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Shouldn't We Consider the Experience of Old Masters? On the Approach to Historical Painted and/or Decorated Façade Plaster in Croatia

Introduction

The painted coats or wall paintings on older layers of lime plaster on façades, which have been preserved even to a minimum up to this day, have survived primarily thanks to the subsequent layers that had covered and thus protected them from direct exposure to atmospheric conditions. Even the oldest medieval wall paintings, mostly preserved only in fragments on interior walls have been discovered under subsequent layers of plaster and/or paint which were applied on multiple occasions over the centuries due to their deterioration. If it were not for those subsequent layers, the original painted façades and frescoes would most probably not have been preserved, not even in fragments (Fig. 13-1).

With a view to presenting the historical plaster, with its painted or decorated surface, and exposing it to the regular impact of atmospheric conditions, attempts have been made to protect it by various known methods for the protection of wall paintings, and with suitable traditional materials or ready-made modern industrial products, and sometimes by combining them. At first it seemed that the application of industrial, and especially synthetic, materials might prolong the life of painted and decorated wall surfaces, but in time it became clear that this was not the case and that, worst of all, their use often provoked irreversible changes in the original material structure.

Decades of application of various synthetic products for consolidating and strengthening plaster and painted layers, and solvents for the removal of previous interventions, have not only resulted in irreversible damage to their visible qualities, but also gradually changed their original material structure. Therefore, one should always bear in mind that the presentation of restored façades or frescoes consists not only of what can be seen with the naked eye, but also of what makes it possible to be seen in the first place. Thus, in addition to their external presentation, particular attention should be paid to their internal presentation.

The internal element of any presentation[1] of a wall painting consists of its material structure, and it is the result of all previous interventions, including the previous restoration treatments, and the applied protective materials: in its layers of plaster and between them, inside and on the surface of its painted coat. By no means should we overlook the fact that a poorly executed invisible element of the restoration intervention that impinges upon the very material structure of the wall painting (be it its painted layer or its support) is much more dangerous for the survival of the wall painting than its poor visible presentation. The invisible element of the presentation requires a very scrupulous approach, because problems caused by inadequate procedures applied during the treatment can cause additional problems for the restorers, and, more importantly, they can inflict permanent damage on the work of art.

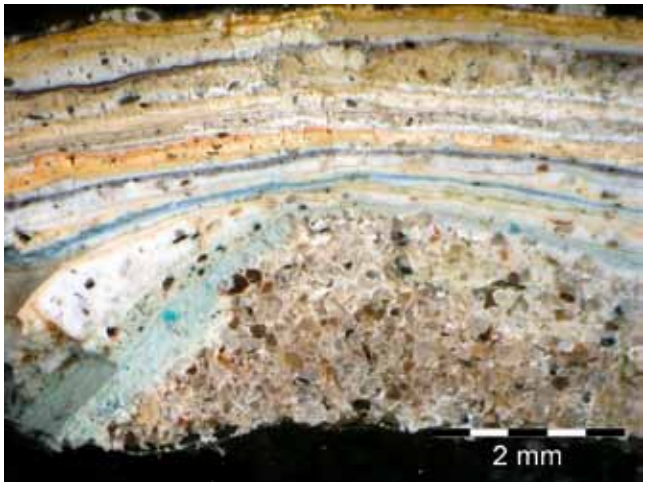


Fig. 13-1: Osijek, Miller's house, micro-section of plaster and paint layers, 1996

Summary of the most frequently applied materials for restoration of wall paintings and decorated façades in Croatia in the last half century

During the course of the last century, methods were changed several times, and with those changes industrial materials were introduced, intended to protect the painted layer and its support. Although in Croatia their application on parts of buildings that are regularly and more or less directly exposed to atmospheric influence (façades, open porticos, portals etc.) is rarely mentioned, some of these materials have been used on frescoes painted on church façades and painted architectural elements on façades of castles, palaces and houses (corner blocks, pilasters, cornices etc.).

When looking back upon the most frequently applied materials, we should emphasize especially those whose use was widely accepted. For example, can anybody still remember that wax was used for the protection of wall paintings?

