



*Oratorio della Passione
in Sant'Ambrogio, Milan*

**REPAIRING THE PLASTER WORK
AND RESTORING THE FRESCOES**

PREFACE

Zambon Group for social activity: a street called S. Ambrogio

One of the key aspects of the Zambon Group's corporate mission is its attention to all its shareholders, in the widest sense of the word. This is why we do not just focus exclusively on research and the production/distribution of active chemical or pharmaceutical ingredients, but also on the world around us: the "community". A big business that operates right in the thick of all the turbulent changes present-day society is going through inevitably finds itself working right across the board with the whole of society on a constant basis. This has always been the case, but nowadays it is an even deeper and more forceful issue, in the wake of periods when, perhaps, there was a tendency to focus more on economics or, putting it more brutally, economising. For the Zambon Group, too, working within the fabric of our society is, at one and the same time, a pleasure and a duty, since this is what is now to be expected of a major company. The two aspects are virtually indistinguishable: a failure to come to terms with what is happening both in the outside world and within the company would make it extremely difficult to be acknowledged as a leading company at the cutting-edge of its business.

This is why we asked ourselves what we could do on a socio-cultural level for the environment in which we live and work; something of international scope. For a firm like ours, working in Milan, the answer was only natural: "Sant'Ambrogio!".

The Basilica di Sant'Ambrogio – that needs constant restoration and conservation work in order to maintain its ancient splendour and bring back to light all the treasures it holds – was a fundamental step along a path we set off on four years ago; this is the driving force behind a socio-cultural undertaking that sees the Zambon Group involved, on one hand, in carrying out a series of restoration operations inside the Basilica and, on the other, in organising and laying on the Sant'Ambrogio Christmas Concert for both the people of Milan and national and international stakeholders. This latter event will combine the beauty of the Basilica with the virtuoso skills of the Teatro Olimpico Orchestra from Vicenza.

Our work on restructuring the Basilica and safeguarding its artistic heritage has so far taken the form of two projects: the restoration of the Museo del Tesoro di Sant'Ambrogio inside the Basilica in 2001 (in partnership with the Milan Lions Club) and the renovating of the Oratorio della Passione at the end of last year (in partnership with MAPEI), situated in the vicarage courtyard. This short book is devoted to this latter project in the hope that it might help restore an important fragment of our Christian history to the city of Milan and allow our Group to continue along a path that will result in greater integration with the surrounding community of men and women.

Roberto Rettani, Amministratore Delegato Zambon Group S.p.A.

Mapei technology for the conservation of important historical sites

The backing provided for the restoration of the Oratorio di Santa Maria della Passione - both in financial terms and through its products and business experience – is just one example of Mapei S.p.A.'s commitment to the arts and culture in general. Its close working relationship with culture derives from the very nature of its production operations. Technology resulting from Mapei research has for years been invested in both works of great social scope and importance, such as infrastructures, and also historical buildings forming part of the nation's architectural legacy, an indispensable part of any country's artistic/cultural heritage and important enough to occupy pride of place in many of the world's most striking "scenarios". The firm has worked on renovating the Chambers leading through to the Sistine Chapel in the Vatican, the re-flooring of the Kremlin, the upgrading and securing of the structure forming the Basilica di San Francesco d'Assisi after it was scarred by an earthquake, as well as the restoring of Giotto's frescoes and reinforcing and protecting the Wall of Jericho, to mention just a few. Cutting-edge research aimed at supplying the market with increasingly sophisticated products and enhancing the world's artistic heritage, in the firm belief that work and art can never really be separated.

This is why our working relationship has been boosted, enriched and developed down the years, devoting an increasing amount of resources to the world of culture, the arts and music. Alongside the work carried out on restoring the Oratorio di Santa Maria della Passione in Sant'Ambrogio in partnership with the Zambon Group, the firm has also been involved in plenty of projects – an exhibition and concerts – aimed at making this "space" available to the people of Milan and anybody else interested in learning more about it or even rediscovering it.

Giorgio Squinzi, Amministratore Unico Mapei S.p.A.

INTRODUCTION

Sant’Ambrogio Basilica is full of pleasant surprises, even for those who go there often or have studied all the books written about it. The old oratory of the Scolari della Passione is one of these surprising places. It actually stands between the tall wall of Ansperto’s Foyer, almost a rampart built to protect Bishop Ambrose’s burial tomb, and Canonici Bell Tower, a towering nolar edifice commissioned in the 12th century by the community of priests who used to assist the Benedictine monks during religious ceremonies.

This is a secluded space, hidden away behind a cold modern façade contrasting with the little surrounding courtyard reminiscent of the 15th century Lombardic style. But you need only enter the hall to be stunned and surprised by the harmonious grace that makes this such a special place. You immediately feel at home within these warm and welcoming walls, that have now been restored back to their original state. The pictorial scenes by Luini, that tell the story of Jesus’s Ressurrection, are carefully set in the “shadows” left to decorate the ceiling.

The apocalyptic image of the Triumphant Lamb (included in the book) clearly emerges and gives us an idea of what this place must have been like back at the dawning of the 16th century.

The damage caused by passing time and the fact that the oratory often passed into the hands of people less interested in art meant that the place was in a terrible state when it was entrusted to us. The magnificent images could hardly be seen for what they truly are. The joint efforts of two firms, Mapei and the Zambon Group, - to whom we express our most sincere thanks – has now made it possible to renovate and restore this place to the Basilica and, hence, to the entire Ambrosian community as a place of worship embodying beauty, something which we all – regardless of our own faith – aspire towards.

+ *Erminio De Scalzi*
Parish Abbot



The Basilica di Sant'Ambrogio is universally acknowledged as being a shrine to Romanesque architecture in Lombardy. So why it is held in such high esteem? The fact that almost all its building features have been conserved: a rare feat. Everything from the majestic yet humble, austere yet homely foyer (named after Ansperto) to the entrance narthex of monumental proportions, and finally Volvinio's altar. The basilica, that Ambrose himself commissioned to be his own burial church in 384, ended up for this very reason being the burial chamber for a Saint who, despite being Roman by law, was really a product of Eastern thought due to his mystagogic training.

Due to its fame the church's basic layout and construction have always been respected, even though very little now remains of the building work Saint Ambrose himself supervised. The builders of the church as it now stands (open to visitors) may have constructed along 11th century lines, the restorers employed by Cardinal Borromeo may well have added on some stylistic features and took action to "straighten" the curves in the arches, and the work carried out in the 19th century may well indeed have removed what in their opinion did not fit in with their ideal vision of Romanesque architecture, nevertheless everybody conformed with the perimeter measurements of the church that Ambrose originally set down. Various religious communities gradually joined together down the centuries to honour the burial grave of the bishop, that tradition has identified as being the founder of the Church in Milan, duly known as "Ambrosian". Priests were joined by Benedictine monks, followed by the Cistercians until Napoleon's troops eventually entered the city. The two religious communities played different roles and plenty of families or even individuals converted to their different faiths. Small but closely knit and independent places of worship gradually emerged, where people could congregate and express their devotion. This meant the main basilica was extended through a number of chapels, particularly on the right-hand side, as well as small self-contained constructions like

the little churches of Sant'Agostino, Santa Maria Greca, Santa Maria Assunta, Passione, and San Remigio, and yet others whose names we do not know but which we are aware of thanks to archaeological digs. Of all those we know once existed, very few are still around. Of those still with us, it is certainly worth mentioning the ancient Oratorio degli Scolari della Passione, whose restoration and renovation is described in this book.

