have been re-polished with modern mortar.

The nymphaeum. State of preservation

IThe nymphaeum, being positioned in the open, apart from having to live with the constant presence of water, is also subject to progressive deterioration caused by atmospheric agents; but it is the water which makes it subject to a series of phenomena of change caused by these atmospheric conditions.
The lack of periodical maintenance contributes to accelerate its deterioration. The materials themselves, used in its creation, and worse, inadequate ones used in successive interventions, had produced serious preservation problems. Let's firstly consider all the original elements: the



11. Elevation of palazzo Nicolosio Lomellino in Strada Nuova in Genoa looking towards palazzo Grimaldi (Tursi), in the second half of the XIX century.

12. Residual decoration of the internal elevations of palazzo Nicolosio Lomellino in Genoa

13. Incision with skimming light of the internal elevations of palazzo Nicolosio Lomellino in Genoa

metallic ones on the inside of the models, with the role of supporting the natural elements, had progressively changed due to oxidisation, and this deformation had caused the breaking and detachment of parts of the model, as they had made the stability unsure, if not actually causing many parts of the natural covering to fall off. The presence of cement mortar, containing a high quantity of soluble salts, used in the eighteenth and nineteenth century interventions, had induced the formation of vast efflorescence which infested the surfaces causing them to disintegrate. Also the numerous infesting shrubs, with roots below the plaster, have been the cause of the further breaking away of the mortar surface, as the widespread presence of bacterial microflora, moss and lichen has provoked the erosion of the stone surfaces and of the stuccoes. The continuous running of rain water and those used to supply the nymphaeum along the side walls of the lower cave have brought about the formation of thick calcareous deposits.

The internal elevations and those towards palazzo Grimaldi (Tursi)

The internal facades and the two side wings of the building which contain the nymphaeum and open out on to the scene towards the garden above, were decorated at the beginning of the XVIII century with architectural motifs in false relief, festoons and lion heads, on slate coloured background: a repertory, still partially present, entirely retraced thanks to the incisions found on the plaster, of which the design and colours recall the main elevation on to Strada Nuova.

Observing the surface during the survey of the state of deterioration, the non-homogenous nature of the plaster was immediately noticed, largely impoverished by atmospheric agents, except in the zones protected by the eaves and string courses, where the painted decoration was still present and well preserved; the base, as then confirmed by the scientific investigations, was covered with a lime and sand mortar (including other substances of different nature and granulometry), and by a thinner layer of ground terracotta. The plaster, spread over in days and by scaffolds, left a residual pictorial film (strips of decoration and colour in the areas protected from the washing away), very compact, with lime colours, spread on a still quite fresh base (fig.11).

Numerous stuccoing and plugging in cement mortar were found, if not re-plastering, at times of large dimensions, carried out in different periods during the lifetime of the

residence. The evidence of one of these passages is certified by the date written on the cornice below the eaves of the main entrance facade (1868), on the strip decorated in black and white using a stencil, recovered with a yellow colour: obviously a "maintenance" intervention commissioned by Podestà. Due to the atmospheric agents and the presence of incorrect reintegration elements, the base showed a non-homogenous nature in the layers and thickness: the first operation was to remove all the parts reconstructed with unsuitable mortar, and to see the consolidation in depth, to the new integration with lime based mortar of the gaps, and to the plastering with ground terracotta, where necessary. At the same time, to be able to re-propose the entire painted decorative and highly scenic display, a survey was carried out, first on site and then through a graphic plan of all of the incision lines present, extremely evident close up or with the use of a skimming light (fig. 12). The entire decorative display, re-done with a lime based colour glaze correctly pigmented; the surface was then treated with silosanic water repellent for protection. Likewise the process on the elevation surfaces facing palazzo Grimaldi (Tursi): here the decorative repertory was entirely re-done, documented by the historical photo retraced at the Photographic Studio of Palazzo Rosso, and totally re-designed from the signs carved on the plaster (fig. 13).