Organic materials

Wax was used for the conservation of frescoes and items made of stone between approximately 1850 and 1950, and this practice was recorded in 1921.[2] In the 1970s and 1980s, it was believed that wax could hardly ever be removed and

Fig. 13-2: Varaždin, Fresco painted on western façade of the house in Gajeva st. 16 (Paraloid B72), state in 1974

Fig. 13-3: Varaždin, Fresco painted on western façade of the house in Gajeva st. 16 (Paraloid B72), state in 2011

that it prevented the application of other conservation materials.[3] In 1956, Daniel Varney Thompson (1902–1980) wrote about the abuse of wax, stating that his generation developed a wild passion for waxing frescoes and paintings made with animal glue.[4] Interestingly, the investigation of the influence of wax and Paraloid B72 on the absorption and evaporation of water in painted lime plaster has shown that wax has a higher impermeability.[5]

Thompson was right to caution that it is still questionable what is meant by gum arabic, and it is even more uncertain what was meant by it in the Middle Ages. He mentioned that, in order to prevent it from becoming fragile, a small quantity of sugar or honey should be added to the gum arabic.[6] On the other hand, Laura and Paolo Mora and Paul Philippot wrote that alcohol, and sometimes a little bit of poppy oil, were added to it,[7] while C. V. Horie noted that glycerol should be added to the gum arabic.[8]

Before synthetic resins started to be widely used, casein-based glues were broadly applied on items made of various materials, and also on wall paintings.[9] But, as late as 1977, the standard suggestion was to add polyvinyl acetate (Vinavil) or acrylic emulsions to calcium caseinate[10] intended for consolidation by intonaco injection, and for adhesion of gauze and other materials used to transfer wall paintings, in order to increase its adhesiveness and elasticity.[11]

Synthetic materials

The use of polyvinyl acetate (PVAC) in the conservation of wall paintings is mentioned for the first time in 1932, and it served as an adhesive for facing used when frescoes were taken off and transferred.[12] In the 1970s it was believed that all types of thermoplastics (polyvinyl acetate, PVAC) with a softening point higher than 70 °C could, in theory, be used as fixatives, in view of their medium polarity and good ageing qualities.[13]

In the early 1930s, almost simultaneously with polyvinyl acetate, acrylic polymers also came into use.[14] Following the initial failure of PBMA, which, after it had been exposed on the laboratory wall for 22 years (from 1948 till 1970, approximately), became 50 % insoluble and required solvents with higher polarity for its removal,[15] an attempt was made to find a more stable polymer and thus rectify the mistake made with this "clearly excellent material". It was established that this was the copolymer of methyl acrylate and ethyl methacrylate (Paraloid B72), originally used in a 5 % solution of toluene[16] or p-xylene, which in 1978 was considered to be probably the best choice.[17] But Paraloid B72 was also often dissolved in acetone and even in nitro solvent.

It was believed that the mechanical properties and ageing qualities of Paraloid B72 as a synthetic fixative were entirely satisfactory,[18] and its application in Croatia was first recorded in 1966 (Figs. 13-2–13-3).[19] Between 1966 and 1986, it was used more rarely than the much more problematic Calaton.

Among the synthetic resins that have been widely used in Croatia in the restoration of wall paintings, two additional materials are worth mentioning: Calaton CB (CA)[20] and Primal AC33.[21] The application of Calaton in conservation has been discouraged since 1975,[22] but unfortunately it was used in Croatia until recently, while Primal AC33 was in use up to the time when it stopped being produced several years ago. The first recorded use of Calaton CB, and of Paraloid B72, dates from 1966.[23] Besides on interior wall paintings, Calaton was also applied on façades in 1972 and 1978 (Figs. 13-4–13-6).

Fig. 13-4: Zagreb, Fresco painted above the door on the eastern façade of St. Mary's church, state before restoration in 1972