Returning to the basilica and tracing back through its history in chronological order from St. Ambrose to the present day, we find plenty of important works of art.

The elaborate Sarcophagus of Stilicone, a 4th century burial shrine sculpted right across all four sides. It is widely attributed to Stilicone, but there is certainly no doubt about the quality of the sculptor's work. The biblical characters on the shorter sides and the scenes depicting Christ on His throne surrounded by the disciples on the longer sides are pinnacles of art in the city Milan as it was reaching the end of its reign as a bastion against Barbarian invasions from the Germanic plains. The sarcophagus was later used as a base for designing the ambo, a special place for preaching the Gospel from the 9th century onwards, as testified by the two gilt copper figures depicting an Eagle and Angel, figures of the apostles John and Mathew, and also meaningful images of the double nature – divine and human – of Jesus. The columns made of red Egyptian porphyry holding up the ciborium, a little stucco temple marking the altar place, may be dated back to Roman times, but we must not forget the second, in order of time, but unique and invaluable remnant of the reforming of the basilica commissioned by Angilberto: Volvinio's altar.

The side facing the congregation features a large wooden case embellished with golden caissons, while the other sides are made of silver with lots of gilt work. Thousands of stones and pearls mark the edges. We have only been able to admire the real artistic qualities and significance of this altar and sarcophagus, placed where Bishop Ambrose was buried, since 1974, the year of the centenary of the Episcopal consecration of Saint Ambrose,

when the glass case was made. The Basilica's greatest works of art are certainly the pictorial decorations from the late-15th century. Luini's frescoes in Sacro Cuore Chapel, the various Madonnas, scenes of Jesus as a young boy amongst the Doctors in the Hierosolymitan Temple, and the mystic Christ resurrected with the angles now on display in the Baptistery Chapel. All works of outstanding quality and beauty. The 17th and 18th centuries were important but rather unfamiliar periods, which gave us the Presepe pieces depicting the clash between Ambrose and the Emperor and the fancy chapel devoted to Saint Ambrose on his death bed, whose altar features a remarkable piece portraying the saint's last communion, and the anti-chapel of San Vittore in ciel d'oro decorated with frescoes illustrating two episodes from Ambrose's life: the saint in arms being visited by bees and the consecration of Sister Marcellina by the Pope in Rome.

The century which has just drawn to a close is the Baptismal Font depicting a scene from Saint Augustine's conversion, showing him being baptised by Bishop Ambrose.

It is perhaps worth pointing out that one of the most important relics of all is the invisible decision taken by those who found themselves amongst the basilica ruins in 1943, after it has been defended for 1600 years against marauding Vandals and bands of undisciplined and poorly paid mercenary troops hungry for the spoils of war. The will to rebuild the Romanesque walls, apse mosaic which was largely destroyed, and Bramante's pulverised 15th century portico speak volumes. Not to mention the homes for the priests leading constant prayer over Bishop Ambrose's tomb. Everything evokes the efforts so many different generations have taken over keeping alive our memory of Bishop Ambrose, a charismatic figure still capable of unifying and placating human souls, just as he did in the turbulent city of Milan back in the mid 4th century. ■

Carlo Capponi

The oldest writings about the S. Maria della Passione Confraternity “prope campanile canonicorum” date back to 1455⁽¹⁾. In 1477 Guiniforte Solari approved the building of the new auditorium with its adjoining little cloister, whose columns actually have the same diameter and height as those in the cloister of S. Maria della Pace⁽²⁾. It is likely that Guiniforte was actually responsible for designing the small building with its distinctive quadrangular space covered by a double cross roof and a square little apse with an elegant umbrella roof fitted onto a structure of lunettes and drapes: an innovative design frequently used for on a number of key late-15th works of architecture in Milan, such as those in Foppa Chapel in S.Marco e S.Giuseppe in S.Maria della Pace⁽³⁾.

The 16th-century decorative paintings were followed by other architectural features like the opening up a large thermal window in the façade.

18th and 19th century historiography often mixed this building up with the oratory of the same name situated near the monks' bell tower and used by the Assunzione confraternity: news of decorations carried out on the vaults, windows and entrances in 1563 refer to this oratory⁽⁴⁾.

When the confraternities were shut down in the 18th century, the oratory over on the monks' side was knocked down, while the other oratory over on the canonical side was handed over to the administrators of the Basilica di S.Ambrogio in 1812. Used as a textiles workshop, it was taken over once again in 1866 and sold three years later to a wine merchant⁽⁵⁾.

The lawyer Michele Cavalieri commissioned Antonio Zanchi to remove some of the first frescoes; the subjects of the paintings that were stripped off were Jesus's Sermon in the Garden, the Flogging, the Resurrection, and the Descending of the Holy Spirit⁽⁶⁾.

The frescoes from the Cavalieri collection were auctioned in nine separate pieces by Foster in London in 1898: three were bought by the South Kensington Museum (later to become the Victoria and Albert Museum, where they are still registered in its store rooms), five by Mr. Abercrombie,



Overall view of the main façade of the Oratorio della Passione showing the Campanile dei Canonici.

and the other by an unknown collector⁽⁷⁾. The first three fragments deal with the Ascension, the other five with the Last Supper, the Flogging, the Sermon in the Garden, and details of the Holy Mother on the Throne and the Holy Spirit surrounded by Angels. The documents produced by Caffi and Beltrami, together with the lacerated remains inside the oratory, mean we can hazard a guess at to how the original decorations ought to be reconstructed. The walls in the main space, with their twin bays, used to be decorated by the Flogging, Sermon in the Garden, Ascension and Descent of the Holy Spirit. The fragments belong to the Ascension, now at the Victoria and Albert Museum and rightly published by Beltrami, suggest these frescoed scenes were set between the main lunettes (Christ rising up to heaven) and across a strip below (The bystanders). The double façade was painted with the Last Supper and the apse walls with the three Marias leaving Jerusalem before the Resurrection, while on the left we most probably had Jesus meeting Mary Madeleine in the Garden with Mary at the tomb on the right and, perhaps, Emmaus's Disciples on the left. There are images of two prophets at the sides at the back: pro-

bably Isaiah and David, who are usually found by the Cross, that was probably set in the middle. The Angles in the lunettes show the instruments of the Passion; the Everlasting One is depicted in the middle of the apse vault, while the Mystic Lamb is shown in the middle of the hall vault; the Doctors of the Church are portrayed in the sub-arch section. There is an extraordinary collection of grotesques among the drapes, together with symbols related to the Eucharist and the Holy Mother.