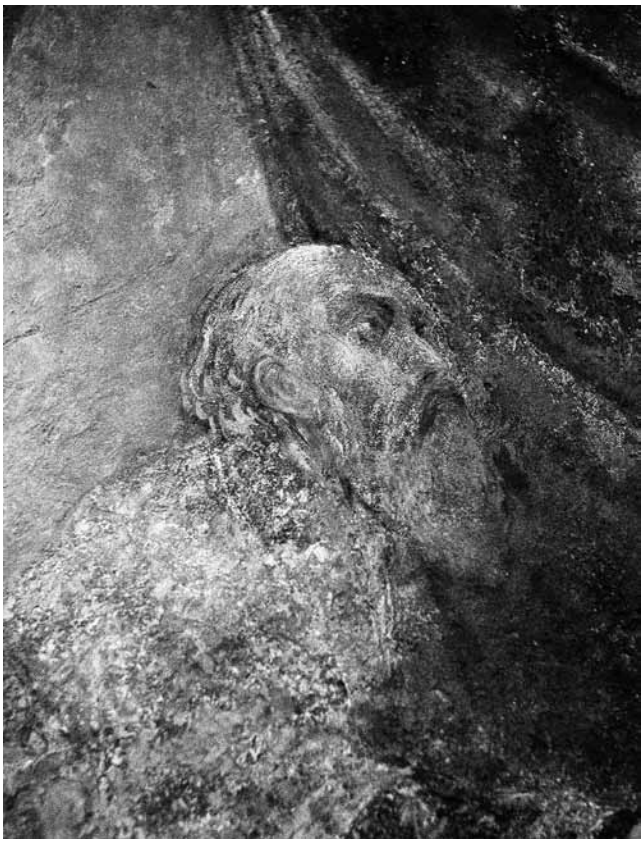
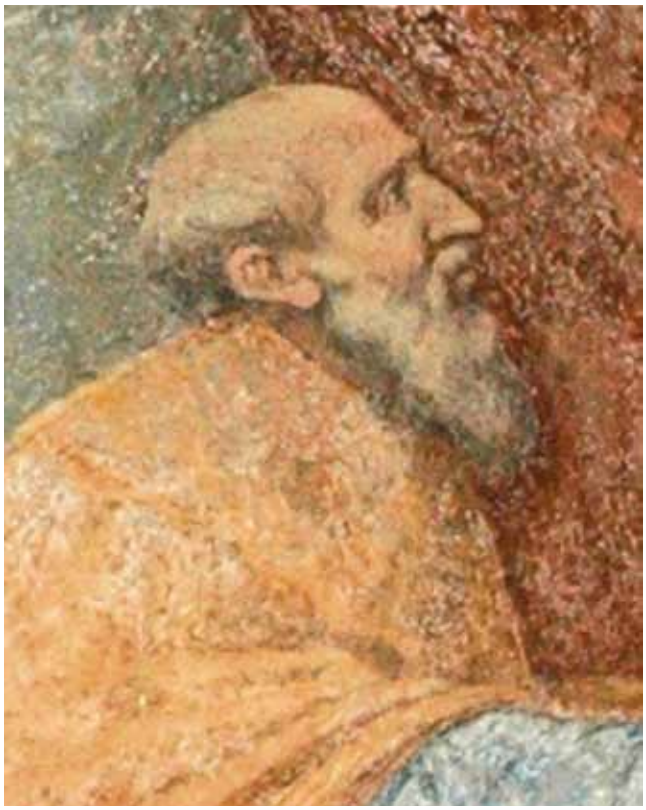


Fig. 13-5: Zagreb, Fresco painted above the door on the eastern façade of St. Mary's church, state after restoration in 1973 (Calaton)

Fig. 13-6: Zagreb, Fresco painted above the door on the eastern façade of St. Mary's church, state after restoration in 2005 (Unknown technology)



Nonetheless, the example of the renovation of Padua's Capella degli Scrovegni shows that the use of synthetic materials persisted even in some much more developed European services for the protection of monuments of cultural heritage.[24] During the restoration of wall paintings in the chapel in 1957, a mixture of polyvinyl emulsion[25] was used, together with the acrylic polymers Lucite (isobutyl-methacrylate),[26] Plag (plasticised polystyrene),[27] and the above-mentioned Vinavil. During the 1961–1963 renovation of the same chapel, acrylic resin emulsion (AC 55)[28] and acrylic resin solution (Acryloid B72)[29] were used. During the emergency restoration intervention on those wall paintings undertaken in 1997, acrylic emulsion Primal AC33 dissolved in water (10–20 %) was used for injecting,[30] and during the works carried out in 2001–2002, Paraloid B72 dissolved in nitro solvent (2 %) was applied.[31]

Polymers used in restoration should not change or damage the artefact in any way. On many occasions they were used in the hope – and even in the expectation – that they would last for at least 20 years, and in many circumstances even for a hundred years. But that would be much longer than their duration in commercial use: "copolymers (of polyacetals) have lasted in a creep test for up to two years, a longer period than the operational life of a typical car."[32]

In a number of cases the application of synthetic polymers took several years to result in dramatic effects on the works of art – for example, in a flaking of the surface and marked acceleration of chemical reactions, including a degradation of the painting.[33]

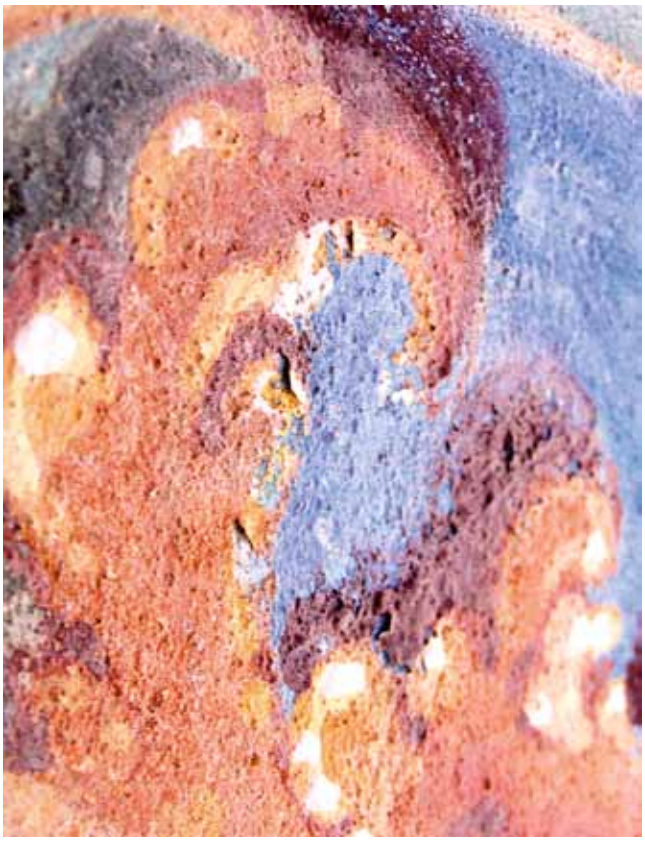
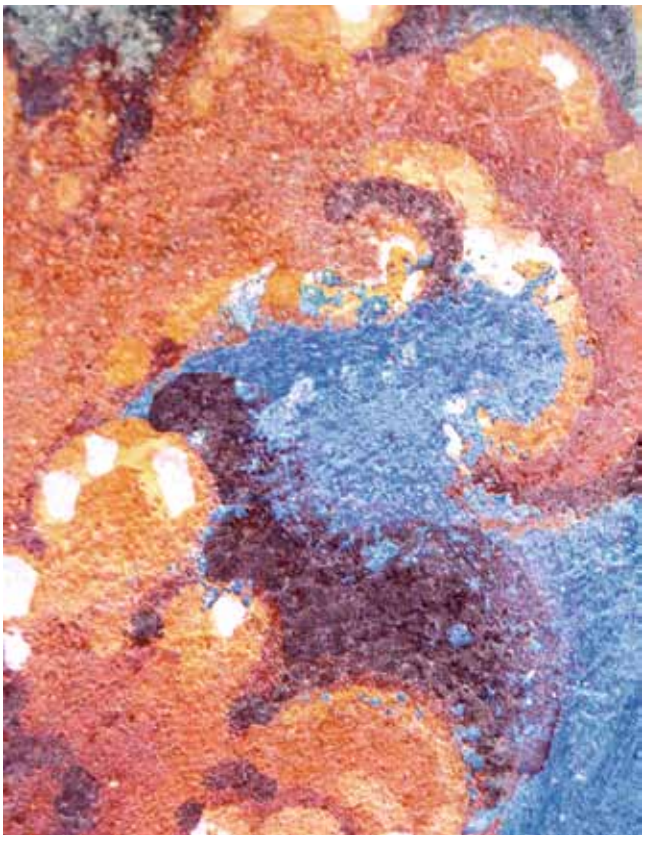


Fig. 13-7: Štrigova, St. Jerome's church, paint layer before consolidation 2005

Fig. 13-8: Štrigova, St. Jerome's church, paint layer after consolidation of flaky pigment with lime dissolved in alcohol 2005



Inorganic materials

With respect to inorganic materials, the oldest and most frequently applied method of consolidation of plaster and pigment layers in Croatia was spraying the surface with clear lime water (made from spent lime). In the late 1970s, the application of ethyl silicates in wall painting was still being tested, and the preliminary results called for caution, because of the potential appearance of glossy "haloes" on the paintings' surfaces, which "are removable if treated immediately with alcohol but if they are allowed to dry they can only be eliminated mechanically."[34] In Croatia, ethyl silicates have only been used in the last decade, mostly as ready-made industrial products.