The wealth of iconographic images and the lively, naturalistic tone of what is depicted fit in with the spirituality of the scholars as they are described in the “Ordini riformati della Compagnia di Santa Maria della Passione al campanile dei reverendi canonici...” issued in 1665⁽⁸⁾. The oratory is seen as a place of silence, meditation and prayer; the scholars were expected to show “humility and simplicity of heart, hilarity of mind, readiness of mind, a devoted spirit and honest intentions”. The confraternity was guided by the fellowship of angels constantly depicted in paintings and their worship focused on Christ, His Passion and the Virgin Mother, striving to achieve a certain “gentleness” of spirit and mind.

Central detail of the apse vault: The Everlasting Father.



This yearning for spirituality was emphasized in the various liturgical practices culminating in a hugging of the Cross that concluded the investiture ceremony for novices by the altar. This detail suggests that there was a Crucifix in the middle of the apse, sculpted rather than painted along the lines of what was described in the basilica's Scurolo, as exemplified by the Crucifixion now housed in Marasso Parish Church but initially from S. Ambrogio, if not actually part of the oratory's original ornamentation. It is no coincidence that Caffi's and Beltrami's careful research into the frescoes removed from the chapel never refer to a Crucifixion. The Orders also refer to the adjoining rooms and the cloister: that is where doctrine was taught, to the novices in particular. There was a careful ritual controlling how and when you could enter or leave the oratory, which was the real hub of confraternity life: here everything had to take place with "precision, discretion, humility and order".

Admission was based on a tough selection process, which explains the high standard of the works of art commissioned: you had to be twenty-two years old, have been living in Milan for two years, know how to read, not be a servant, soldier or mer-

chants, except for wool and moleskin traders. Careful symbolism governed the "numbers" dictating the organisation of the confraternity, as embodied in the mystical style of the grotesque figures on the vaults. At least since Biffi's day, the frescoes have been attributed to Bernardino Luni and, apart from the odd exception, this was generally held until Beltrami, who pointed out connections with the paintings in S. Maurizio's⁹. Despite the fragmentary nature of the works and their poor state of conservation, the most obvious Luini-style works are found in the apse decorations, particularly Christ Appearing to Mary Magdalene and the figure of the Prophet, while the angles with instruments of the Passion are less certain in their origin and are stylistically reminiscent of the lunettes in S. Giuseppe Chapel in S. Maria della Pace Church, now kept in Brera.

The vaults decorated with grotesques are also of the highest standard. Inspired by nature, they stand out for the variety of their shapes and colours, clearly fit in with previous paintings, and have obvious similarities with similar work carried out by Luini for Casa Pelucca, almost certainly dating back to the mid-1520s. The Ascension, in contrast, has a much more old-fashioned workshop feel, suggesting

somebody else also worked on the oratory. Luini's hand is also visible in two figures on the arcossio, one of which features military-style decoration. Zenale's triptych depicting the Virgin Mother between St. Ambrose and St. Jerome, now kept in the museum, was thought, on more than one occasion, to have come from the Oratorio della Passione, but more recent inquiries have shown that the painting originally came from S. Francesco Grande's, as testified by Torre, Biffi and Santagostini, also bearing in mind that a similar subject is found on a painting now on display in Denver¹⁰. In any case, a document dating a contract commissioning Zenale to design an altarpiece to 1494 certainly refers to the confraternity of S. Maria Assunta della Passione, whose oratory used to be on the monastery side of the basilica¹¹. ■

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¹Archivio Storico Diocesano, Milan (ASDM). V.P., *S. Ambrogio*, XLIX, 71.

²Caffi M., *Memorie ambrosiane: L'oratorio della Passione...*, "Archivio Storico Lombardo", s.II, 16 (1889), pp.393-394; Baroni C., *Documenti per la storia dell'architettura a Milano nel Rinascimento e nel Barocco*, Florence, 1940, p.36; Patetta L., *L'architettura del Quattrocento a Milano*, Milan 1987, pp. 163-155.

³Patetta, *L'architettura...*, pp.153-155.

⁴Caffi, *Memorie ambrosiane...*, p.394.

⁵Caffi, *Memorie ambrosiane...*, p.395; Beltrami, Luini. 1512-132, *Milano 1911*, pp.443-445.

⁶"Gazzetta di Milano", 12th October 1869.

⁷Beltrami L., Luini, pp.445-446.

⁸ASDM, V.P., *S. Ambrogio*, XLIX, 71.

⁹Biffi G., *Pitture, sculture et ordini d'architettura enarrate co' suoi autori da inserirsi a' suoi luoghi nell'opera di Milano ricercata nel suo sito...*, edition edited by M. Bona Castellotti-S. Colombo, Milan 1990, p.96; Caffi, *Memorie ambrosiane...*, p.394; Beltrami, Luini..., pp. 447-448.

¹⁰Magnifico M., *Problemi di filologia...*, in Zenale e Leonardo, *Milano 1982*, p.206.

¹¹Rovetta A., *L'area del monastero dal XV al XVIII secolo*, in *Dal monastero di S. Ambrogio all'Università Cattolica*, edited by M.L. Gatti Perer, Milan 1990, p.194.

The old place of worship of the Confraternita della Passione has been fully restored to its former artistic glory. Even though for a long time now⁽¹⁾, after it had been put to a whole series of improper uses, it has hosted various kinds of exhibitions of an artistic nature, it had been furbished with drapes that merely hid the damaged walls. And it had been impossible to conceal the lacerated ceiling, whose ornamentation was covered with large patches of greyish cement stains.

The small quadrangular apse at the rear was the only feature revealing just how artistically striking this place had once been. At the end of the 1960s events had resulted in the restoration of just the end section of the oratory, the only still conserving traces of Luini's decorations⁽²⁾, although with bits missing, while all the rest of the architectural space was just how it had been left after all the hasty but necessary renovation work carried out to repair the damage caused when the basilica was heavily bombed by allied forces during air raids in August 1943.

Please consult the appropriate chapter for a proper account of its artistic background.

When dealing with the conservation of relatively minors work of art or architecture – and there can be no doubting the “poverty” of the Oratorio della Passione compared to the basilica, which is one of the finest examples of the Lombardic Romanesque style – we need to realise just what operations of this scope are supposed to achieve, encompassing much more than just the strictly “economic” connotations of certain places.

In a recent account of the restoration of the oldest cloister house in Lombardy (Certosa di Garegnano), Professor Maria Antonietta Crippa, who teaches at Milan Polytechnic, wrote that “The chance to design an overall project to renovate this great monument provided the double opportunity of carrying out work of high cultural value which, at the same time, would have notable repercussions on the local community. The idea was to use the general restoration and redevelopment project to restore a sense of historical



The Basilica di Sant'Ambrogio, as it looked about a century ago: photo from 1875.

The Campanile dei Canonici was left out from the raising operations carried out in 1883.

continuity to the site, in terms of all the various uses and meanings associated with the layers of history and change that have formed down the years.

The renovation work was not to be carried out along the lines of emotional impact, but rather drawing on the kind of expertise in the renovation and restoration of a project involving extensive alterations that has given Italian research (and Lombardy's contribution in this field in particular) such a fine international reputation (...).

In this respect, it is worth pointing out that current state of the art of restoration work is directly connected, especially in architecture, to the most advanced and developed lines of contemporary thought, which, most significantly in the early 20th century, conceived of itself as “modernity” in order to break with tradition.

Nevertheless, in Italy in particular, the problem posed by tradition was set in the context of this general desire to be “modern”, because it was soon realised that ways of laying out space and devising a contemporary architectural idiom needed to be nourished by the quality, variety and beauty of what already existed in the form of thousands of years of rich stratification. In the wake of the 2nd

World War, the art of restoration and the urgent need to set proper guidelines for safeguarding Italy's incredibly rich and extensive architectural heritage, brought the question of tradition and historical awareness right to the fore.

Liliana Grassi, who has worked in Milan as both a member of the teaching staff at Milan Polytechnic and as a restorer of important buildings, quite rightly wrote in the 1980s that in relation to history we have moved on. “From negative relations to a state of awareness.

Knowledge has given rise to love, so much so that we can now claim that the past is always part of culture, even to the extent of being a very modern phenomenon, set in the “historicalness” of our knowledge”.

In this kind of context, so the scholar has pointed out, we have been able to make it clear that: “Restoration is an intricate operation whose foundations lie in culture, notably in history in all its various aspects, so that the motivations and methods behind various operations are constantly being called into question, meaning that no simple definition can be provided.

Nevertheless, there can be no question that its ultimate purpose is to help a work

of art survive, regardless of underlying means and motivations (...) it is standard procedure to restore the object in question to a better state of conservation, corresponding as far as possible to its authentic nature, without reverting to repairs or additions, while respecting, as mainly regards archaeology, architecture and town-planning, layers of history from different periods in time, without privileging any one period over another”.

This is why: “restoration bases (...) its reason for being on an awareness of historical perspective and hence on distinguishing the present from the past within a certain continuity; a distinction that means every period in time is worthy of attention, in contrast with what happened in classical times, in early-Christian and Medieval times in some respects, and in the Renaissance and Baroque eras in others⁽³⁾.”

These thoughts clearly explain the cultural-civic importance of conserving and caring for works from the past through restoration work, provided the conservation operations are aimed at passing on these works to the future as part of a continuous process encompassing the differences between various periods in history. At the same time, growing importance is now being attached not to just carrying out philologically correct restoration work, but also to making the means and reasons for the conservation known, and explaining why the restoration project is required. The idea is to restore works back to life and back into the community’s responsibility, so that people can learn how to make proper use of them, care for them, and plan their maintenance, as we would put it nowadays.

In the end, it is not just a question of conservation methods, but also (or rather above all) of holding onto the past and a sense of place, making due historical distinction to different uses, and getting plenty of people actively involved; it is a question of having rediscovered something made in the past but perceived as belonging to the present, as absolutely topical due to its very historicalness.

Just before passing away, Liliana Grassi talked about the need to base restoration

on historical foundations as part of the “need to rediscover time”, “the rediscovered time of art, which – as has been said – is neither a revival of something from the past, nor a return of some taste or style, as in centuries gone by. In rediscovered time <man sets his own temporal nature free from the bonds of succession and retrieves both the past and present in a state that is not now (and hence is more real than the present moment), in an ideal manner that is not abstract and so is more real than intellectual abstraction>”.

This brings to light the profundity of modern-day historical awareness, which, it is to be hoped, is not just elitist; an awareness developed in the context of restoration and caring for our built heritage. This aspect of a sense of history encompasses both the spatial and temporal nature of human experience.

Places which are restored and conserved may be perceived and experienced as places of “rediscovered” space and time, offered to life and customs/habits that are constructed around them, not in a nostalgic way, but as part of our historical sense of belonging to the community.

Nowadays, conservation techniques are much more advanced, but there is a frequent tendency to forget that we must not just make explicit, comprehensible and familiar “how” – the methods and techniques used - we carry out conservation work, but also “why” and what we conserve – the value and meaning we attach to an artifice. These three questions, that Grassi first posed – why, how and what to restore – call into play ethical, personal and collective issues, theories and actions aimed at protecting cultural assets, pointing towards questions that reveal, when they are asked, a certain ethical indifference accompanying a nihilistic mentality that is so widespread at the moment.

A consequence of this kind of thinking is the inherent danger that conservation becomes detached from the construction of social living capable of identifying and communicating non-negotiable values essential to our human dignity as both individuals and part of a community. Being able to judge the value and meaning of a work, its recovery and conti-

nunity in material transformed into architecture and art through human invention, is an indispensable premise for restoration, when it is seen as deeply intensely problematic but not sceptically founded⁽⁵⁾.

As the anthropologist Marc Augé has recently written these are “places”: in other words, spaces whose existence depends entirely on the relations that bring them into being. A place is a space capable of bringing relations into being and of forming individual identities through relations⁽⁶⁾.

In this respect there is a deep-seated reason for employing financial resources in restoring a monument of relatively little importance in comparison to the Basilica di Sant’Ambrogio or the Basilica Assiate di San Francesco, where one of the two sponsors, allowing the restoration of the oratory, invested their technological know-how and made good use of their expertise with products serving restoration purposes; products than used here in Milan.

After this indispensable methodological premise, it is now time to outline the work carried out to restore the entire decorative cycle to a good state. Working on the historical fact that the façade is a modern design by the architect Adolfo Zacchi, then the Architect for the Venerable Building of Milan Cathedral, who, when renovating the façade, also closed off three windows in the strip of wall between the main entrance and large upper window, we tried to understand – as a guideline – how this little place of worship developed down through history. We know from documents kept in the Capitular Archives of the Basilica di Sant’Ambrogio that the courtyard was brought back into view during the restoration work of the 19th century by knocking down a house built onto the main wall of Ansperto’s Foyer, where the entrance gate to the oratory itself now stands.

We have the designs made by the architect, Mr. Zacchi, who, in the 1930s, gave a fifteenth-century look to both the portico and house skirting along the square, almost a perspective curtain closing off

the Roman “devil’s column”. We know nothing of the work carried out inside, except the looting that went on when the owners were not in any way connected to the parish or the ancient confraternity, that was actually dissolved three centuries earlier.

How, when and why was it decided to place architectural ornamentation on the side walls? Why were signs engraved in fresh plaster evoking where the windows were supposed to have been? Why is not the left-hand wall perfectly aligned? These questions and others were at the focus of attention throughout the restoration campaign.

The first step was to create an accurate graphic relief of the oratory⁷⁾, until now only available in rough preliminary drawings. The Mapei laboratories examined a set of samples chosen based on the results of stratigraphic surveys carried out by Professor Marco Cavallini’s team in Florence⁸⁾, which provided more information than could be obtained by just looking at them.

Since it is not a place of worship, whose specific requirements would have called for a different approach, it was decided to use a range of restoration techniques. Having ascertained through plenty of carefully performed stratigraphic studies that there were no remains of old paintings or previous plaster work under the plaster on the vertical walls, it was agreed to restore them to the decorative unity they had been given (presumably) by Zacchi. Starting with a better conserved area, it was decided to reconstruct the architectural cornices and top wainscoting in order to be able to grasp their size and patterns, leaving just a light trace of colour not designed to provide a finishing coat due to the uncertainty surrounding this section.

The restoration work on the vault decoration was more intricate. The extensive cement patches designed to repair damage inflicted during the war had hidden some of the old decorative paintings in several spots and also caused efflorescence due to all the soluble salts found in the material itself.