Barium hydroxide has been used very rarely on wall paintings in Croatia, and, moreover, with varying outcomes. This is primarily a result of the inadequate knowledge of the method of application of this solution, especially as regards its use in combination with ammonium carbonate, which precedes it during the desulphurisation process. The relevant literature on wall-painting restoration[35] lacks, by all indications, some rather important technical details,[36] so one should not be surprised by the fact that the application of this method, used in Italy since 1968,[37] has been unsuccessful on wall paintings, especially if the work was carried out at any time other than during the very short hot summer period, or if the necessary temperature could not be achieved in the room even during the warmest period of the year. Still, one of the main reasons for suspicion of this method was probably the belief that its application on the painting's surface could cause changes in the original material structure, though such changes were not immediately visible.[38] In time, the criticism was redirected towards the irreversibility of the procedure and the impossibility of removal of barium carbonate, which modified the original material structure of the plaster. However, given that the materials used and the chemical basis of this procedure are analogous to the original, and that the procedure causes no degradation as time elapses, it is considered that, realistically speaking, the requirement of reversibility is not necessary.[39]

The improvement of the barium method, usually referred to in literature as the Ferroni-Dini method (or "barium" method),[40] resulted in the second half of the 1990s in the development of a method of wall-painting consolidation[41] that was, in the first papers, simply labelled the new method,[42] or the papers pointed out that it involved colloidal particles of $Ca(OH)_2$,[43] or the stable dispersion of $Ca(OH)_2$.[44] The tiny particles of $Ca(OH)_2$ were called nanoparticles for the first time in a paper published in March 2001.[45] Soon afterwards, referring to a later paper published in Langmuir (note 54), Philip Ball called the method nanotechnology.[46] In the following year, this terminology was taken up by the authors deserving most credit for its development, Rodorico Giorgi and Pietro Baglioni with their associates.[47]

The new method was based on the dispersion of spent lime dissolved in alcohol,[48] which is, according to the authors, completely physically and chemically compatible with the original materials used for the creation of wall paintings. In Croatia, this method, described in the quoted paper from 2000, was used for consolidation of flaky pigment on wall

paintings in 2006, with varying results (Figs. 13-7–13-8).[49]

Certain suspicion of this "compatible" method – partially caused by insufficient knowledge – should not come as a surprise, because some doubts concerning the method can also be found in recent Italian literature on wall-painting restoration. The literature calls for further explanations of some procedural and technical aspects, such as the different behaviour of individual pigments during the procedure and the possibility of nanomolecules being obtained synthetically, in the simplest way, and becoming affordable for restorers.[50]

Among the inorganic materials used in Croatia in restoration interventions on frescoes for a whole decade, there are also products intended for the strengthening of plaster adhesion by injecting – for example, mixtures with the industrial names PLM-A and PLM-Al.[51]

Industrial plaster and paint

The earliest example of a presentation of old painted plaster on a façade in Croatia was probably the one made sixty years ago on the western façade of the former Clarisse monastery in Zagrebs' Old Town. The documentation indicates that the renovation was made with the use of lime plaster, since it is recorded that the base ("socle") was made of cement which was chiselled off and replaced by "ordinary plaster".[52] The painting was carried out by students of the School of Applied Arts in Zagreb and their teacher, with "lacquer paints and tones" (most probably casein tempera?).[53] In contrast to this, during the last restoration of the same façade in 1997, private restorers used acrylic paints for the partial reconstruction of the painted windows.[54]

The use of extended plaster in the restoration of painted or decorated façades was recorded in 1978. On the Prassinsky-Sermage Palace, Varaždin, and on the Miljana Manor, the original plaster was chiselled off entirely. The façades of Prassinsky-Sermage Palace were renovated between 1979 and 1982, and the façades of the Miljana Manor were renovated between 1980 and 1982.[55] In both cases, on the Miljana Manor and on the Prassinsky-Sermage Palace, the façades were painted with industrial mineral paint.[56]

On the Miljana Manor, the lack of experience with the preparation of lime plaster caused "the deterioration of some segments of the façades soon after the completion of treatment".[57] In this respect, it is worth noting that, at a 1982 conference on painted façades held in Zagreb, restorers made some significant remarks. "We have lost the continuity of *métier* of old masters in preparing the façade plaster. There is no spent lime any more, and the way in which the plaster is prepared nowadays and the way in which it is used are unacceptable for the treatment of monuments of cultural heritage".[58]

The same approach that was applied to the Prassinsky-Sermage Palace and the Miljana Manor was also applied to other façades,[59] and it has mostly been adhered to up to this day. Many of the cultural monuments that were damaged in the war of 1991–1995, and particularly churches, have been renovated by removing the old plaster and applying a new one, which has then been painted in accordance with the research results.[60]

What is even worse than the poorly executed reintegration of the original fragments of painted plaster on the façade of the Veliki Tabor Palais dating from the early 16th century, and "renovated" in 2007, is the fact that it was done with industrial plaster. Despite the vehement opposition by restorers to this precious monument of architecture being permanently devalued by this modification of its material structure, all façades of the Palais were plastered with industrial plaster and painted with industrial paint by the same manufacturer (Figs. 13-9–13-10).[61] The only blessing in disguise is the detailed graphic and photographic documentation in which all the historical plaster and painted layers uncovered during the exploration are recorded, together with the results of laboratory analyses.