Removing these patches uncovered a

small section of plastering dating back to before the visible ornamentation. Various vault levels were also discovered resulting from static adjustments, perhaps not only caused by the heavy vibrations from the bombs dropped in 1943.

Different methods were used according to the state of repair of the pictorial decoration. Where it was easy to read the overall pattern of the design, it was decided to opt for a philological reconstruction of the gaps to restore continuity to the ornamentation. The lack of any designs for the central vaults, set around the rota marked by the Angel of Death, meant the basic colour scheme was taken up again so that visitors looking up from the hall below can “grasp” a unitary pattern, without falsifying – i.e. imagining – the state of affairs that time has failed to conserve to History.

Since a trace of the old smooth plaster decoration was found on the right-hand drape closest to the double-façade, perhaps put there in preparation for paint work (applied prior to that visible today), it was decided to live it exposed as evidence of how noble this oratory once was. As regards the operating methods employed, please refer to the section in this book written by professor Cavallini, who hea-



Detail of the hall and apse vault after completing repairs.

ded the team of restorers.

The oratory is certainly now easier to grasp in its entirety, and, although only a pale shadow of its former glory when the walls were covered with Luini’s frescoes, it still creates a sense of expectation in visitors’ hearts as they prepare to enter the Basilica alongside the oratory. ■

Carlo Capponi

¹To celebrate the basilica’s 16th centenary in 1986, mono-thematic exhibitions were put on by Giò Pomodoro, Carmelo Cappello, and Remo Brindisi, just to mention the first in a line of artists who accepted the invitation from the Basilica Museum.

²In reference to Luini’s work in Sant’Ambrogio and the oratory, please consult the recent text written by M. Rossi, *La cultura figurativa tra XV e XVI secolo*, in *La Basilica di Sant’Ambrogio in Milano*, Silvana Ed., Cinisello B. 1997, pp.72-83.

³Cfr. L. Grassi, *under the beading Restauero*, in: AA.VV., *Storia generale dell’arte*, UNEDI, Milan 1982.

⁴These same thoughts are expressed in an important essay written by L. Grassi, *L’antico e i contemporanei: momenti del rapporto passato e presente nella cultura artistica dal Rinascimento all’età moderna*, estratto, da AA. VV., *Aspetti e problemi del rapporto passato-presente nella Storia e nella Cultura*, Istituto lombardo di Scienze e Lettere, Milan 1977, pp.53-82. Here the author draws an important historiographic conclusion in the following terms: “Al passato occorrerà guardare, in sostanza, non per dedurre norme, ma per ricomporre l’unità dialettica del tempo, mentre, in termini di rapporto fra passato e presente, la moderna antinomia fra individualismo borghese e realismo sociale suscita l’esigenza di un superamento nella ricerca di una articolata relazione fra persona e società.”

⁵M.A. Crippa, C.Capponi, *Il tempo ritrovato: ragioni di un restauro*, in *La Certosa di Garegnano in Milano*, Silvana Edit., Cinisello B, 2003, pp. 11-19.

⁶Cfr. M. Augé, *Rovine e macerie*, Bollati Boringhieri, Turin 2004.

⁷The survey was carried out with rare enthusiasm by Studio Dielle di Erba.

⁸It is particularly worth mentioning the restorers Marco Fiorucci and Beatrice Torcini, who, having been placed in charge of site operations, advised and supervised the various workers with great skill and expertise, listening to and interpreting instructions from the Works Management (represented by the person who drafted these notes) and the Scientific Director of the Superintendent’s Office for Milan’s Architectural Heritage, the architect Libero Corrieri.



Main façade of the Oratorio della Passione before repairs.

A careful survey of the frescoed surfaces and their substrates on the hall ceiling, lunettes and walls beneath them showed their was adequate bonding between the layers of mortar and substrates, although at certain points this bonding needed to be strengthened by retro-cortical injections of special products. Ignoring the cement patches, there are lots of marked bumps in the ceiling's plaster work. A number of these are most probably due to shock waves caused by bombings during the 1943 air raids; others, in contrast, may be put down to "fake" reconstructions of the edges of the vaults.

The original plaster work generally looks smooth and the painting over it is firmly attached and easy to distinguish. Unfortunately, there are also alternating sections of rougher and less thick tonachino, on which colour looks pulverulent and stylistically unclear.

This tonachino is similar to the top plaster smoothed over the triumphant arch near the hall, where two male figures can still be seen, although they are actually in a terrible state of repair.

The tonachino on the hall walls is also in a similar state with bits flaking off naturally. It is reasonable to assume that twentieth-century faded patches of architectural decoration on the walls were part of one single reparative restoration operation, presumably dating back to the early-20th century. As regards the excess of saline efflorescence on the vault, it is most marked on the aforementioned patches of tonachino.

This is why it is believed that, together with water leaking through the roof, the cement-based or highly hydraulic component of the mortars used for restoring the plaster work caused the efflorescence to form. It is quite obvious that the presence of this kind of binder in the bits of plaster work implicitly confirms that work was carried out in the 20th century, seeing as materials like these were not available or certainly not very widely used in Italy before then.

The limewash colouring beneath the thick layer of dirt on the vaults, lunettes and underlying walls is particularly tough and

fine.

These properties apparently derive from paint which is spread on "fresh" (first coat) and then "semi-fresh" (next coats) using thin colours, perhaps even with oil, milk or something similar added.

The tonachino beneath the colour is rough, not very thick, but perfectly bonded to the primer. The primer is made from lime putty and was apparently applied in one single coat. It is tough and firmly attached to the substrate, which, according to the first tests carried out, seems to be made solely of fictile material (clay-like), whose notable absorption properties and slowness with which preliminary damping is released make this the ideal substrate for ensuring maximum carbonation of plaster work with airy binders.

There is a top layer of less stable tonachino on the walls, particularly near the base and around the fake façade, which in some parts is flaking off. This top layer might have been applied when re-facing the fake façade in an attempt, at the time, to repair typical damage due to widespread rising damp. The damage due to widespread rising damp is particularly marked on the outside, along all the walls of the portico in front of the Oratorio della Passione and on the same structure's main façade. This is most obvious in the large patches of damp and swollen tonachino caused by saline efflorescence and sub-efflorescence forming. ■

*Marco Cavallini,
Pasquale Zaffaroni, Paolo Sala*



Before carrying out any repair work, a number of stratigraphic studies were carried out on the portico walls, main façade, lunettes and hall walls, reaching as far down as underlying substrate. These operations were performed to assess the firmness and quality of the underlying finishing work in need of restoration, and to check none of the original paint work was still there.

Having completed these vital operations and checked there were no original frescoes or frescoes from more recent times, pin-point samples of the plaster and finishing were taken from the portico, main façade, hall walls and vaults.

The samples were analysed using chemical, physio-chemical and mineralogical techniques such as X-ray diffraction (XRD), thermogravimetry coupled with differential scanning calorimetry (TG-DSC) and measuring the pH content and conductivity, as well as qualitative research into soluble salts. An important contribution to stratigraphic analysis came from optical (OM) and electron (SEM-EDS) microscopy. The following remarks, divided up according to the type of sample taken, are intended to make it easier to read the analytical results.

Portico and Main Façade

The mortars are made from fully carbonated lime mixed with silicatic and carbonatic sands. These sands, used for making the plaster, all have the same basic mineralogical composition (quartz, alkaline feldspars, biotite, chlorite and dolomite). The old polymeric-based paint shows signs of the presence of small amounts of bi-hydrated chalk. Basically all the samples prove to be lacking in soluble salts.

Repairing the vaults

The purpose of the diagnostic survey carried out on samples taken from the vaults was to determine the composition of the materials recently used to repair the cracked areas before they were removed and repair work was carried out.

Based on analyses of the samples taken from the patches of cement, two kinds of materials were found:

- hydraulic chalk based stucco and plaster work mixed with lime and sand. The sand is actually a mixture of silicatic and silico-aluminate material;
- lime based plaster. The sands used are a mixture of silicate and silico-aluminate material.

In light of the results given above, it is worth pointing out that none of the samples examined contained any polymers or organic resins. Likewise, there were no

notable quantities of soluble salts.

Vault frescoes

The samples analysed came from three small fragments of the vaults of the Oratorio della Passione.

They were all composed of three layers (from the surface inwards):

- fresco;
- finish;
- plaster.

The surface layer of the fresco is 50 μm thick and was spread over a 3 mm top layer, which in turn covers a layer of plaster. The fresco was spread in two unbroken redish-coloured layers, each an average of 25 μm thick. They have similar compositions, rich in carbonates (mainly calcite) and sulphates (chalk).

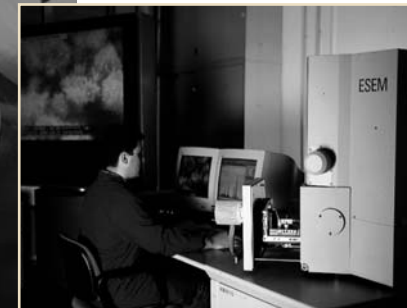
The fresco surface is occasionally darkened by a broken layer of chalk crystals, running perpendicular to the surface itself, and organic material, probably left over from natural polymeric substances, such as poly-saccharides (amides) and/or proteins (egg whites). The finish is made of a hydraulic lime mixed with silicatic inert material, while the plaster work is made of airy aggregate-free lime. ■

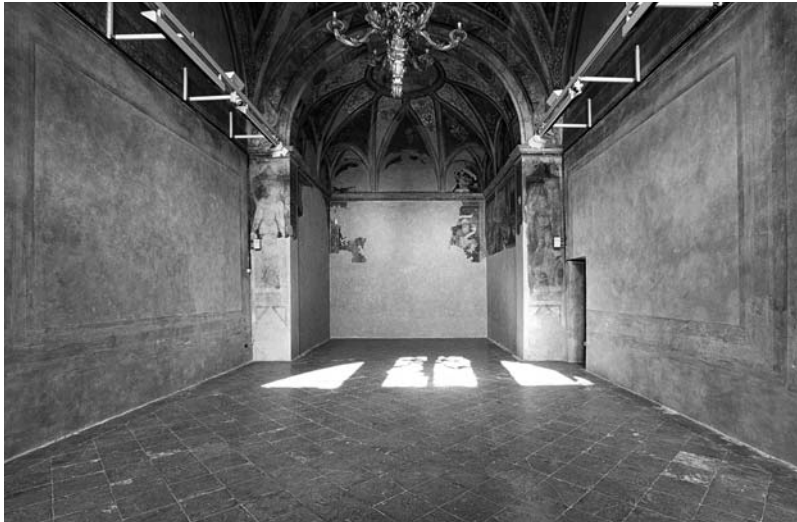
Taking a sample of the tonachino that is flaking off.

*Tiziano Cerulli, Fiorenza Cella,
Anna Bravo*



*“Environmental”
electronic microscope
with FEG source
(ESEM) - Mapei R&D
Laboratories in
Milan.*





Overall view of the hall after repairs.

The restoring of the Oratorio della Passione complex involved the portico (almost all of it) and the frescoed building, except for the apse area. The old frescoes in this latter section (top part of the presbytery) were “brought back in view” by the restoration work carried out by Pelliccioli in the 1960^s. However, here, too a small amount of work has been carried out on the right-hand side corner, where a small amount of saline efflorescence was found between the scene showing Emmaus’s “Disciples” and “The Prophet”, due to an old rain water leak actually repaired years earlier. The colour schemes of the plastered areas beneath the terra-cotta cornice, again in the presbytery, were also revised, after it was found that undocumented alterations had left them a more yellowy shade than in the aforementioned restoration work by Pelliccioli, still perfectly intact in the lunettes of the Angeli della Passione. Even though published literature and careful on-site examinations carried out on the wall surfaces excluded the presence of any remains of iconography that might be traced back to Luini’s school, in any case it was decided to carry out a series of precautionary in-depth stratigraphic surveys as described in the previous chapter. Unfortunately, the work carried out confirmed there were no preparatory drawings or sinopias that might have been saved from the “rips” inflicted in the late 19th century. The surfaces involved in the surveys were basically the four large lunettes in the Hall and, more briefly, the building’s

side walls. The fake façade was not tested, since it was completely altered by Zacchi in the early 20th century. The survey did, however, touch on the walls of the outside portico and main facade.

As mentioned, the stratigraphic surveys carried out did not show any signs of old frescoes or preparatory drawings, so the restoring of the building’s plaster work could proceed normally. The restoration work involved:

1. aisle walls;
2. presbytery;
3. vaults in the hall and surfaces of the arch in front of the apse and relative piers;
4. plaster work on the portico and main facade.

1. Aisle Walls

The tonachino was carefully removed from the aisle walls (two side walls and fake façade wall) and from all around the edge of the presbytery, since there were no signs of any old paint work to protect and the tonachino was damaged, flaking and completely detached from the rendering below. All the plaster work involved in the 20th century painting/decoration was then washed repeatedly, using a rice paper diaphragm as a precaution.

After carrying out the aforementioned operations, the plaster over the floor was all removed over a height of 30-50 cm down to the brick work below. It showed the usual signs of decay due to widespread rising damp that had caused saline efflorescence to form. It is worth mentioning that, even though it would have been better to remove more plaster than was actually the case, it was decided to only remove as much as was absolutely necessary, since a premium was placed on safeguarding as much painted surface as possible, as specified by the Superintendent’s Office.

The solid stone substrate was washed repeatedly with deionised water and sea sponges before applying the plaster made from products from the Mape-Antique Rinzafo range, even though it actually looked in good condition, compact and with no loose bits.

Mape-Antique Rinzafo “salt-resistant” ready-mixed cement-free mortar was then placed on the substrate before preparing

the dehumidifying plaster. After mixing the product with just water (in the given doses), an approximately 5 mm layer was trowelled on.

This thin primer helps the next layer of Mape-Antique MC plaster to bind better, thereby creating a salt-resistant barrier.

After waiting for the Mape-Antique Rinzafo to set (a few hours after applying it), Mape-Antique MC, a sulphate-resistant pozzolanic-reactive dehumidifying mortar containing absolutely no cement, was trowelled on. The total thickness of the plaster once applied is over 2 cm.