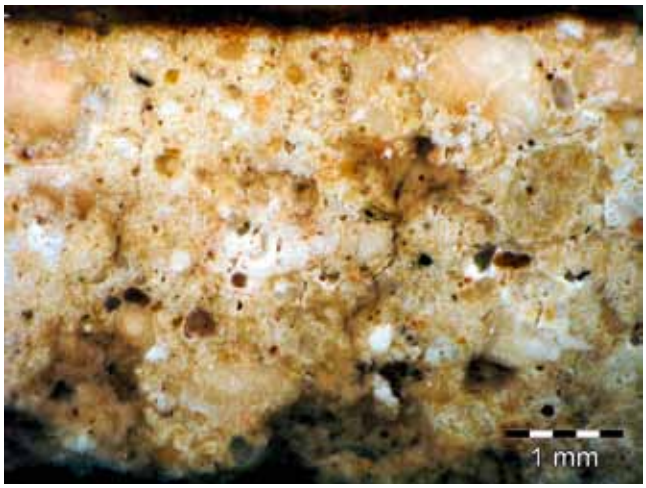


Fig. 13-9: Veliki Tabor, Micro-section of the original lime plaster from façade of Palais 2007

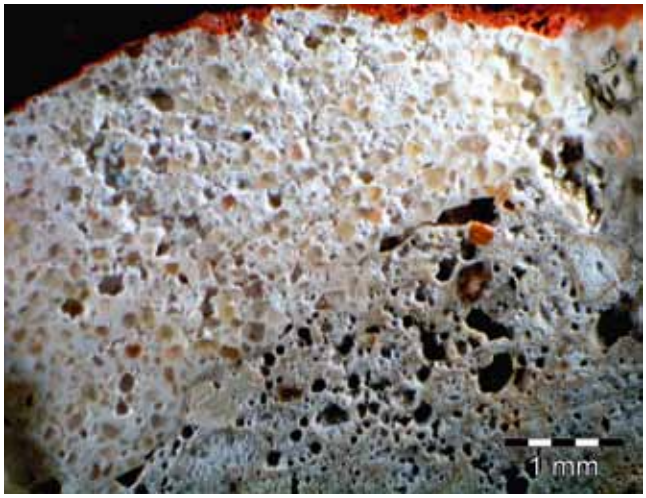


Fig. 13-10: Veliki Tabor, Micro-section of the industrial plaster from façade of Palais 2011

Conclusion – How about going back to the method applied by old masters?

A historical layer that is uncovered under several coats of paint or plaster and selected for presentation becomes once again exposed to the merciless impact of the atmosphere

Fig. 13-11: Osijek, Miller's house, state before renovation 1996

Fig. 13-12: Osijek, Miller's house with the old plaster and paint layers below the new paint, state in 2011

and a new destruction of its structure, this time under much less favourable climatic conditions. It is precisely due to the daily exposure to atmospheric pollution and ever more obvious changes in climatic conditions that the original plasters on façades in urban centres present new challenges which to a large extent put their very survival in question.

In addition, there are also "physical" aspects of permanent damage of historical plaster layers: no matter how much attention is paid to the protection of the original during the intervention, the fact remains that one part of it is lost with every new restoration treatment, and some of it is also damaged during the exploration. This means that the original surface is diminished irreversibly with every new intervention, regardless of whether the issue is the decrepit state of the material, damage caused by materials that had been used previously, the impossibility of establishing the layers without removing the upper coats of paint and plaster, or merely the carelessness and/or ignorance of restorers.

The presentation of historical plasters with painted or decorated surfaces on façades and their daily exposure to atmospheric influence have largely been impossible unless they were protected with some industrial substance. In this way, their duration was prolonged for the time being, but the price that was paid was an irreversible modification of the material structure of the original plaster. In a not-so-distant future, we could find ourselves using microscopes on ever-shrinking surfaces of original plaster to look for unpolluted fragments of its material structure, fragments that will not be soaked with industrial materials for the strengthening of the adhesion and consolidation of plaster and painted or decorated layers, but also fragments that will not be marked by the egotistic and often rather peculiar artistic signature of the hard-working restorers.