The plaster work was given a finishing touch by smoothing it with a float soon after applying the plaster. In certain cases, where the smoothing had to be finer-grained, Mape-Antique FC, a clear-coloured dehumidifying mortar, was applied.

Touching up the colours on the painted sections was carried out in an understated fashion using stable pigments in a low-concentration hydrated casein solution (to ensure the work is reversible), after first adding 5% of a special anti-vegetative product.

The work was basically carried out in three different ways, depending on the type of paint work to be restored and its state of repair:

- smooth, transparent colours were used on the scraped or missing parts in a carefully gauged and understated manner;
- as above, only in more marked tones to make the new plaster work the right colour;
- finally, hatched colours were used for the all painted parts of the metal ring on the arch in front of the apse, as well as those human figures still sufficiently visible on the aisle ceiling.

2. Presbytery

The work carried out on this section was divided into separate stages: first of all, a temporary “thin film” was placed over the painted plaster, previously restored back in the 1960^s, using rice paper (11 g/m²). This operation, carried out before repairing the plaster as described in the previous paragraph, was designed to protect the surfaces from dust or any other dirt suspended in the air naturally forming while the work is in progress.

A small section of painted plaster, where rain water had once seeped in and had therefore already been repaired, was then desalted. All the salts were removed by repeatedly applying deionised water compresses held in a sort of tank formed of a triple layer of absorbent paper; this surface was constantly replaced along with the rice paper diaphragm beneath it, which, before being replaced, was gently dabbed with slightly damp sea sponges to get rid of any salt residue. The touching up of the colours on the painted section mentioned above was carried out as in other similar situations, in an understated fashion using stable pigments in a low-concentration hydrated casein solution (to ensure the work is reversible), after first adding 5% of a special anti-vegetative product. Finally, the sections of plaster with no pictorial-decorative features that had been painted a rather inappropriate straw-yellow colour were painted in the same colours as the flaking samples dating back to Pelliccioli's work, that was also taken as a guideline for the various shades of plaster work in the hall.

3. Vaults in the hall and surfaces of the arch in front of the apse and relative piers

As well as objectively being the most tricky, the work on the hall ceiling also involved the highest number of experts. The pulverulent and flaking sections of paint surface were immediately re-attached properly by applying Vinavil 8020 S vinyl-versatic resin diluted to 3% on a rice paper diaphragm. The product is a vinyl-versatic copolymer in a solution of appropriate solvents chosen to minimise environmental impact and maintain the high penetrative properties of the solution into porous substrates. The polymer's excellent resistance to powerful alkalis means it can be used for making highly effective wall fixatives for "old" or "crumbling" walls. This simultaneously strengthened the substrate and ensured it was absorbed evenly. It is important to point out that the strengthening action does not alter the colour of the substrate in any notable way. In any case, the product can be removed leaving the base unaltered, if need be.

Next the bits of cement were all removed

from the ceiling using special mechanical tools (diamond-edged disks and small hammers and chisels). The skill with which these tools were used meant the desired results were achieved without causing any damage to the original plaster work. As the bits of cement were gradually removed, the damage underneath could be seen: some slight surface marks and a small number of deeper cuts. All the decorticated surfaces were carefully washed with deionised water, natural sponges and soft scrubbing brushes before repairing the masonry on the vaults. Finally, a number of soft plastic tubes were inserted in the cracks and "pockets" that had formed in the detached plaster down to a depth of 10-15 cm. The tubes were set in place using Mapei-Antique MC. The joints between the bricks, bumps and bits of missing plaster were all sealed to stop the grout injected from seeping out.

Having completed this operation, Mapei-Antique Rinzafo and Mapei-Antique MC were applied in the same way described in paragraph 1 of this chapter. Before applying the aforementioned products, the substrates were soaked thoroughly, desalted and cleaned with great care. All the necessary additions were made below-level. The Mapei-Antique MC plaster finishes were carried out by smoothing them with a float shortly after applying the aforementioned product. In some cases, where much finer-grained smoothing was required, Mapei-Antique FC, a clear-coloured fine dehumidifying mortar, was used.

The plastic tubes attached as described above were used to inject Mapei-Antique F21, a superfluid filterised hydraulic cement-free binder, ideal for reinforcing structures made of stone, brick or tuff (even when frescoed). Syringes with just the right-sized needles were used to inject the product. This involved bending the tubes and sealing them with sticky tape to stop the grout from leaking out.

In some cases, for obvious safety reasons, special temporary props were set in place so that the injecting of Mapei-Antique F21 did not cause any bits of frescoed plaster to break off, particularly large bits, before the product had time to set. After injecting the product, all the tubes were removed

and the remaining holes grouted with Mapei-Antique MC and then "smoothed out" with Mapei-Antique FC. The frescoed plaster work was then desalted by repeatedly applying compresses of deionised water, contained and held in a sort of tank formed out of a triple layer of absorbent paper; this layer was frequently replaced after first dabbing the substrate with slightly damp sea sponges to get rid of any residue. Dirt, grease and any "fake" paint were removed by applying a suitable detergent (AB 57 mixed), supported by a triple layer of absorbent paper on the usual diaphragm made of rice paper.

All residual particles were carefully removed by repeated delicate dabbing, also carried out using a protective diaphragm, with deionised water and natural sponges. The panting-colouring was then repaired using tempered fixed colours as described in paragraph 1.

4. Plaster work on the portico and main facade

The last part of the description of the repair work concerns the plaster work on the portico and main façade of the Oratorio della Passione. The plaster was removed down to the masonry underneath for a total of 150-170 cm.

The substrate was washed carefully the next day in order to get rid of any loose or flaking parts and any other organic or inorganic foreign pollutant (soluble salts). The plaster work was reconstructed using Mapei-Antique Rinzafo and Mapei-Antique MC and then "smoothed off" using Mapei-Antique FC, following the same procedures described in paragraph 1.

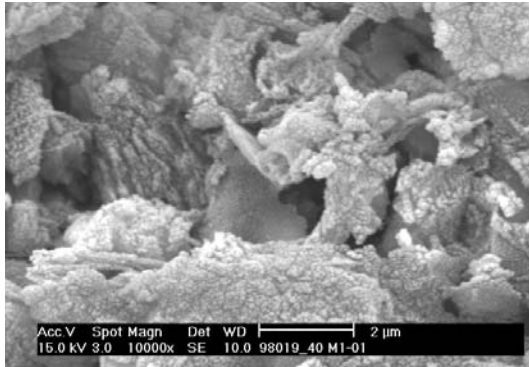
After the Works Management had agreed to the colours, Silancolor Primer, a silicone resin-based insulating primer in water dispersion, was applied to the portico vaults and walls to ensure the substrate absorbed evenly all over. Silancolor Pittura, a silicon resin-based paint in water dispersion that is extremely water-resistant and transpirant, was then applied.