The experience we have had in Croatia thus far with restoring painted façades exposed to direct atmospheric impact has been mostly negative, both in view of the materials used and in view of the methods of their application. Isn't it time to ask ourselves what is more important: the presentation of painted plasters and frescoes, or the preservation of their original structure and appearance? Is it really necessary to display them, even if they lose some of their original characteristics with every new intervention, just as they lose them with daily exposure to the polluted atmosphere? Shall we be egotistic enough to keep exposing painted façades to atmospheric conditions until they are physically exhausted, oversaturated with various "protective" substances in which their original material structure will eventually be completely lost?

Decorated façades cannot be taken to the safety of museum premises with controlled microclimates and displayed for visitors like paintings or sculptures, except in the form of drawings, models, photographs or some contemporary medium (film, video, holograms, computer programs, etc). However, they can be protected in situ, under a new layer of plaster that will cover and thus protect them from weather conditions and air pollution.[62] Such a substitute new layer, which can be periodically replaced, thus allowing monitoring of the condition of the historical layers, could be used for painting replicas of those historical decorative elements a critical interpretation would select for presentation (Figs. 13-1, 13-11–13-12).

After all, the most valuable artefacts of human history and culture are not displayed to the curious eyes on a daily basis, nor are they used to ornament our daily lives. The only question that remains to be answered is whether we consider decorated façades to be of the same worth.

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[1] The *external* and *internal* elements of presentation discussed here are somewhat similar to the division made by Cesare Brandi, who, when writing about the material used in a work of art, says that it "carries the message of the image and it does so in two ways which can be defined as *structure* and *appearance* (struttura e aspetto)", that is *internal* (struttura interna) and *external structure*. See Brandi 1977, pp. 8–12; Brandi 2005, pp. 51–53.

[2] Horie 1997, p. 88.

[3] Ibid.

[4] Thompson 1956, p. 49.

[5] Pinchin 2000.

[6] Thompson 1956, p. 57.

[7] Mora – Mora – Philippot 1977, p. 253; 1984, p. 225; 1999, pp. 240–241.

[8] Horie 1997, p. 141.

[9] Mora – Mora – Philippot 1977, pp. 405–407; 1984, pp. 348–350; 1999, pp. 384–385. – In Croatia, calcium casein-

ate was used right up to 2002, and in fact some restorers still use it.

[10] Calcium caseinate was used for consolidation and as an adhesive in restoration of wall paintings as early as the 19th century; Paris 2003, p. 380, note 17.

[11] Mora – Mora – Philippot 1977, pp. 269–270, figs. 40 and 407; 1984, pp. 239–240, figs 9.2 and 350; 1999, p. 256, figs. 40 and 385.

[12] Horie 1997, p. 94.

[13] Mora – Mora – Philippot 1977, p. 261; 1984, p. 232; 1999, p. 248.

[14] Horie 1997, p. 106.

[15] Ibid.

[16] Mora – Mora – Philippot 1977, p. 264; 1984, p. 235; 1999, p. 251.

[17] Horie 1997, p. 106.

[18] Mora – Mora – Philippot 1977, p. 261; 1984, p. 232; 1999, p. 248.

[19] Lučić 1975, p. 7-23; Catalogue 1987, p. 105.

[20] Of *Calaton CA* Mora – Mora – Philippot write that it is N-hydroxymethyl nylon ICI, dissolved in a 6% solution of water (70%) and ethanol (30%). See Mora – Mora – Philippot 1977, p. 262; 1984, p. 235; 1999, p. 249. – Horie notes that *Calaton CA and CB, ICI*, are N-methoxymethyl nylon. See Horie 1997, p. 106.

[21] For Primal AC33 Mora – Mora – Philippot write that it is an acrylic emulsion dissolved in water in the proportion 1:9, while Horie specifies that it is the copolymer ethyl-acrylate (60)/methyl methacrylate(40)/ethyl methacrylate (?): (EA(60)/MMA(40)/EMA(?)), pp. 110–111.

[22] Horie 1997, p. 123.

[23] Lučić 1975, p. 16; Catalogue 1987, pp. 19–20.

[24] The restoration was executed by the Istituto Centrale per il Restauro in Rome.

[25] Paris 2003, pp. 372 and 381, note 29.

[26] Paris 2003, p. 382, note 31 – For Lucite 44 and 45 (later Elvacite 2044 and 2045) Horie 1997, notes that they are PBMA (polybutyl methacrylate) – The manufacturer states that Elvacite 2044 is polymethyl methacrylate acrylic http://www.ides.com/pweb/obds.aspx?E=6716 (accessed: 13/01/2011).

[27] Paris 2003, p. 382, note 31.

[28] Paris 2003, p. 381, note 30 – AC 33 or Primal AC 33.

[29] Paris 2003, p. 381, note 31 – Acryloid B72 or Paraloid B72.