The paint applied was white-coloured with a veiling effect on the vaults, dark beige on the portico walls, and light beige over the entire building façade. ■

Davide Bandera and Marco Cavallini

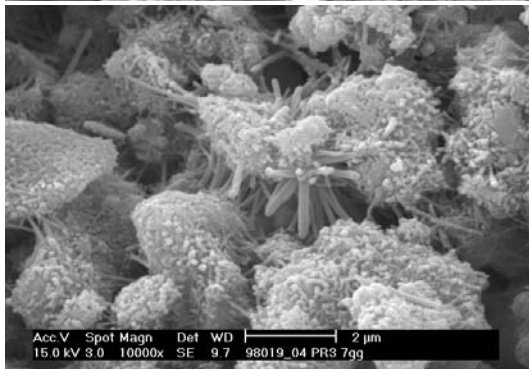
Micro-photograph under an electronic microscope of very old mortar: note the completely carbonated amorphous mass.

(Picture taken at the Mapei R&S Laboratories in Milan).



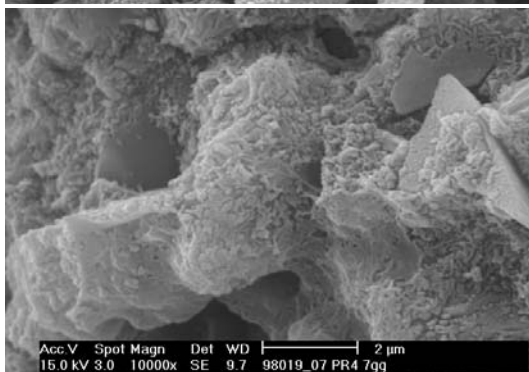
Micro-photograph under an electronic microscope of the hydraulic lime:

You can see the tiny needles of the C-S-H polymer characterising hydraulic binders.

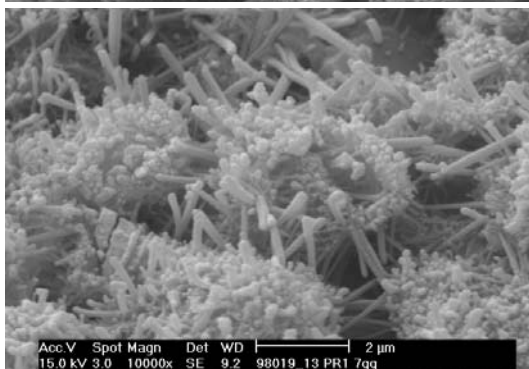


Micro-photograph under an electronic microscope of Mape-Antique after 8 days' ageing:

note the rounded structure typical of a system that has already "stabilised".



Micro-photograph under an electronic microscope of cement: here again you can see the tiny needles of the C-S-H polymer.



Products from the Mape-Antique range are designed for renovating and reinforcing old buildings made of brick, stone and tuff. They stand out from other products on the market since, while maintaining very similar physical-mechanic properties to the original materials, at the same time they have high physical and chemical resistance to aggressive agents found in the environment (acid rain, pollution,

anti-freeze slats, soluble sulphates etc.).

All the products from the Mape-Antique range have the aforementioned properties and, for this very reason, are "delicate" but "durable" materials. Most significantly, the macro-pore structure typical of Mape-Antique products guarantees mechanical resistance (dust-proof surface) and helps the water logged in the masonry to evaporate much more effectively than ordinary mortars, thereby letting the masonry dry without salts forming on the surface (efflorescence).

As regards the binders sued for restoration purposes, the "old-fashioned" mortars made from lime-pozzolana, lime-cocciopesto and hydraulic lime are, generally speaking, sufficiently porous and mechanically compatible with the materials originally used (in terms of mechanical resistance and modulus of elasticity). Nevertheless, these materials may be vulnerable to aggressive agents, including sulphates. In actual fact, the lime found in them remains free and hence potentially reactive for months or even years. This means there may be reactions with the clay found in the sands, sulphates or reactive inert materials, resulting in ettringite and thaumasite forming.

These compounds are present in microscopic form in the swelling of the original material which, notably in the case of thaumasite, may cause the material itself to flake or even turn to pulp. The two phenomena often occur at the same time, although ettringite usually forms before thaumasite.

Ettringite and thaumasite will only form in the simultaneous presence of:

- sulphates;
 - water;
 - free hydrated lime;
 - sources of aluminium and silica like, for instance, clays, volcanic glasses, cement phases and reactive silica-based inert materials.
- The only binder really capable of reducing the amount of free lime after just a day is the Mape-Antique system. Based on what has so far been said about the action of free lime and due to its inherent physical-mechanical properties, the use of this kind of binder as a mortar or plaster to be used for restoring historical buildings can produce results that other systems struggle to attain.

The following provides a brief summary of the key characteristics of products from the Mape-Antique range:

- comparable mechanical resistance to that of ordinary lime or hydraulic lime based ranges, but achieved more quickly than when using airy or hydraulic lime;
- comparable washability to the best lime-based ranges;

chemically speaking, the very low concentration of free hydrate lime after just one day gives the range certain key features:

- excellent resistance to the kind of sulphate attacks typical of pozzolanic systems, which, however, only become "non-reactive" to sulphates after months. The Mape-Antique range is already non-reactive after just a couple of days.;

-the impossibility of alkali-aggregate type reactions occurring in these conditions; this kind of inertia can only be attained using either Portland cement-based systems or lime-based systems after extremely long "ageing" periods;

- the ignorable degree of conductivity, connected with the low level of free lime, restricts or even wipes out any efflorescence. Moreover, the system's stability in terms of size, due to its special chemical composition, may be attained within just a few days. The system's chemical structure is comparable to that of a lime and/or hydraulic lime based binder after years of "ageing".

Overall, mortars manufactured using products from the Mape-Antique range are very similar in colour, mechanical resistance, modulus of elasticity and porosity as the mortars used way back in the past. But compared to these old materials, Mape-Antique based restoration products are so "hardwearing" that they are virtually indestructible chemically and physically speaking in face of various aggressive natural agents.

Finally, we would like to emphasise that products from the Mape-Antique range are more resistant than modern products to rain water, widespread rising damp, sudden changes in temperature and cracks due to structural shrinkage, alkali-aggregate reaction and attacks by sulphur salts, all of which are often found in masonry. ■

Pasquale Zaffaroni and Davide Bandera

RESTORATION SHEET

Oratorio della Passione in Sant'Ambrogio, Milan

REPAIRING THE PLASTER WORK AND RESTORING THE FRESCOES

Client

S. Ambrogio Parish

Project and Restoration Works Management

Arch. Carlo Capponi

Superintendent's Office for the Architectural Heritage and Landscape of Milan

Arch. Libero Corrieri

Surveys

Studio Dielle di Erba

Repair Work

Artecasa srl di Prato

Ediltecno di Roccafranca BS

Restoring the frescoes and wall paintings

Artecasa srl in conjunction with

Prof. Marco Cavallini (Director),

Marco Fiorucci, Beatrice Torcini (Restorers)

Technical Assistance

Davide Bandera

Paola Sala

Pasquale Zaffaroni

We would like to thank

S.E. Mons. Erminio De Scalzi (Parish Abbot)

Mons. Biagio Pizzi (Archpriest of the Basilica)

The Sacro Cuore Nuns

Pinuccia, Enrica, Carla