[30] Emo Capodilista 2003, p. 387.

[31] Capanna 2003, p. 490.

[32] Horie 1997, p. 31.

[33] Bagliono – Giorgi 2006, p. 297.

[34] Mora – Mora – Philippot 1977, p. 256; 1984, p. 227; 1999, p. 243.

[35] Mora – Mora – Philippot 1977, pp. 256–259; 1984, pp. 228–230; 1999, pp. 244–246; Botticelli 1992, pp. 91–92 and 162; Botticelli – Botticelli 2008, pp. 121–136.n

[36] For example, Giovannoni notes that the use of ammonium carbonate requires a workspace temperature of more than 18 °C, and that the optimal temperature is between 18 °C and 30 °C. See Giovannoni 1988, p. 86.

[37] The *Barium Method* was used for the first time on the painting *Crucifixion* by Beato Angelico in Capitolo di San Marco in Florence. See Botticelli – Botticelli 2008, p. 129.

[38] Mora – Mora – Philippot 1977, p. 258; 1984, p. 230; 1999, p. 245.

[39] Botticelli – Botticelli 2008, p. 131.

[40] Baglioni – Giorgi 2006, p. 297.

[41] Botticelli – Botticelli 2008, pp. 137 and 143.

[42] Giorgi – Dei – Baglioni 2000, pp. 154–161.

[43] Ambrosi – Dei – Giorgi – Neto – Baglioni 2001.

[44] Ibid.

[45] Salvadori – Dei 2001.

[46] Ball 2001.

[47] Giorgi – Dei – Ceccato – Schettino – Baglioni 2002.

[48] Giorgi – Dei – Baglioni 2000, pp. 158–159.

[49] The HRZ archives, Department of Wall Paintings and Mosaics, Štrigova, St. Geronimo Church (Izvještaj o konzervatorsko-restauratorskim radovima u svetištu crkve od 2001–2007. / Report of conservation/restoration works in sanctuary of St. Geronimo Church in Štrigova 2001–2007). 1 file No. 1405, 2008, pp. 83–84. – Zidne slike u crkvi sv. Jeronima u Štrigovi (Wall Paintings in St. Geronimo Church in Štrigova) http://www.h-r-z.hr/index.php/djelatnosti/konzerviranje-restauriranje/zidno-slikarstvo-i-mozaik/855-zidne-slike-u-svetitu-crkve-sv-jeronima-u-trigovi (accessed: 28. 6. 2012).

[50] Botticelli – Botticelli 2008, pp. 137–138.

[51] CTS s. r. l Vicenza Italia.

[52] Ministry of Culture, Information and Documentation of Cultural Heritage, Documentation Collections, Central Archive, Collection of Old Materials, Zagreb, Opatička 20. Documents dating from 1951.

[53] Ibid.

[54] The information has been received orally from restorers who carried out the work.

[55] At the Miljana Manor, the plaster was applied in two layers: the lower level consisted of industrial plaster, whereas the finishing layer was made of lime plaster with added cement. See: Catalogue 1987, pp. 66–67; Novak 1992, p. 70, note 124.

[56] Novak 1992, p. 70, note 124; Catalogue 1987, p. 107.

[57] Novak 1992, p. 70, note 124.

[58] Conference 1982, p. 72.

[59] Novak 1988, p. 50.

[60] Miletić – Valjato Fabris 2008, pp. 35–53.

[61] Holes in walls and "large areas with missing plaster (were filled) with Kompressenputz (over c. 443 m^2). The strengthening agent KSE-300 (780 litres) was applied to the whole surface of the façade. Once the surface was dry enough, it was coated with levelling substance and the Feinputz finish plaster (c. 625 m^2). After the finish plaster dried out, historic Schlämmlasur semi-lacquer suspension was applied (over c. 1 050 m^2). Tone: 23-2 anthracite, tones – dark red and light yellow." Company: Remmers Baustofftechnik, 49624 Löningen, Germany. – Remmers Office in Croatia. Reference: Veliki Tabor, Košnički Hum – HR. http://www.remmers.com.hr/fileadmin/dam/referenca/veliki_tabor/REFERENCA_VELIKI_TABOR.pdf (accessed: 29/1/2011).

[62] "In some cases, reconstruction of decorative wall paintings or coloured architectural surfaces can be a part

of a conservation-restoration program. This entails the conservation of the authentic fragments, and may necessitate their complete or partial covering with protective layers. A well-documented and professionally executed reconstruction using traditional materials and techniques can bear witness to the historic appearances of facades and interiors." See ICOMOS 2003.